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Maps and Renderings as Rhetoric: A Critical Typology for Looking at Visualizations of the Los Angeles River

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Maps and Renderings as Rhetoric:
A Critical Typology for Looking at Visualizations of the Los Angeles River

A dissertation submitted in partial satisfaction of the

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by

Diane Ward

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ABSTRACT OF THE DISSERTATION

Maps and Renderings as Rhetoric:

A Critical Typology for Looking at Visualizations

of the Los Angeles River

by

Diane Ward

Doctor of Philosophy in Geography

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Professor Michael Edward Shin, Chair

This dissertation explores how maps and architectural landscape renderings function as rhetorical devices in support of changing understandings of urban-nature relations. Arguments around these changing relations to urban nature are investigated through a comparison of visual materials, specifically maps and renderings of Los Angeles River projects from the early 20th century through the early 21st century. These materials include engineering maps of flood control infrastructure, diagrammatic maps produced by river advocates, and landscape architectural renderings used in river revitalization master plans. The different qualities of these materials support a shifting social relation to the river, in addition to arguments made for constructing a flood control channel, water conservation infrastructure, or riverfront bicycle paths. I developed an infrastructure typology that delineates three different ways of understanding the role of the

Los Angeles River over time: 1) as primarily a flood control channel, 2) as a multi-purpose channel within a watershed ecology, and 3) as the site of a waterfront linear park running throughout the city. Archival research in the collection of the Friends of the Los Angeles River (FoLAR) papers and semi-structured interviews with several key river revitalization and environmental advocates deepen the understanding of the work that maps did in shifting social relations to the river. Maps and visualizations of the Los Angeles River are chosen because they advocate for substantially different functions of the river (arguing to concretize it for flood control or remove concrete for habitat preservation, for example) prior to any changes on the ground. In this way, visualizations serve as rhetorical devices rather than representations of what is on the ground.

The dissertation of Diane Ward is approved.

Thomas Welch Gillespie

Ursula K. Heise

Glen Michael Macdonald

Michael Edward Shin, Committee Chair

University of California, Los Angeles

2018

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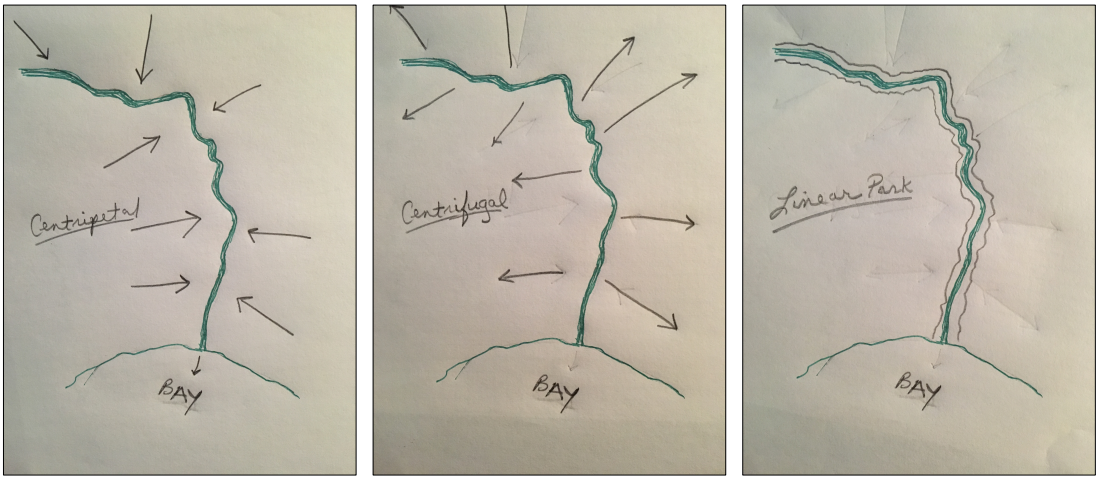


Illustration: Diane Ward, 2018.

I. INTRODUCTION

Problem Statement

River and waterfront revitalization schemes reflect a spatial approach to cities' ecological and economic goals. As a city focuses on ecological transformations, the revitalization of urban waterfronts is essential to a revitalization of cities' downtowns (Hagerman 2007; Checker 2011). While plans for waterfront revitalization travel from city to city through linkages of experts and sharing of expertise (Cook and Ward 2012), each city is a unique case. Specific approaches to revitalization are advanced through maps and other visual materials as they depict the relationship between the natural and built environment, and define and propose solutions to certain problems, while excluding others. Maps, therefore, are not neutral representations but rhetorical texts that argue for, and normalize, specific concepts.

The Los Angeles River presents a unique case. It was channelized primarily for flood control purposes in the 20th century and has represented the epitome of a non-natural "urban river" situated within a world-renowned "freeway city."[1] However, according to the Los Angeles River Revitalization Master Plan (LARRMP), "The Los Angeles River is both a real and symbolic source of life for the City. As such, restoring the River's environmental functions and making it the spine of a stronger green space system are integral to this planning effort" (LARRMP 2007).

My goal is to look systematically at how maps work to change people's views of the river, their sense of their own relationship to it and ultimately what is acceptable and normalized

[1] In the mid-1980s, these two systems of urban flow were put into conversation with one another when a city councilmember introduced the idea of using the river channel as an overflow freeway during rush hour.

regarding the form and infrastructure of a revitalized river. I want to show how maps and visualizations are statements of possibility that can be debated. They are not representations of what is on the ground or of what is the only solution to the most important problem. They are arguments for specific points of view and therefore can be contested. The objects of this study are: the specific mode of visualizing the river (expert maps, hand-drawn maps, landscape architectural renderings); the discourse of the people or institutions most actively promoting a certain role for the river in relation to the surrounding city and its inhabitants; and formal concepts of the river including as a flood control channel, a water conservation project, the site of habitat restoration, open space and recreational amenities, and an economic development opportunity.

The following approaches were taken in studying these objects to extend our understanding of the rhetorical power of maps. First, I developed a typology for understanding visualizations of the Los Angeles River that accompany river revitalization proposals. Secondly, I identified salient discourses over time by analyzing historical maps, discourses and documents produced by river revitalization advocates, and landscape architects' renderings of a revitalized landscape. Next, I examined how maps and renderings address conditions by narrowing the focus to a specific problem (flood control, river access, habitat loss, and so on) and proposing solutions to that problem. This dissertation comprises three stand-alone papers, each exploring a method of visualizing the river, and each reinforcing arguments for specific characteristics of the river as outlined in the typology. By using the Los Angeles River as a study site, my goal is to extend our theoretical approach to maps and visualizations as discursive texts that advance specific ways we understand our shifting relationship to nature in cities.

Significance

A variety of plans have addressed flood control in Los Angeles during the twentieth and early twenty-first centuries. An early plan for a watershed-wide solution incorporating a regional system of parks and parkways (Olmsted-Bartholomew 1930) was put aside in favor of a technological approach to flood control. This approach resulted in concretization of the entire length of the river channel. Revitalization of the river for economic, cultural, and ecological benefit has gained support since the 1980s among civic and government interests. Visualizations of the river, from textual descriptions of it as moribund and neglected to line drawings of a restored lush riparian landscape, have been used to argue what the essence of the river is, regardless of its present state. Using visualizations of river projects, this research analyzes how visualizations do rhetorical work to argue for specific forms of the river, for specific relations to the watershed, and for how – and to what ends – society can construct a socio-natural river in Los Angeles.

Nineteenth- and twentieth-century American cities typically developed riverfront land as piers, commercial buildings, and streets were linked in a network with urban rivers as the center of commerce, transportation (including railroads), shipbuilding, and commercial fishing. When rail transportation eclipsed water transportation, downtowns moved away from waterfronts that became sites of concentrated industrial and commercial use. In the first half of the 20th century, elevated highways and water sewage treatment plants were sited along industrialized urban riverfronts. To protect downtowns from flooding, projects that dramatically altered waterfronts by straightening and deepening channels, removing vegetation, and constructing floodwalls were undertaken, many overseen by the United States Army Corps of Engineers (Otto et. al., pg. 2004).

By the 1950s, many urban rivers had been effectively cut off from their floodplains. Technological shifts toward freight containerization and larger tanker and freighter sizes requiring deeper ports, the growing use of aircraft and private automobiles for transportation, and the increase of commercial deep-sea fishing all lead to the decline of ports. City-based heavy industry began to shut down riverfront industrial operations or move them to suburban and rural sites accessible by highways. Abandoned riverfront property was cheap and became the site of highways that deepened the separation of cities from their rivers (Breen and Rigby 1994; Otto et al., 2004). By the 1970s, many cities including San Antonio, Baltimore, Boston, and Toronto, began redevelopment projects along riverfronts promoting public recreation, housing, office and retail uses. Urban riverfronts in other cities – Los Angeles among them – waited decades for land used for parking lots and rail, storage, and scrap yards to become available for redevelopment (Otto et al., 2004).

Revitalizing urban rivers as a strategy to address environmental concerns, identify urban land for new development, and attract global capital, has increased. Revitalization advocates admonish cities who have “turned their backs on their rivers" (Gore, 1997; Kotval and Mullin, 2001; MacEachern, 2014). Until the middle of the twentieth century, urban rivers were relied on as sources of potable water and conduits for polluted urban runoff. Urban rivers became cultural symbols of society’s reliance on and, frequently, mastery over nature. Ecological revitalization of urban rivers sprang from the recognition that industrial activity of the late 19th and early 20th centuries left urban rivers and waterfronts overburdened with toxic pollution. In the United States, a major catalyst for policy change occurred in 1969 when Ohio's Cuyahoga River caught fire. This event influenced the 1973 Federal Clean Water Act’s passage in the context of the

newly-established United States Environmental Protection Agency in 1970 (https://www.epa.gov/laws-regulations/history-clean-water-act).

Literature

Cities seek to revitalize urban rivers to address brownfield sites of industrial and railway activities that no longer play a significant role in post-industrial urban areas. Urban river revitalization projects involve urban planners, scientists, engineers, landscape architects, government entities at multiple levels, and concerned citizens and environmentalists. Hydrologically and culturally, urban rivers mediate between rural and urban, the natural world and the built environment, and play a role in producing socio-natures, how society and nature together produce hybrid landscapes (Desfor, 2010; Swyngedouw, 2004; Kaika, 2005). Scholarship on urban water has addressed: development of water technologies and their importance in the production of modern urban nature (Gandy 2003); cultural and material significance of water in cities in the global north and south (Gandy 2014); urban rivers' role in reforming social relations between institutions and civil society (Desfor and Keil 2004); water and environmental policy making (Cook and Ward 2012); urban water and privatization under capitalist regimes (Bakker 2010); post-industrial urban waterfront revitalization as an economic strategy to attract global flows of capital (Dovey 2005); technological expertise and management of urban runoff and flood control (Karvonen 2011; Orsi 2004); and water and unequal power relations in urban sustainability regimes (Swyngedouw 2004).

Technological infrastructure projects constructed from the early 1800s through the mid-1970s – the modernist period – was typically buried, concealing visual connections between cities and surrounding natural resources. When this infrastructure broke down, it became visible

(i.e., broken water mains), and challenged assumptions about rationalized and sustainable mastery over nature (Kaika, 2005). Growing populations and flooding in Los Angeles prompted the concretization of the Los Angeles River, transforming its function into a flood control channel. The United States Army Corps of Engineers and the Los Angeles County Flood Control District produced maps that defined flooding as a problem and then proposed to concretize the river as the solution. Unlike much infrastructure, however, the concretized river was never hidden from sight but became an object to be debated in terms of its cultural, economic, and ecological value.

Tourist maps as diagrams can help alleviate anxiety and fear of unknown places (Lynch, 1960), and work to produce physical destination spaces at the same time as they engage in its social construction – identity, memory, marketing (Del Casino and Hanna, 2006). Kitchin et al. (2013) show that tourist mappings are always ongoing. Maps that were produced by river revitalization advocates beginning in the 1990s are analyzed as tourist maps that work to construct a new reality for the river (Farías, 2011), making a dangerous and strange place seem familiar and accessible.

Urban sustainability thought and practice is co-constituted by two distinct representational forms (Wachsmuth & Angelo, 2018). They are gray urban nature, or technological urban spaces such as dense urban cores or energy-efficient buildings that are inherently sustainable; and green urban nature, or the greening of postindustrial landscapes through projects such as street trees and urban gardens. This approach to analyzing assumptions about environmentally sustainable urban characteristics is used to analyze the visualization of Los Angeles River revitalization to understand assumptions and goals.

Kondolf & Pinto have proposed the adaptation of the concepts of geomorphic, hydrological, and ecological connectivity to define social connectivity. They apply longitudinal, lateral, and vertical dimensions of connectivity in the hydrologic cycle to describe the communication of ideas, goods, and culture along and across urban rivers (Kondolf & Pinto, 2016, p. 182), addressing the concept of a hydrosocial cycle proposed by Swyngedouw (2015). This social and cultural application of connectivity from the environmental science literature is applied in this research to visualizations in plans for Los Angeles River revitalization that produce a greenway and linear park.

Methods

I analyze maps as rhetorical texts. They are cultural texts (Harley, p. 2001) and construct meaning by employing conventions of sign systems. Methods include discourse analysis of maps and other visual materials, archival research in the collection of the Friends of the Los Angeles River (FoLAR) papers, and semi-structured interviews with several key river revitalization and environmental advocates to deepen the understanding of the intention behind using maps as tools to shift social relations to the river. In the first comparative map analysis of engineer- and expert-produced maps promoting infrastructural flood control solutions, I seek to establish how maps of the Los Angeles River can be "read" as texts that make specific arguments. I use Wood and Fels' (1992) cartographic codes that operate within the map at the level of language to show how expert maps seek to advance the construction of a concrete flood control channel. In the second analysis, of hand-drawn maps of clean-up and recreation sites along the river, I examine the progression of maps used by environmental and river revitalization advocates. Here, I apply Farías theoretical approach to tourist maps to show how hand-drawn maps made by activists

function as diagrams to produce destination sites along the river as virtual structures apart from what is on the ground. Finally, in the third analysis, I examine a progression of maps, renderings, and landscape architects' visualizations of a revitalized river and its relation to recreational and social activities. I use Wachsmuth and Angelo's (2018) framework regarding the aesthetic function of green and gray urban natures in ways that signal urban sustainability. I analyze the relationship between representations of urban natures and their intersection with social life found in maps and landscape architectural renderings of the river in regional master plans for river revitalization.

I developed a 3-part typology for analyzing the visualizations that accompany proposals, plans, and arguments for specific river construction and revitalization projects – textual, maps, renderings – of the Los Angeles River as observed and as imagined that do work to promote arguments for specific revitalization schemes (Table 1). The centripetal infrastructure type refers to a largely single-purpose river system with its chief focus on the river as a flood control channel, designed by engineers as a system to channel runoff and drainage toward the center, the river, and out toward the ocean. The centrifugal type refers to a system in which the river is at the center and envisioned as a body of water that extends outward into the entire watershed. Its function is multi-purpose including water reclamation, ground water replenishment, and recreational and cultural functions, in addition to flood control. The linear park type is focused on the channel and riverfront land use as a multi-purpose transportation, recreation, and economic development corridor.

INFRASTRUCTURE TYPOLOGY	CHARACTERISTICS	INFLUENCES	MAJOR FUNCTION
CENTRIPETAL	• Single purpose channel • Water is chiefly runoff • Elements of system (check dams, debris basins) are not connected to river but function to prevent water from overwhelming the channel • Efficient and effective flood control, pavement in basin directs water to ocean • Public is excluded	History of flooding and flood damage; increased density of urban development; switch to other water sources	Flood control channel
CENTRIFUGAL	• Multi-purpose channel and river's expanded extent as part of watershed • Water is resource to be conserved and recycled • Somewhat restored watershed system • Permeable pavement and water conservation elements designed to recharge and capture rainwater and runoff before it reaches the channel • Watershed approach alongside maintained function of flood control channel • Enlists public in clean-ups, tours, biking, cultural activities	Clean Water Act; Habitat loss; Social justice deficit and unequal access to parks and open space; changing water supply agreements among Western states; address ecological consequences of Los Angeles Aqueduct	River is center of watershed approach for conservation, recycling and ground water recharge
LINEAR PARK	• Multi-purpose channel • Water is ecological, economic, cultural, and recreational benefit • Waterfront development projects provide natural vistas, parks, and recreational activities for private (or public?) use • Alternative transportation corridor (biking), recreational & open space opportunity; aesthetic qualities enhanced; maintains flood control channel function • Enlists public for cultural legitimacy of river; developers for economic legitimacy	Calls for social and environmental justice; transportation changes (less rail and auto, more large container shipping, public transportation, bicycle infrastructure); economic redevelopment	River is center of unified city, providing ecological, economic, cultural, and recreational benefits

Table 1 – Typology of Los Angeles River conceptualized over time

Each of these three categorical types is addressed in separate papers. The visual materials are addressed chronologically, according to when they were created, to facilitate comparison of the arguments they promote regarding the river's function, and the formal aspects of how the river is represented. I examine maps, drawings, architectural renderings, textual descriptions, meeting notes, newsletters, press releases, and correspondence. I conducted interviews with key people involved in Los Angeles River advocacy since the 1990s.

The centripetal concept is applied to maps produced primarily during the first half of the 20th century by surveyors and engineers, experts with an interest in the river. The maps were chosen because they were produced following major flooding events. They make arguments that nature, in the form of an unpredictable river, is a problem that needs to be addressed. They also propose solutions to this problem of nature. These maps cover the period from 1884 through 1948, the time when the river was channelized.

The centrifugal concept is applied to hand-drawn maps produced during the 1980s to the early 2000s by advocates for river revitalization. The hand-drawn maps make use of the authority of maps to represent what is on the ground. Both in form and content, they contest earlier expert-produced maps of technological infrastructural projects whose approaches advocates sought to discredit. The advocates' maps were intended to educate people about the river as part of a watershed-wide system. They depict a river that it is accessible, safe, and has natural qualities that need to be preserved. These maps were produced during the period of 1990 through 2014.

The chapter on the linear park type looks at a progression of comprehensive plans for parkways, greenways, and ecosystem restoration projects beginning in the 1930s with the rejected Olmsted-Bartholomew parkway plan, and includes various masterplans for river

revitalization in Los Angeles. These plans include renderings that propose a river corridor with opportunities for economic, cultural, and social development.

Goal of Dissertation

Using maps and visual renderings of the Los Angeles River over time, this dissertation seeks to demonstrate how visualizations of revitalization proposals made specific arguments for the river's function prior to any transformations on the ground. It analyzes these visual materials as critical rhetorical devices that argue for distinct concepts of the river. I want to extend the understanding of how maps and visualizations are not simply representations of what's on the ground, but statements of possibility that can be debated and contested. In defining specific problems and proposing ways to address them, I show how they work to normalize some types of relations between humans and urban nature, while leaving others unexamined. This dissertation makes a contribution to critical cartographic studies by comparatively examining maps as rhetorical devices over time. It extends the theoretical understanding of the 'power of maps' to show how they and other visual rhetorical materials work to shift people's understanding of themselves in relation to the natural resources.

References

Bakker, K. (2010). *Privatizing water: governance failure and the world's urban water crisis* (Kindle version). Cornell University Press. Retrieved from Amazon.com.

Breen, A., & Rigby, D. (1994). *Waterfronts: Cities reclaim their edge*. McGraw-Hill Companies.

Checker, M. (2011). Wiped out by the "greenwave": Environmental gentrification and the paradoxical politics of urban sustainability. *City & Society*, *23*(2), 210-229.

Cook, I. R., & Ward, K. (2012). Relational Comparisons: The Assembling of Cleveland's Waterfront Plan. *Urban Geography*, *33*(6), 774–795. http://doi.org/10.2747/0272-3638.33.6.774

Del Casino, V. J., & Hanna, S. P. (2006). Beyond the 'binaries': A methodological intervention for interrogating maps as representational practices. *ACME: An International E-Journal for Critical Geographies*, *4*(1), 34-56.

Desfor, G., & Keil, R. (2004). *Nature and the city: making environmental policy in Toronto and Los Angeles.* University of Arizona Press.

Desfor, G., (2010). Deep water and good land: Socio-nature and Toronto's changing industrial waterfront. In Desfor, G., Laidley, J., Stevens, Q., & Schubert, D. (Eds.), *Transforming urban waterfronts: fixity and flow*. Routledge.

Dovey, K. (2005). *Fluid city: transforming Melbourne's urban waterfront*. Psychology Press.

Farías, I. (2011). Tourist maps as diagrams of destination space. *Space and Culture 14*(4), 398-414.

Gandy, M. (2003). *Concrete and clay: reworking nature in New York City.* MIT Press.

Gandy, M. (2014). *The fabric of space: Water, modernity, and the urban imagination.* MIT Press.

Gore, Al. (1997). Foreword. In Cronin, J., Kennedy, R., & Kennedy, R. F. (1999). *The Riverkeepers: Two activists fight to reclaim our environment as a basic human right*. Simon and Schuster.

Hagerman, C. (2007). Shaping neighborhoods and nature: Urban political ecologies of urban waterfront transformations in Portland, Oregon. *Cities*, *24*(4), 285-297.

Harley, J. B. (2002). *The new nature of maps. essays in the history of cartography* (No. 2002). JHU Press.

Kaika, M. (2005). *City of flows: Modernity, nature, and the city*. Psychology Press.

Karvonen, A. (2011). *Politics of urban runoff: nature, technology, and the sustainable city*. MIT Press.

Kitchin, R., Gleeson, J., & Dodge, M. (2013). Unfolding mapping practices: a new epistemology for cartography. *Transactions of the Institute of British Geographers, 38*(3), 480-496.

Kondolf, G. M., & Pinto, P. J. (2017). The social connectivity of urban rivers. *Geomorphology, 277*, 182-196.

Kotval, Z., & Mullin, J. (2001). Waterfront planning as a strategic incentive to downtown enhancement and livability. *Downtowns, Revitalizing the Centers of Small Urban Communities*, 179-196.

LARRMP. Los Angeles River Revitalization Master Plan. (2007). City of Los Angeles, Department of Public Works, Bureau of Engineering.

Lynch, K. (1960). *The image of the city* (Vol. 11). MIT Press.

MacEachern, Doug. (2014, March 29). "Canals: Why would a desert city turn its back on them?" *The Arizona Republic*. Accessed at

http://www.azcentral.com/story/dougmaceachern/2014/03/29/canals-vision-future/7019263/

Olmsted Brothers, and Bartholomew and Associates. (1930). *Parks, Playgrounds, and Beaches for the Los Angeles Region.*

Orsi, J. (2004). *Hazardous metropolis: flooding and urban ecology in Los Angeles*. University of California Press.

Otto, B., McCormick, K., and Leccese, M. (2004). Ecological riverfront design. American Planning Association.

Swyngedouw, E. (2015). *Liquid power: Contested hydro-modernities in twentieth-century Spain*. MIT Press.

Swyngedouw, E. (2004). *Social power and the urbanization of water: flows of power*. Oxford: Oxford University Press.

History of clean water act. (1970). United States Environmental Protection Agency. Retrieved from (https://www.epa.gov/laws-regulations/history-clean-water-act

Wachsmuth, David, and Hillary Angelo. "Green and gray: New ideologies of nature in urban sustainability policy." *Annals of the American Association of Geographers* (2018): 1-19.

Wood, D., & Fels, J. (1992). *The power of maps*. Guilford Press.

II. Constructing a centripetal river: Flood control and drainage maps as visual discourse

Introduction

This paper analyzes how visual materials in early 20th century discourses were used to promote infrastructural approaches to the transformation of the Los Angeles River. It looks at how these materials advanced the argument that nature is a problem needing to be solved, and proposed solutions to this problem. Following flood events in 1914 and the 1930s, experts and officials responsible for flood control used maps to support arguments for the transformation of the Los Angeles River into a primarily single-function flood control project. By the 1980s, this single-function solution was rejected by river restoration advocates who formulated a multi-function, watershed-wide approach.

I propose a three-part typology for looking at the Los Angeles River over time: the centripetal model, in which runoff is directed toward the river at the center of a system designed primarily for flood control; the centrifugal model, in which the river is a component of a multi-purpose, watershed wide system; and the linear park model, which envisions the river and adjacent land as an economic, transportation, and recreation corridor. These succeeding visions, described using this typology, build upon one another. This paper focuses on the centripetal river, characterized by a single-purpose, infrastructural approach to flood control in which runoff and storm water is directed toward the center and flooding is confined to the channel. Two subsequent papers analyze visual materials using the centrifugal and linear park types.

Maps and other visual materials serve as evidence for conditions contributing to past and future flooding; they also present solutions by proposing large infrastructural projects. By looking critically at how the successful functional and symbolic transformation of the river into a flood control channel was accomplished *on the map* prior to be enacted *on the ground*, this research shows the rhetorical role visualizations played in discourses around large infrastructural solutions to flood control in Los Angeles. Kaika (2005) has shown that urban infrastructure constructed in the modern period (early 1800s to mid-1970s) was typically buried or otherwise hidden away. The transformation of the Los Angeles River into flood control infrastructure presents a different case. The river/channel never "disappeared" but was transformed in plain sight, first on the map and then on the ground. Today, calls for further transformation are bolstered by visualizations in maps, drawings, and landscape architectural renderings.

A critical examination of how visual materials were used to make arguments in these earlier discourses can reveal the ways that present-day visualizations function to promote a different river that is integrated into a watershed system of flood control, conservation, and recreational opportunities. Approaches to revitalization in the early 21st century, including those that challenge path dependencies dictated by earlier development (Gandy 2014, p. 16), strive to throw off earlier cultural concepts of the Los Angeles River, even while preserving the river's infrastructure, particularly its flood control function.

Framework

The visible water infrastructure in Los Angeles is iconic. As one travels north on Interstate 5, just to the right of the freeway, the Los Angeles Aqueduct crests over the hills carrying water from Mono Lake and Owens Valley. Water comes in, people and goods travel in

and out. There is also an extensive *in*visible infrastructural network that remains hidden until it fails to function. For example, following a 1988 oil pipeline rupture beneath Ventura Boulevard in Encino, a *Los Angeles Times* articles noted that "[s]tatistics for the underground can be mind-numbing: 15,000 miles of natural gas lines, 8 million miles of telephone wires, 3,000 miles of sewers, hundreds of miles of storm drains and more than 50,000 manholes. But there is much more, including nine oil company pipelines, water lines large enough to accommodate a car and a cavernous natural gas storage facility that holds tens of billions of cubic feet of fuel" (Lustig, 1989).

Los Angeles' own massive water infrastructural object is the Los Angeles River. Functionally and symbolically, it is both visible (a massive concrete channel) and invisible (its riparian, riverine qualities are almost always hidden). It was transformed from a river into flood control infrastructure over the first half of the 20th century. This transformation was accomplished during the period when the city engineered itself first into an agricultural powerhouse (primarily citrus) and then into a vital aerospace industry center, at the same time developing infrastructure to bring water to the region and to safeguard against costly flooding. Later, in the 1980s, advocates for environmental restoration of the river would envision Los Angeles as a leader among sustainable cities engaged in water infrastructure transformation including habitat restoration, water conservation, groundwater recharge, and reclamation of runoff. Officials, business leaders, and others believe this transformation is possible through technological solutions that would not disrupt continued economic growth (Pincetl, 2012; Lalasz, Kareiva, and Marvier, 2011; Kareiva, Lalasz, and Marvier, 2012; Kareiva and Marvier, 2012).

Infrastructure and water are closely connected in technical approaches to urban resource provision (Gandy 2014, p. 2). Water was central to explaining the modern world through it role

in health, hygiene, and modernization projects that sought to 'tame' water by restraining it, delivering it on demand, and moving runoff and storm water away from cities (Karvonen, 2011; Gandy 2014). Hidden urban technological infrastructure enabled a vision of cities free from any apparent connection to nature. This "Promethean Project" in which engineers and technical experts took on the role of reworking nature for human ends (Karvonen, 2011, p. 200, nn 11) resulted in complex solutions to resource provision that included infrastructural networks (pipes, cables, connections) hidden from sight. When this hidden infrastructure is exposed (through broken pipes, polluted water) it poses a challenge to the modernist idea of a clean and managed city (Kaika, 2005).

Twentieth-century infrastructural projects made connections between nature and society seem insignificant since natural resources were easily accessed although "nature" was largely absent. In 1930s Los Angeles, the development path not taken has been well documented: the Bartholomew-Olmsted design for an extensive greenway that included Los Angeles riverfront property was rejected by business interests and, subsequently, the proposal itself and its vision for Los Angeles was largely forgotten (Hise and Deverell, 2000). Flood control policy constraints and technological solutions shut down potential connections between water, democratic deliberation, and the public realm (Gandy, 2014, p. 16), and reflected the turn away from protecting land for public use and toward the defense of land for private investment.

Los Angeles River flooding and property damage increased along with the region's population density (Table 2). The Los Angeles Aqueduct, completed in 1913, normalized the idea of huge water infrastructure projects. The 1914 flood was a catalyst for channelization (although floods of 1862, 1884 and 1889 were more intense, property loss was not as great) including a proposal by the L.A. district attorney that the Los Angeles River be diverted into a

Year (population)	Maps (this research)	Significant event(s)
1781		Pueblo de Los Angeles established
1815-1825		Pueblo plaza washed away, LA River changes course, empties into Ballona Creek; 1825 flood cuts new path to San Pedro Bay
1850 (3,530)		Major flooding, 1851-52
1855-59		Lower than average rainfall (1855-58); Flooding (1859)
1860 (11,333)		Major flooding (1861-62)
1863-64		Severe drought
1867		LA River overflows banks forming temporary lake out to Ballona Creek
1870 (15,309)		Dry period, rainfall 30% of mean (1879 –1883)
1876		Southern Pacific Railroad line opens from San Francisco to Los Angeles
1880 (33,381)		
1884	*Map of the property of R. Nadeau in the Rancho San Antonio, December 1884*	Major flood events: 1884, 1885, 1886, 1889
1887	*Plot of M. E. Hodgkin's Lot, August 1887*	
1890 (101,454)		Seasonal rainfall below normal (1890-1900)
1892		Angeles National Forest established for watershed protection/ improvement of water flow
1900 (170,298) **1910 (540,131)**		Owens Valley Aqueduct opens (1913); historic bridges built, levees constructed along one-third of river (1910-1933)
1914	*Map of a Portion of Los Angeles County*	Major LA River flood event (El Niño year); Panama Canal opens
1915		LA County Flood Control District established; James R. Reagan issues report (downstream solutions) in opposition to other County flood control engineers (favor addressing flood waters upstream)
1917	*The Map Showing General Location of Channels and Works for Flood Regulation*	
1920 (936,455)		Devil's Gate, first dam built by LA County Flood Control District; Flood control construction moves mouth of the river one mile east
1930 (2,208,492)		First spreading grounds constructed; Groundwater levels dropping by 2-20 feet per year
1931	*Comprehensive plan for flood control & conservation: general features*	First Comprehensive Plan for Control & Conservation of Flood Waters calling for debris basins, concrete & rock lined channels, storm drains, spreading grounds, soil erosion control
1934		Flooding causes 40 deaths in La Crescenta area
1935		Emergency Relief Act of 1935; Construction of storm drains & debris basins
1936		Flood Control Act of 1936 redefines Army Corps of Engineers (ACOE) role from emergency relief to flood control
1938	*Map of Types of Channel Improvement Prior to 1938 flood, LA River*	Flooding causes 49 deaths in LA County; Flood Control Act of 1938 authorizes ACOE to prepare plan for LA County Drainage Area

1939		Completed: 14 dams, several debris basins to control flooding & debris downstream
1940 (2,785,643)		Freeway in LA River bed proposed
1941		Los Angeles County Drainage Area (LACDA) project funded by Congress; dams and flood control basins, 31 tributary canyon debris basins, 93 miles main channel, 147 miles of tributary channel completed
1948	*Comprehensive plan, control and conservation of flood waters*	
1950 (4,151,687)		

Table 2: Timeline of Los Angeles River development. (Sources: U.S. Census Bureau (Gibson, 1998); *Los Angeles Almanac*, 2017; Los Angeles River Master Plan, 1996; Los Angeles River Revitalization Master Plan, 2007; "Historical Background" on RIVERLA website; Gumprecht, 2001).

straightened, official channel (Gumprecht, 2001, p. 178). Accordingly, the California State legislature passed the Enabling Act that led to the creation of the Los Angeles County Flood Control District in 1915. Rapid urbanization in the 1920s, and the 1934 New Year's Day flood resulted in New Deal agencies (the Works Project and the Federal Emergency Relief Administrations) funding flood control projects. By 1936, the Federal Flood Control Act required the Army Corps of Engineers (ACOE) to direct all flood control work in Los Angeles County (Turhollow, 1975, p. 10).

The 51-mile long Los Angeles River was straightened, deepened, and almost completely lined with reinforced concrete by 1960. Since the late 1930s, the ACOE (in cooperation with the Los Angeles County Flood Control District [LACFCD]) approached flood control by stabilizing natural channels for rapid drainage, building basins to collect debris at canyon mouths, and building basins in the upper drainage system to regulate downstream flow by containing peak discharge (Turhollow, 1975, p. 170). Concrete-lined channels were designed to address the high-velocity runoff from steep mountain slopes and convey runoff quickly to the port. While growing development increased the run-off area (more roofs, paved streets and sidewalks), the absorption area decreased (Ford, 1920). Turhollow (1975) refers to the resulting channels as "new" rivers (p. 187). Though basins designed for temporary storage could also conserve water, a portion of

which can be diverted to spreading grounds to replenish groundwater, the goal of channelization was always a single-purpose flood control project (Turhollow, 1975, p. 242).[2]

Academic studies of the Los Angeles River have focused on its possible function in a sustainable city (Wolch, 2007), its symbolic significance in urban place-making (Ralston, 2005), on technology and urban flood control (Orsi, 2004), on social formation and environmental policy (Keil and Desfor, 2003), on ecological modernization (Desfor and Keil, 2004), on artists' role in promoting the river (Arroyo, 2010), and on its history, broadly (Gumprecht, 2001). None of these studies have cast a critical eye on the work that maps and other visual materials did to promote and normalize the river as a central channel for flood control. They have not addressed maps as texts that have made arguments (Harley, 2001) but have used maps to support their individual theses. For example, Orsi (2004) reproduces many photographs documenting conditions along the river and in the basin. Any maps, however, were created especially for the book to illustrate Orsi's arguments. Hise and Deverell (2000) present the Bartholomew-Olmsted plan in its entirety but do not focus on how the visual elements advance an argument for the proposed series of parkways.

I devised a three-part infrastructural typology for Los Angeles River conceptualizations. The categories are centripetal, centrifugal, and linear park. They proceed chronologically (1880s-2010) and include characteristics of the infrastructure, influences on the choice of the infrastructural solutions, and the major function sought through these solutions. This paper addresses maps that support the first typology (Table 3) in which the goal is to transform the river into a centripetal infrastructural project, meaning all storm and urban runoff is directed

[2] After the single-purpose project was completed, modifications were periodically authorized by Congress, including reservoirs to supply releases for downstream spreading (Turhollow, 1975, p. 244).

toward the river as the center and the watershed is engineered with the river as a flood control channel (conservation and ground water recharge are secondary to this).

Infrastructure Typology	Characteristics	Influences	Major function
Centripetal	• Single purpose channel • Water is chiefly runoff • Elements of system (check dams, debris basins) are not connected to river but function to prevent water from overwhelming the channel • Efficient and effective flood control, pavement in basin directs water to ocean • Public is excluded	History of flooding and flood damage; increased density of urban development; switch to other water sources	Flood control channel

Table 3: Centripetal infrastructure typology

Methodology

Discourse constructs a shared way of understanding the world; it constructs meanings and relationships and defines what interactions and actions are appropriate. Embedded in language, it employs particular knowledge, vocabulary, and ways of addressing the world to produce coherent stories or accounts. Each discourse is legitimized through agreed upon ideas that provide the basic terms for analysis and debates (Dryzek, 2013). Discourse determines how the world is understood through all the institutions that produce and circulate it (Rose, 2007). Visuality is also a sort of discourse and includes maps and architectural renderings and plans. Maps, as texts, are cultural artifacts that are encoded with meaning and signification.

Mapmakers present arguments by creating maps that selectively show (and leave out) signs, aspects, and words (Wood and Fels, 1992, p. 1). Maps do not reproduce reality – they are not a reflection of what is found "on the ground" – but make arguments about the world in the same way that writing about landscapes conveys real or imagined worlds (Barnes & Duncan,

2013, p. xiii). The arguments made by maps are actualized within a particular discursive field and assume prior knowledge (Barnes and Duncan, 2013).

I analyze maps as rhetorical texts that employ conventions of sign systems to construct meaning. In this way they are cultural texts (Harley, 2001) and "problems to be explained" (Mitchell, 1986). I agree with Harley (2001) that "All maps are rhetorical texts . . . [that] frame their message in the context of an audience . . . state an argument about the world and they are propositional in nature" (p. 163). Each step in mapmaking offers the opportunity to advance an argument about the world and a vision of the way the world ought to work. This agenda is aided by intertextuality, or the meanings of symbols and texts that are linked to the map and reinforce the mapmakers' intent. The term intertextuality describes the way meanings of one discursive image or text depend on that one text or image but also on meanings carried by other images or texts (Rose, 2007, p. 142).

Maps are never fully formed but emerge through practices; they are contingent, relational and context-dependent, a "set of points, lines and [colors] that takes form as, and is understood as, a map through mapping practices" (Kitchin & Dodge 2007, p. 335). These practices are based on learned knowledge and skills. Each time skills and knowledge are engaged with the coded messages that are "maps," they are used to interpret and translate the codes in an ongoing, always-mapping process (Kitchin & Dodge, 2007, 331). Constructing a map that advances a view of the world requires a series of steps: selection, omission, simplification, classification, the creation of hierarchies, and "symbolization" (Harley, 2001, p. 163). The maps analyzed here illustrate specific proposals for transforming the Los Angeles River system into a flood control channel in response to flooding and increasing urban density. Some of these maps rely on

intertextuality to clarify or support the call for funding channelization projects; several argue that the proposed projects as presented are the best – or only – solution to taming the river.

The procedure followed in this study is: I identified 7 maps representing the Los Angeles River and its watershed (Table 4) that are examples of those produced during the 1880s, before the systematic concretization of the river was undertaken, through 1950, the beginning of the last decade when channelization was still being completed. These maps were produced by officials and engineers in reaction to flood events. They are part of the narrative that first constructed an "official channel" for the Los Angeles River (on property maps of early ranchos) and eventually led to a small but persistent stream running, most times, only through the low-flow channel at the center of the concrete flood channel.

Maps: Significance for the Research	1. *Map of the property of R. Nadeau in the Rancho San Antonio, December 1884*	2. *Plat of M. E. Hodgkin's Lot, August 1887*	3. *The Map Showing General Location of Channels and Works for Flood Regulation*	4. *Comprehensive plan for flood control & conservation: general features / Los Angeles County Flood Control District*	5. *Map of Types of Channel Improvement Prior to 1938 flood, LA River*	6. *Comprehensive plan, control and conservation of flood waters / Los Angeles County Flood Control District, Hedger, Chief Engineer*	7. *Map of a portion of Los Angeles County*
Year	1884	1887	1917	1931	1938	1948	1914-1917
Map purpose	Surveyor's map	Surveyor's map	Component of LA County Flood Control District report	Component of LA County Flood Control District Comprehensive Plan	US Army Corps of Engineers report on LA River channel improvement	Component of LA County Flood Control District Comprehensive Plan	Unknown provenance, proposes channel diversion
How chosen	Catalog search of historical maps	Catalog search of historical maps	Search in Haynes Foundation records at UCLA Special Collections	Search in UCLA Special Collections and in LA County Flood Control District archives	Catalog search of California State University Northridge map and Special Collections	Search of UCLA Young Research Library's map collection	Search of physical maps, UCLA Special Collections
Why chosen	Shows relation of private agricultural land use, rail roads, and L.A. River	Shows shift in importance of rail roads in relation to river	Following 1914 flood, shows flood regulation projects proposed in Engineer Reagan's report	One of a series of significant maps quantifying conditions for flood control projects and their anticipated results	Following 1938 flood, shows engineering projects to address flooding sites on LA River	Post World War II map shows flood control as cooperative project among bureaucratic agencies	Following 1914 flood, shows effects of past flood events, and anticipated effects of future events
Representation of river and related or contextual elements	River comprises channel, levees, and areas of overflow	River channel boundaries are straightened, center line and edges indicated	Flood control system as series of secured, or not yet secured, free easements for official channels	River as central object of flood control planning	River as series of discrete problematic flood sites, indicated by sequentially numbered labels, each linked to photographic evidence	River as component of rationalized and generalized project, using primary colors to indicate stages of accomplish-ment	River as unpredict-able effects of flood and silting, location of proposed channel diversion indicated
Significance of how river is represented	River's boundaries are dynamic; surrounding agricultural land use accommodat es overflow; no conflict with built environment or	Shows the beginning of an "official" river channel, the rationalization of land use, and prioritization of rail infrastructure	Shows the fragmented nature of secured free easements of channel; technology as primary policy approach	Upstream channel and reservoir projects function primarily to control flood waters before reaching river channel; some conservation benefits	US Army Corps would assume responsibility for flood control; a modern, positivist approach to flood control (collecting evidence)	Shows LA County, US Army Corps, and Dept. of Agriculture cooperation to achieve technocratic control of flood waters	Map as argument: Intertextual map uses qualitative along with quantitative symbolism to illustrate threat of flooding and potential

	infrastruc-ture						solutions

Table 4: Historical maps analyzed in this research

Cartographic codes

Using Wood and Fels' (1992) cartographic codes of intrasignification (codes that operate within the map at the level of language), this analysis of the maps' purpose within the framework of these codes (iconic, linguistic, tectonic, temporal, and presentational) shows how the maps work to advance a particular argument (Wood & Fels, 1992).

The *iconic code* delineates "things" or "events" including flooding events, streets, railroads, and so on. The *linguistic code* indicates names of events, objects, towns and so on, including whether a water body is labelled "river" or "channel". The *tectonic code* relates the map's graphic space to geodesic space that includes topology and scale; in maps analyzed in this research, topology at times determines flooding solutions and at others seems inconsequential in the face of a concretized river channel within a rationalized flood control infrastructural system. The *temporal code* involves the map's durative scale (the time frame it represents) as well as its tense: is the map a snapshot in time or does the map show only permanent features that stand, somehow, outside of time? The temporal code becomes important in these maps when spatial representations of past flooding events as well as predicted effects of future events are used to support arguments. The final code is the *presentational code* or how elements of the map are chosen to present an articulate, coherent discourse that can be consumed and supported by members of society. The presentational code includes what is at the center of the map, what colors are chosen, the amount of text versus map image, and so on (Wood & Fels, 1992).

I examine maps produced from 1884 to 1948, when growing populations and major flood events lead Los Angeles to seek flood control solutions. I consider how the maps present the river's geographic extent, its size relative to roads and other waterways, and the detail within the river channel and along its banks; how the river's function is indicated; the consistency of the river system's representation on the map (symbol size changes); proposed versus completed segments of projects altering the river; and the relationship among topographic features and built environment (street grids, levees, railroad lines). The symbology (i.e., what colors are used to represent the river, check dams, spreading grounds) and textual labels are analyzed as well.

Study Site

The Los Angeles River is 51 miles long and its watershed covers 834 square miles (Figure 1). The river originates in the west San Fernando Valley, continues eastward to where it is joined by the Central Branch of the Tujunga Wash near Studio City, converges with Verdugo Wash, then takes a southward turn at the Glendale Narrows to continue through downtown until it reaches Long Beach Harbor, San Pedro Bay ("Executive Summary," 2007).

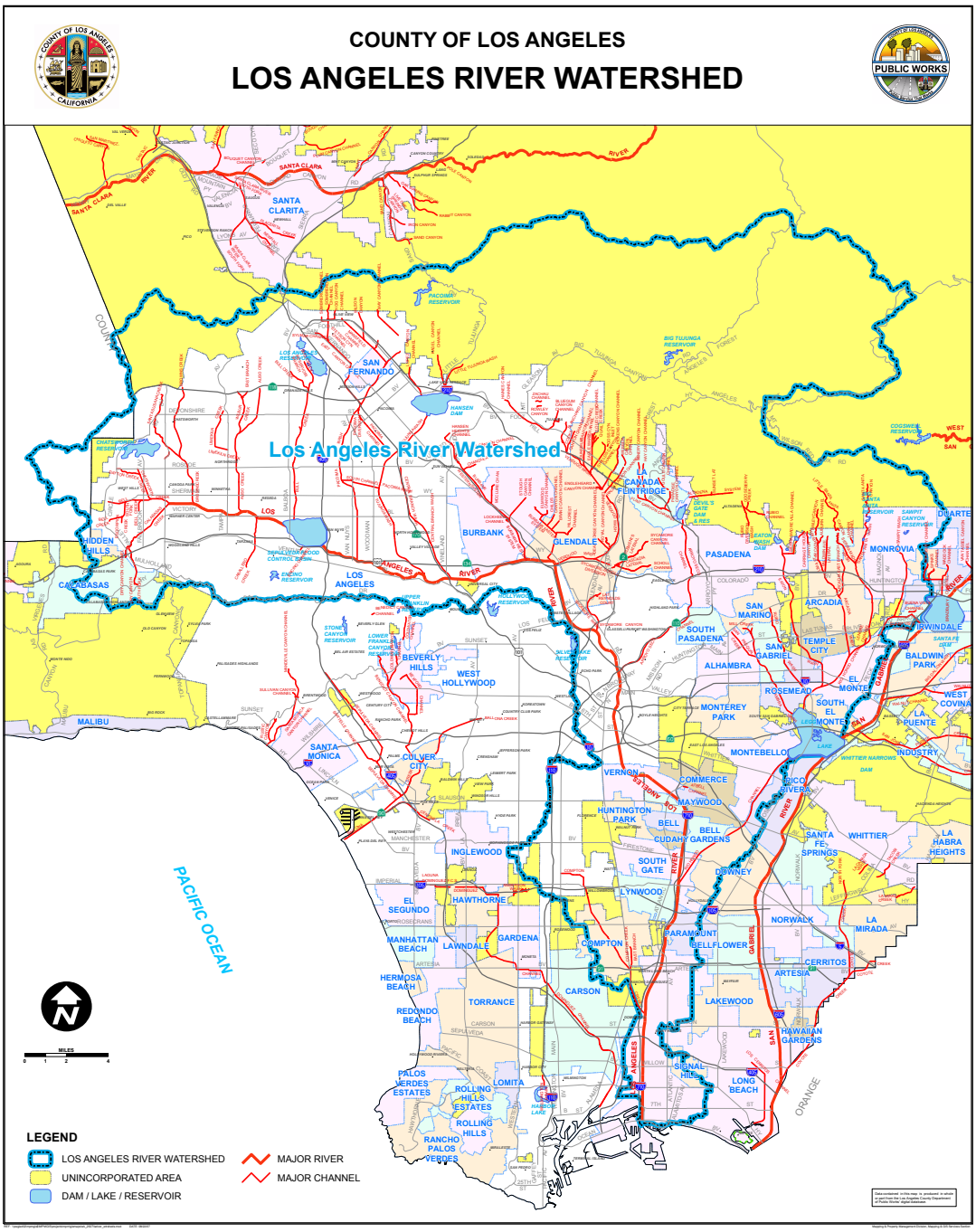


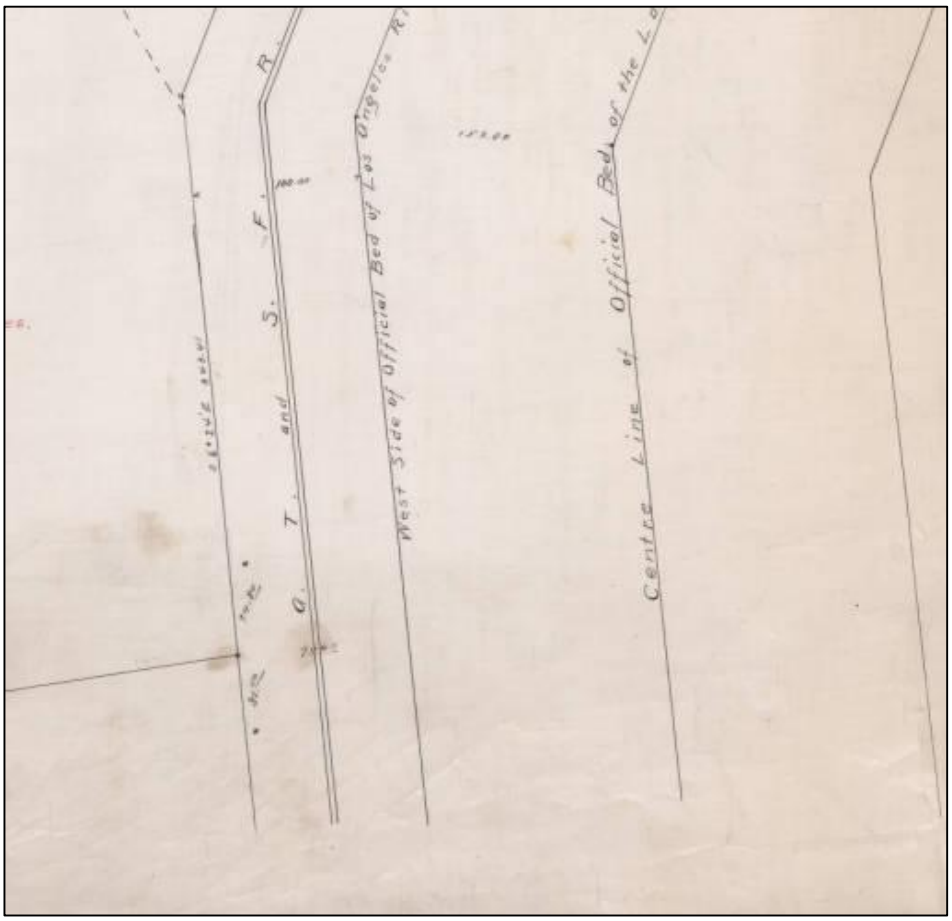
Figure 1: Reference Map – Los Angeles River and its watershed. Source: Los Angeles County Department of Public Works' digital database. \\pwgisd02\mpm gis$\MPM GIS\projects\mpm\gis maps\wk_2627\lariver_wtrsheds.mxd

Evidence and Argument

The seven maps analyzed here were all produced by experts, surveyors or engineers.[3] The river was reconstructed over time to minimize the effects of flooding and growing costs of flood damage in Los Angeles County. The channelized river was to be fixed in place at the center of a single-purpose flood control system comprising a concretized flood control channel; a system of check dams and debris basins that, although not connected directly to the river channel, are constructed to support its primary function by preventing water from overwhelming the channel; increasing amount of impermeable paved surfaces in the basin to aid in efficiently directing runoff toward the channel. In this approach, the identification of needs and solutions to flood control is in the hands of engineers, planners, and other experts while public input is mostly excluded. The channelized river's main function would be flood control; additional benefits would be some groundwater recharge and storage.

[3] The one exception is *Map of a portion of Los Angeles County* with unknown provenance. It is included because it maps the same area as the others, preceded the Reagan map of 1917, and shows a (perhaps incompatible) relationship between the railroads and the basin's waterways.

Map 1: *Map of the property of R. Nadeau in the Rancho San Antonio, December 1884*



Map 2: *Plat of M. E. Hodgkin's Lot, August 1887*

<u>Comparative analysis A</u> – Iconic and linguistic codes: Comparison of symbology and labels that construct a simplified representation and new legal definition of river boundaries (Maps 1 & 2)

Map 1, *Map of the property of R. Nadeau in the Rancho San Antonio*, is an 1884 surveyor's map that labels "The Los Angeles River," the location of "levees." Curving lines trace the river boundaries. Areas outside the river's boundaries indicate where the river overflows and levee walls are indicated by stippled areal symbology that follows the curving lines of the river. The curving boundary lines of the river in Map 1 indicate a river distinct from built features

(property boundaries, railroads, roads). The river is an integrated part of an agricultural system of vineyards with the rail roads curving across the land and crossing the river.

Map 2, *Plat of M. E. Hodgkin's Lot*, depicts a "channel," as opposed to a "river" through textual labels and iconic features that apply simplification and smoothing of the river features. The straightened geometry of the "river" divides it into sections labeled "West side of Official Bed of Los Angeles River," "Center Line of Official Bed of the Los Angeles River," and so on. Straightened boundary lines produce official river boundaries that parallel railroad tracks. The straightened channel in Map 2 mirrors the geometry of the surrounding topography that includes rail lines that parallel the river.

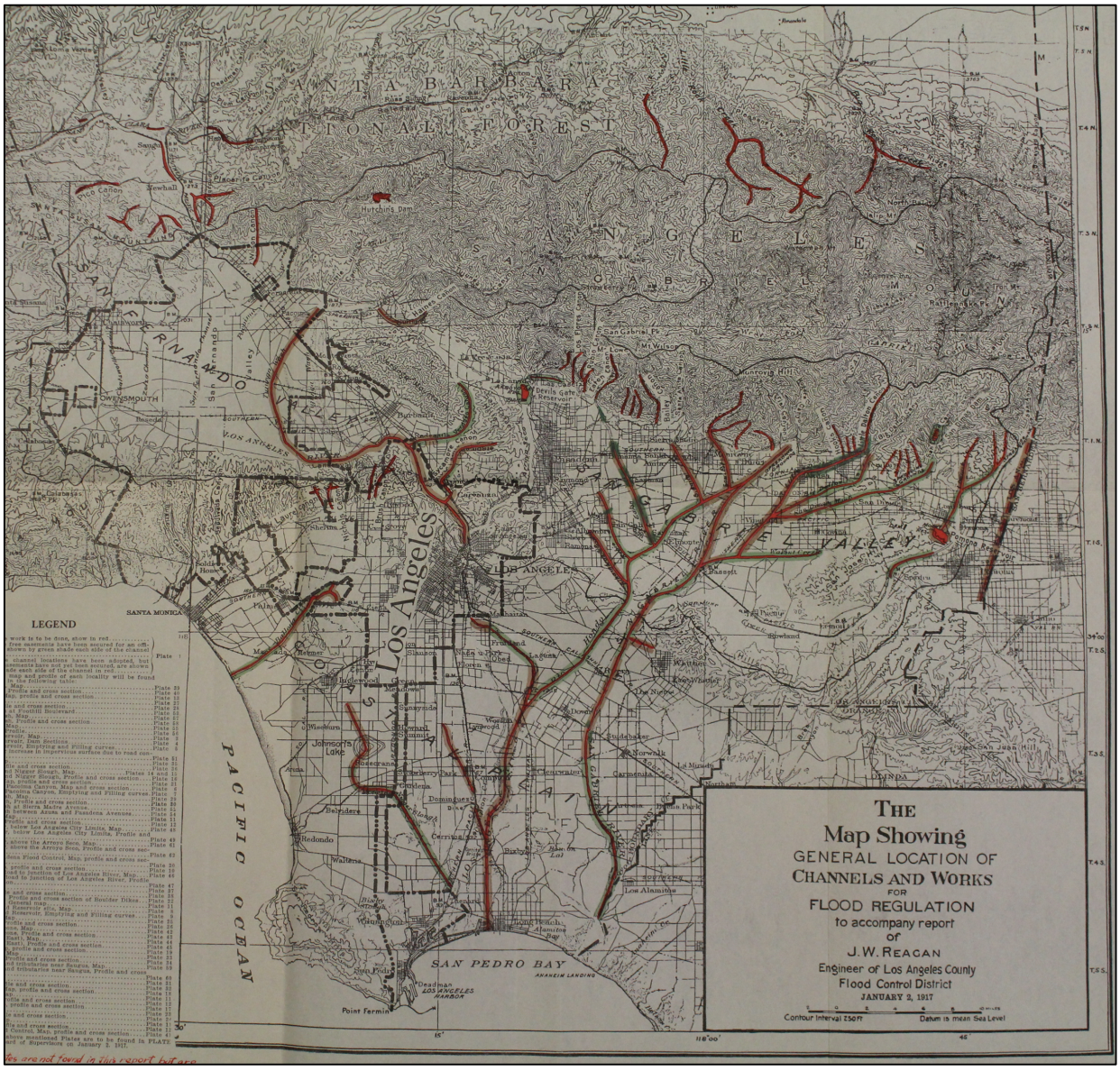
Cartographic codes – Produced only three years apart (1884 and 1887), these surveyor's maps illustrate how the representation of the Los Angeles River's channel shifts from a fluctuating natural river to a stabilized "official" bed. As Wood & Fels (1992) show, maps serve as proving grounds where representations can move from being iconic to having symbolic status. Included in the five categories of codes they identify, iconic codes inventory what's there; linguistic codes classify and name what is selectively represented on the map (Wood & Fels, 1992, p. 118). A comparison of Maps 1 and 2 shows how maps were used to construct the initial transformation of the Los Angeles River by moving away from representations of the river as an entity with shifting areal dimensions. The symbols used in both maps do not vary significantly; both employ single black lines of similar weight to symbolize the river's boundaries. In Map 1, stippled areas indicate levees constructed where the river overflows its boundaries. As represented, railroads and county roads are not in conflict with the river.

Discussion – Maps 1 and 2 were produced in 1884 and 1887, respectively, following a dry period in the region (1879-1883), the opening of the Southern Pacific Railroad from San Francisco to Los Angeles, and a population that doubled between 1870 (15,309) and 1880 (33,381). An 1886 city ordinance defined the banks of the river and granted a railroad company land (for tracks and levees); when completed, the 1888 levee established an "official" western bank of the river (Orsi, 2004, p. 18). Ignoring the history of flooding, a portion of the levee ran through the center of the river bed which was almost always dry.[4]

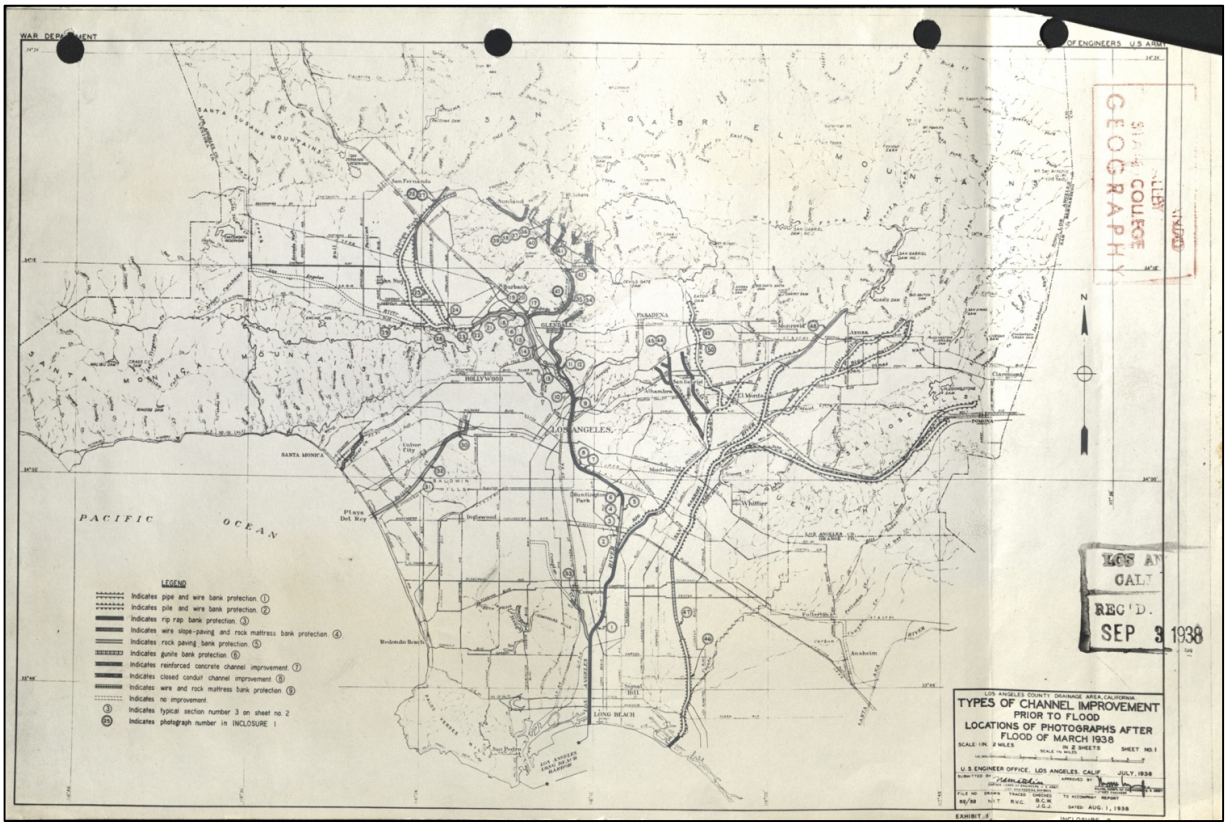
Map 2 presents the river as a series of boundaries (the west, the center, and the east) that parallel exactly the path of the "A. T. and S. F. R.R." (Atchison, Topeka and Santa Fe Railway)[5]; the river is represented as a standardized channel. Whereas on the 1884 map (Map 1), levees are incorporated into the river's boundaries which extend on the map to include the areas where it overflowed; in 1887 the river's boundaries are defined by their conformity with the rail roads.

[4] In an 1890 rain event, the levee forced water toward the east, ruining 900 acres of cropland and resulting in an unsuccessful attempt by farmers to sue the railroad (Orsi, 2004).

[5] The Atchison, Topeka and Santa Fe experienced frequent flooding in Temecula Canyon, forcing it to abandon its line to San Diego (Duke, 1997).



Map 3: *The Map Showing General Location of Channels and Works for Flood Regulation, 1917*



Map 4: *Types of Channel Improvement Prior to Flood – Locations of Photographs After Flood of March 1938*

<u>Comparative analysis B</u> – *Map of the Los Angeles River as a project proposal and supporting evidence (Maps 4 and 5)*

Map 3, *The Map Showing General Location of Channels and Works for Flood Regulation*, was produced following the catastrophic 1914 flood and is at a scale showing the entire watershed. The line symbology for the Los Angeles and San Gabriel Rivers, canyon washes, and Ballona Creek are all uniform in weight, indicating they are all part of the same watershed-wide system. The river in Map 3 functions as a locational index to more detailed maps of proposed flood control projects throughout the watershed.

As one of five members of the Board of Engineers Flood Control In 1917 compiling recommendations for flood control, James W. Reagan was assigned to determine areas of previous flooding.[6] Reagan's qualitative approach differed from the other board members' (he interviewed long-time county residents) who quantified past projects using blueprints, and past flooding by examining high water marks (Orsi, 2004, p. 41). Reagan submitted his own report, separate from the other members, recommending specific flood control projects including small dams, channel reinforcements, and harbor diversion projects. His focus was on protecting downstream lands from flooding while linking flood control to water conservation through a series of small dams upstream. This secondary function was precipitated by both the growing 1920s Los Angeles population and the most intense drought since records of stream flow began to be kept in 1892.[7] Reagan's proposal included plans for larger, concrete dams rather than small check dams proposed by the other engineers. Reagan's plan was critiqued as "piecemeal" and lacking preliminary geologic and hydrologic research (Orsi, 2004). In 1926, Reagan was replaced by E. C. Eaton as the Flood Control District's chief engineer; Eaton would supervise the first and influential Comprehensive Plan for Flood Control and Conservation in 1931.

A few channels are indicated in the upper reaches but, overall, projects are concentrated downstream, outside the mountains, consistent with Reagan's focus from early on. The smaller scale of this map emphasizes a far-reaching plan encompassing the entire watershed; detail on the neighborhood level is insignificant. The uniform-sized line symbols for washes, creeks, and rivers indicate they are all of-a-system and construct a watershed-wide system that drains runoff

[6] Along with Frank Olmsted, Charles T. Leeds, J.B. Lippincott, and Henry Hawgood.

[7] A decade later, Reagan proposed building a larger dam upstream on the San Gabriel River. After a long fight, it was approved and construction began within the context of the March 1928 collapse of the smaller St. Francis Dam in northwestern Los Angeles County that killed more than 400 people. Dynamiting for the San Gabriel dam began in August 1929 but in September the west abutment of the site caved in (Orsi, 2004).

into the Los Angeles River which drains to the port. This early map of a technological infrastructural approach to flooding links a series of "localities," represented by consistent size and shape of symbols. All the localities where work is to be done are shown in red, rendering them equally urgent, regardless of whether easements have been secured or not. This 1917 map constructs a watershed-wide flood control system.

Map 4, *Map of types of channel improvement prior to 1938 flood, Los Angeles River,* also functions as a locational index to photographs which were included with the U.S. Engineer Office's *Report on Engineering Aspects, Flood of March 1938* by the U. S. Engineer Office in Los Angeles and compiled in August 1938. The Los Angeles River and the river's tributaries flooded after an extreme rainy season and one particularly bad storm on March 1-3, 1938. The report includes an extensive account of how different river channels and their materials reacted to the flood; the map is linked to photographs of the locales discussed in the text.

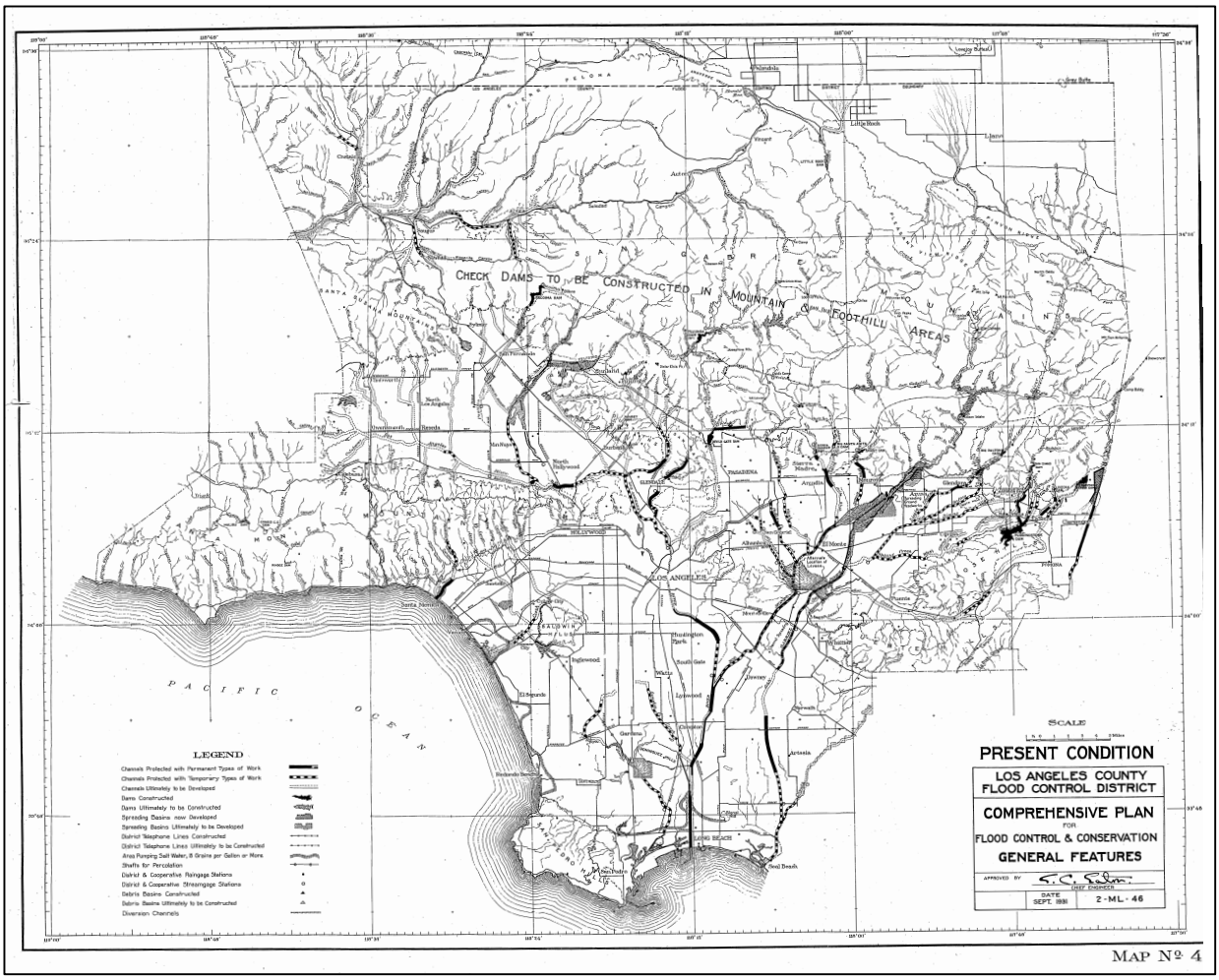
As a compilation of evidence at specific locations, these 1938 maps served an especially important function – they facilitated visual analysis as other attempts to collect flood data in the recent flood event were disappointing, principally due to the lack of direct measurement of discharge during the peak period of floods that lasted a short time. Recorders were often damaged or destroyed before the peak arrived, and current meters were also damaged or lost because of the debris and high velocity of flow (*Report on Engineering Aspects,* 1938, p. 2). Visual records of flood effects contained in the photographs and the narratives explaining the material and flood damage depicted in the photographs combined to create a visualization of flooding that was not captured by damaged or destroyed instruments.

Cartographic codes – Map 3's intention to establish an integrated past, present, and future for addressing flood control projects is reinforced by its symbology and textual labels. Channels are outlined in red ("work to be done"), green (easements secured for an "official channel"), and brown (easements yet to be secured for channel locations already adopted as part of the plan); handwritten labels pasted over the base map indicate the nominal locations for proposed dams, spreading grounds, reservoirs, and the larger canyons (cañons).

Regarding the temporal aspects of these maps, Map 3 encompasses a durative scale of past, present, and future all in one map while Map 4 is a 'snapshot' of a moment in the recent past documenting conditions at various points along the river following a major flooding event. This Map 3 "index" is overlaid onto a terrain base map of mountains, city street grids, rail road lines, and major roads. The effect reinforces that the proposed flood control system is an extension of rationalized, urban development, on the same functional plane as street grids and railroads. In contrast, the Map 4 indicates pathways including arroyos, washes, canyon streams, and waterways that have been shored up to protect the surroundings from flooding; the drainage area is categorized by type of bank protection material. Map 4 does not represent the street grid nor place transportation infrastructure on the same hierarchical level as the hydrological features. This map shows a problematic natural environment and presents evidence (through the photographs) of more and less effective ways of taming nature.

Discussion – These maps serve as evidence of the problem of 'nature,' in this case flooding, and present data to aid in the design of flood control measures. Map 4 tells the story of flood control failure and begins to identify a specific strategy to implement technological infrastructural flood control. Floods in 1938 caused 49 deaths in Los Angeles County. 1938 also

saw the passage of the Flood Control Act which authorized the United States Army Corps of Engineers to prepare a plan for the Los Angeles County Drainage Area (LACDA).



Map 5: *Present Condition – Comprehensive Plan for Flood Control & Conservation, General Features, 1931*

Map 6: *Comprehensive Plan – Control and Conservation of Flood Waters, 1948*

<u>Comparative analysis C</u> – Expertise revealed and hidden (Maps 5 and 6)

Map 5, *Present Condition – Comprehensive Plan for Flood Control & Conservation, General Features,* is one in a series of six maps[8] included in the report that all use the same base

[8] The maps are entitled: "Present conditions, showing present tributary areas to flood control and conservation reservoirs"; "Comprehensive Plan, showing ultimate tributary areas to flood control and conservation reservoirs"; "Possible overflow areas during 50% greater than 1914 under present conditions"; "Present condition of protective

map. While the labels for map elements are identical in all six maps, the line and area symbols differ according to the purpose of each map. These symbols indicate planned or completed features including dams, spreading and debris basins, pumping stations, and telephone lines.

Map 6, *Comprehensive Plan – Control and Conservation of Flood Waters, 1948* (Map 6), adds primary colors to line and area symbols. Like all maps since 1931 it is derived from, and builds on, the representation of the watershed (Map 5) in what came to be known as the Comprehensive Plan (Orsi, 2014, p. 81). A simplified and generalized schematic suffices to describe the infrastructural achievement, obscuring the technological knowledge of experts as well as data on risk and probable flooding that was presented in the 1931 maps. The Army Corps of Engineers' (ACOE) project to channelize the Los Angeles River through downtown is largely completed (blue); the river south of downtown, where the Rio Hondo joins the Los Angeles River and continues to the port, is "authorized" (yellow). These sections address flooding effects in the most densely populated areas of the city. Los Angeles County Flood Control District (LACFCD) portions of the project, by contrast, are either completed (red) or "proposed" (white) channels, reservoirs, and debris basins.

Cartographic Codes – The scale and topology in Map 6 demonstrates technological mastery of flooding. This 1948 map shows the extensive infrastructural flood control network that has been established across the watershed. Textual labels of individual hydrological features are less important than in previous maps of flood control projects. In Map 6, the base map is a

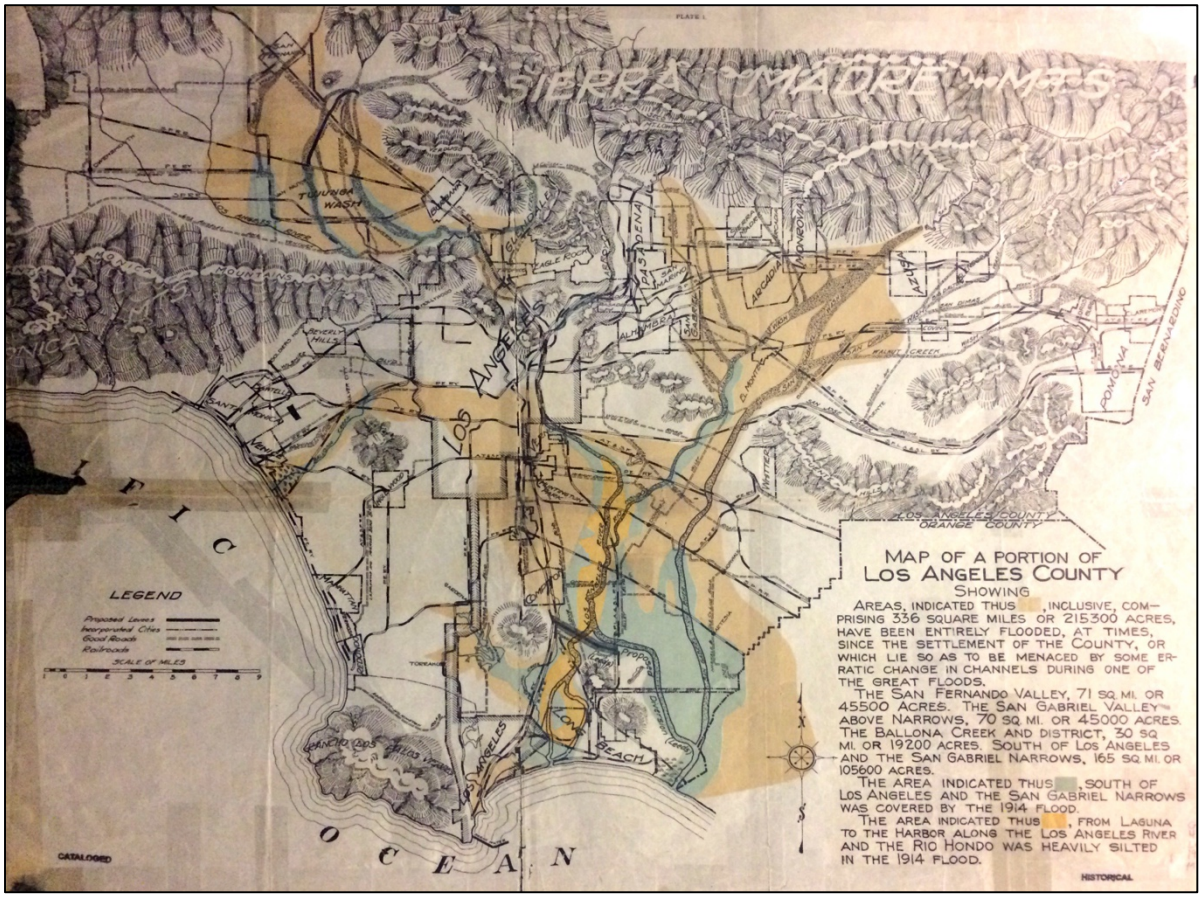
works showing large amount of temporary type protection"; "Comprehensive Plan, showing location of Immediately Needed Projects"; "Condition of protective works after Immediate Projects are completed" (Index to Map and Sketches, LACFCD Comprehensive Plan, 1931).

more realistic representation of the topography throughout the watershed, showing the integration of flood control infrastructure into the more natural terrain. The 1948 map's extent includes the surrounding geography – unlike the 1931 map that represents only features within Los Angeles County. The watershed and drainage areas transcend county boundaries while several projects are integrated into a single system. In terms of the temporal code, these maps are snapshots of accomplished flood control infrastructure construction and its successful integration into the surrounding terrain.

Discussion – Maps 5 and 6 were produced by the Los Angeles County Flood Control District (LACFCD) to accompany the "Comprehensive Plan for Flood Control and Conservation" reports in 1931 and 1948, respectively. The completion of the report, *Present Condition – Comprehensive Plan for Flood Control & Conservation, General Features, 1931* (Map 5), reflected technological achievements of Los Angeles experts and formed the basis of future Los Angeles flood control projects (Orsi, 2004, p. 81). It called for debris basins, concrete and rock lined channels, storm drains, spreading grounds, and soil erosion control. Map 5 is one of a series that seeks to make explicit all of the evidence and knowledge of flood control gathered from the 1931 flood, including data gathered about present conditions of the terrain, possible overflow in a flood event larger than 1914, location and type of temporary flood protection, and projected conditions if recommendations for flood control infrastructure are implemented (Comprehensive plan for flood control, 1931).

In contrast, the post-WWII Map 6 conceals expert knowledge and shows the entire system of flood control in a colorful, almost playful manner using bright, primary colors for the channels, basins, and reservoirs. Past flooding events caused the loss of communication and

shipping in the Southern California area, a focus for congressional funding of infrastructural projects following WW II (House of Representatives Report No. 1309, 1944). The Army Corps of Engineers, Los Angeles County, and the Department of Agriculture were working together at this time to achieve technocratic control of flood waters.



Map 7: Map of a portion of Los Angeles County (s.n., between 1914 and 1917). University of California, Young Research Library, Closed historical maps.

Presentational code (Map 7)

Maps are not representative artifacts but result from subjective decisions made for specific purposes. Koch (2004) compares maps purporting to represent John Snow's data of cholera deaths in 1854 London to demonstrate how generalization is used by map makers to

serve their specific purposes or what Koch calls the map's "intent" (Koch, 2004). Map 7 foregrounds the map's "intent" and relies heavily on intertextuality (Rose, 2007) to make an argument for altering the course of the Los Angeles River. The rivers, symbolized as black lines, are not the dominant features on the map; the shaded areas indicating effects of flooding are more prominent. These area features represent an extended geometry of the river and simultaneously construct a past, present, and future of the effects of river flooding and silting.

The map states the problem of past flooding and silting and proposes a solution: a diversion channel labeled "Proposed Diversion (Leeds)" as an eastern branch of a redirected lower Los Angeles River. The argument is enhanced by hachures indicating areas of increased topological height with more intense runoff. The map uses hachures, a form of shading signifying topological qualities, rather than contour lines which are quantitative representations of grade changes. Explanatory text supports the map's argument for channel diversion; the box at the lower right provides measurements (square miles and acres) to describe the vastness of the flooding problem. Through image and text, the map presents a dramatic rendering of past and future conditions as well as proposed infrastructural solutions.

Cartographic codes -- Map 7 relies on affective symbology and textual descriptions of the danger posed by the Los Angeles River. The visual effect of the hachures and the organic river forms present developed areas of the watershed as threatened by runoff and unpredictable rivers.

Discussion – As the text accompanying the map indicates, the Los Angeles basin has been "menaced" in the past and the conditions for future inundation are visible on the map. The

proposed solution is labeled as “Dam (Leeds)” and the “Proposed Diversion (Leeds)” channel that would redirect the lower Los Angeles River bypassing Wilmington Lagoon (Turhollow, 1975, p. 42), which tended to silt up since construction of the tide-calming breakwaters at the port and ongoing dredging at the mouth of the river. As district engineer for the Army Corps of Engineers, Los Angeles District, Charles T. Leeds had been partially responsible for construction of the Los Angeles Harbor (Orsi, 2014). Leeds noted in 1915 that the completion of the Panama Canal was establishing new trade routes; harbor facilities needed to be improved to take advantage of these routes. River floods carried silt to the harbor, interfering with ships. The proposed dam and diversion channel were never built, however, and the lagoon eventually became the site of Long Beach Inner Harbor.

Conclusion

The maps chosen for analysis in this paper were all produced by experts in reaction to major flood events that threatened development in Los Angeles as its population was increasing dramatically (see Table 2: *Timeline of Los Angeles River development*, above). A critical, comparative analysis of seven maps (1884 – 1948) shows how they construct a centripetal infrastructural project, a drainage system with the river at the center designed primarily as a flood control channel that carries runoff quickly out to the bay (Table 1). Each comparative analysis focuses on Wood and Fels’ iconic, linguistic, tectonic, and temporal cartographic codes (1992).

Each comparison finds certain codes more in play than others. The first set of maps focuses on a comparison of the symbolism and textual labels in representations of the Los Angeles River as a natural entity bounded partially by levees (Map 1), and Map 2 showing an

"official bed" of the river; the comparison of Maps 3 and 4 focuses on the way they each function as locational indices to iconic events along the river, but with different durational scales. Map 4 is a snapshot of the aftermath of flooding and shows where material approaches to flood defense either succeeded or failed while Map 3 shows the past, present, and future conditions of an ongoing infrastructural flood control project; the final map comparison shows how generalization of symbology and a smaller map scale demonstrates the functional success of technological expertise and how it became embedded in cultural representations of the river system (Map 6). The colorful and simplified symbology of the technological infrastructure in this map appears on a more realistically rendered topographical map, in some ways predicting future calls for socio-natural conceptions of the river and watershed.

Oblique air photos of hydrology projects in Los Angeles have historically been labeled to show what's on the ground. This interaction between language and image produces a vision of what must be "truly" on the ground (Figure 2). Making use of a similar aesthetic, a schematic drawing of the same area, Ballona Creek, from a "bird's eye view" (Figure 3) demonstrates the naturalness of the project being proposed. In later decades, this visual rhetorical approach will be used alongside maps by community advocates, landscape architects and designers to argue against the single-use flood control channel and for transformations of the Los Angeles River into an Edenic urban habitat or an idyllic greenway.

I include the two images (Figures 2 and 3) of Ballona Creek as it empties into the Pacific Ocean in Marina del Rey. Aerial photography began to be coupled with proposals for engineering flood control projects. Figure 3 is an example of the Army Corps of Engineers' use of oblique images in planning large projects (Turhollow, 1975). Figure 2 is sketch from the 1931 Comprehensive Plan. The former is an oblique photograph with textual labels added to explain

proposed transformations of the landscape; the latter is a sketch of the same area showing the planned drainage project. These oblique images, taken at an angle rather than straight down, imply a single viewer able to comprehend extensive and detailed complexity. The role of visualization as a rhetorical tool in arguing for certain forms of the river will be explored in subsequent papers that look at Los Angeles River advocates use of hand-drawn maps and imagery of the Los Angeles River.

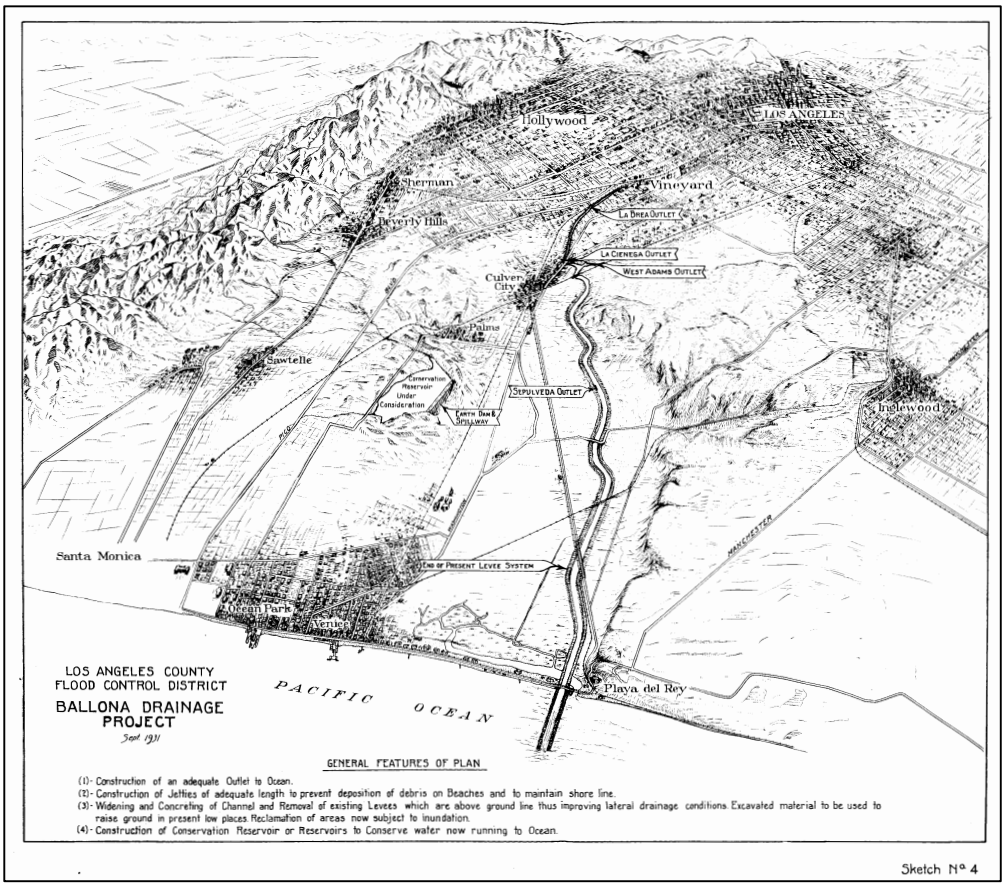


Figure 2: Plan for Ballona Drainage Project, Sketch No. 4 (*Comprehensive Plan for Flood Control & Conservation, General Features, 1931*).

Figure 3: Army Corps of Engineers' image of Ballona Creek and area to be dredged, 12/28/1959 (Turhollow, 1975, p. 97).

This paper contributes to a critical analysis of mapping through the example of the Los Angeles River. It maintains that maps can be "read" as arguments that advance the functional and cultural transformation of the natural objects they depict into components of infrastructural networks. In addition, this paper uses comparative analysis to make a contribution to the understanding of how visual representations of proposed transformations of natural features (in this case, the Los Angeles River) normalizes the dynamics and logics of the transformation of urban nature.

In this paper, I compare maps that show the Los Angeles River and its watershed using Wood and Fels' cartographic codes with each comparison focusing on one or two of the specific codes. I have shown, through the analysis of symbology, textual labels, tectonic contextualization, and temporal qualities, the rhetorical role these maps played in constructing the Los Angeles River as a flood control channel. The Los Angeles River is transformed in the

first half of the 20th century into a centripetal infrastructural project that fits into the typology I developed for this project.

All maps were selected because they make arguments for a changing conception of the river following major flood events in an increasingly populated area. An analysis using Wood and Fels' cartographic codes shows how the construction of the Los Angeles River as a flood control channel was achieved on the map before it was actualized on the ground. In this way, it challenges Kaika's assertion that the modern era concealed urban infrastructure needed to connect cities to natural resources. The example of the Los Angeles River shows that the river did not need to be hidden as its transformation into an infrastructural system was initiated. First, it was explicitly transformed from an unpredictable river on the map, rationalized and tamed through a series of proposed projects, and later constructed as a concrete channel on the ground.

References

Arroyo, John C. *Culture in Concrete: Art and the Re-imagination of the Los Angeles River as Civic Space*. 2010. http://www.arroyoseco.org/arroyojcthesis.pdf Harley 2001

Barnes, T. J., and Duncan. J. S. (2013). *Writing worlds: discourse, text and metaphor in the representation of landscape*. Routledge.

Comprehensive plan for flood control and conservation: general features / Los Angeles County Flood Control District. (1931). Closed Historical Maps. Charles E. Young Research Library at University of California, Los Angeles.

Comprehensive plan, control and conservation of flood waters / Los Angeles County Flood Control District, Hedger, Chief Engineer. (1948). Map Collection. UCLA Young Research Library.

Desfor, G., & Keil, R. (2004). *Nature and the city: making environmental policy in Toronto and Los Angeles.* University of Arizona Press.

Dryzek, J. S. (2013). *The politics of the earth: Environmental discourses.* Oxford University Press.

Executive Summary. (2007). Los Angeles River Revitalization Master Plan. City of Los Angeles, Department of Public Works, Bureau of Engineering. Accessed 7/5/2017 at http://boe.lacity.org/lariverrmp/index.cfm.

Ford, A. Carpenter. (January 9, 1920). Flood studies at Los Angeles. *Southwest Builder and Contractor.*

Gandy, M. (2014). *The fabric of space: Water, modernity, and the urban imagination.* MIT Press.

Gibson, Campbell. (June 1998). Population of the 100 largest cities and other urban place in the

United States: 1790 to 1990. Population Division Working Paper No. 27. Washington, DC: U.S. Census Bureau

Gumprecht, B. (2001). *The Los Angeles River: Its life, death, and possible rebirth*. JHU Press.

Haynes Foundation Library (Collection 1604). Department of Special Collections, Charles E. Young Research Library, University of California, Los Angeles. Box 98.

Hise, G., & Deverell, W. F. (2000). *Eden by design: The 1930 Olmsted-Bartholomew plan for the Los Angeles region*. University of California Press.

"Historical General Population City and County of Los Angeles, 1850 to 2010." Los Angeles Almanac. © 1998–2017 Given Place Media, publishing as Los Angeles Almanac. 28 Feb. 2017 http://www.laalmanac.com/population/po02.php

Historical Background. Flood Risk Management. RIVERLA. Retrieved from http://riverlareports.riverla.org/flood-risk-management/historical-background/

House of Representatives Report No. 1309: Authorization for reservoirs, levees, and flood walls for flood control. (March 29, 1944). United States Congress House of Representatives. Washington, DC:.

Kaika, M. (2005). *City of flows: Modernity, nature, and the city*. Psychology Press.

Kareiva, P., & Marvier, M. (2012). What is conservation science?. *BioScience*, *62*(11), 962-969.

Kareiva, P., Lalasz, R., & Marvier, M. (2012). Anthropocene revisited. *Breakthrough Journal*, *1*(4).

Karvonen, A. (2011). *Politics of urban runoff: nature, technology, and the sustainable city*. MIT Press.

Keil, R., & Desfor, G. (2003). Ecological modernisation in Los Angeles and Toronto. *Local Environment*, *8*(1), 27-44.

Kitchin, R., & Dodge, M. (2007). Rethinking maps. *Progress in human geography*, *31*(3), 331-344.

Koch, T. (2004). The map as intent: variations on the theme of John Snow. *Cartographica: The International Journal for Geographic Information and Geovisualization,* 39(4), 1-14.

Lalasz, R., Kareiva, P., & Marvier, M. (2011). Conservation in the Anthropocene. *Breakthrough Journal*, *2*, 26-36.

Los Angeles River Master Plan. 1996. Los Angeles County Department of Public Works. https://dpw.lacounty.gov/wmd/watershed/LA/LARMP/LARMP-01%20Cover%20Page.pdf

Los Angeles River Revitalization Master Plan. 2007. City of Los Angeles Department of Public Works, Bureau of Engineering.

Lustig, D. (1989, February 9). A wonder down under: beneath the Valley, civilization's conduits form a maze of sewers, pipelines and enough telephone wire to wrap the Equator 334 times. *Los Angeles Times*, p. 22.

Map of a portion of Los Angeles County. (1914-1917). "Plate 1", Closed Historical Maps, Charles E. Young Research Library, University of California, Los Angeles.

Map of Types of Channel Improvement Prior to 1938 flood, LA River. (1938). Delmar T. Oviatt Library, California State Northridge Special Collections.

The Map Showing General Location of Channels and Works for Flood Regulation (1917). In Report of J.W. Reagan upon the control of flood waters. Los Angeles County Flood Control District. Haynes Foundation Library, Collection 1604, Box 98. Special Collections, Charles E. Young Research Library at University of California, Los Angeles.

Mitchell, W. T. (1986). *Iconology: image, text, ideology.* University of Chicago Press.

Orsi, J. (2004). *Hazardous metropolis: flooding and urban ecology in Los Angeles*. University of California Press.

Pincetl, S. (2012). Nature, urban development and sustainability–What new elements are needed for a more comprehensive understanding? *Cities*, *29*, S32-S37.

Plat of M. E. Hodgkin's Lot, August 1887. Hurley/Wright Surveyors Map Collection 064, Map number 677, Box 1. William H. Hannon Library, Department of Archives and Special Collections, Loyola Marymount University.

Reagan, J. W. (1917). Los Angeles County Flood Control District: Report of J. W. Reagan. Board of Supervisors of the Los Angeles County Flood Control District. Adopted January 2, 1917.

Report on Engineering Aspects, Flood of March 1938 by the U. S. Engineer Office in Los Angeles and compiled in August 1938. (1938). Delmar T. Oviatt Library, California State Northridge Special Collections.

Rose, Gillian. (2007). *Visual Methodology: An Introduction to the Interpretation of Visual Materials* (2nd ed.). Thousand Oaks: Sage Publications.

Turhollow, A. F. (1975). *A History of the Los Angeles District, US Army Corps of Engineers, 1898-1965*. Army Engineer District Los Angeles CA.

Wolch, J. (2007). Green urban worlds. *Annals of the Association of American Geographers, 97*(2), 373-384.

Wood, D., and Fels, J. (1992). *The power of maps*. Guilford Press.

III. Producing a centrifugal Los Angeles River: Diagrammatic maps

Introduction

Advocates for the Los Angeles River used diagrammatic, hand-drawn maps to make an argument that the river could be understood as a multi-use river, central to a watershed approach to revitalization. In a previous paper, I established a three-part conceptual typology for looking at the Los Angeles River over time. The first type, centripetal, characterizes the river as a single-purpose, infrastructural approach to flood control in which runoff and storm water is directed toward the center and flooding is confined to the channel. The second type, centrifugal, is of a multi-purpose, watershed-wide system with the river at its center. The river's physical and cultural definition, its force, is extended outward from the center center and into the entire watershed. The third type, linear park, is focused on riverfront land use as a multi-purpose transportation, recreation, and economic development corridor.

This paper focuses on the use of hand-drawn, amateur maps by community advocates as tools to present an alternative multi-use, watershed-wide approach to river revitalization. Advocates appropriated experts' use of maps to make convincing arguments for revitalization. I will use a methodological approach drawing on Farías (2011), who analyzed tourist maps as diagrams that produce virtual structures apart from what is on the ground, making strange and dangerous places familiar and accessible. To demonstrate how advocates' maps of the Los Angeles River functioned, this paper combines an analysis of the maps' features, including their graphical elements, labels, and content, alongside each map's dissemination and purpose.

Framework

River revitalization advocates working from the mid-1980s through the early 2000s had two interconnected goals: first, to demonstrate that the Los Angeles River was an actual river, and secondly to insist it should be revitalized as a distributed multi-purpose river integrated into the entire watershed. Maps that functioned as diagrams became effective tools to bring together a coalition of scientists, business people, government entities, and citizens that could move revitalization schemes forward.

The aim of this article is to analyze what kind of work maps and visual materials did to advance Los Angeles River revitalization advocates' goals to conceptualize the river as a valuable and accessible riparian landscape rather than as a dangerous and strange concrete flood channel. Maps of the Los Angeles River and its surroundings produced by experts (Los Angeles County engineers, the United States Army Corps of Engineers) during the first half of the twentieth century represented the topography of canyon stream runoff, indexed what projects succeeded or failed in managing floods in the past, and proposed solutions to flooding and silting. Once the problems and solutions had been accepted, and after extensive channelization had been completed, maps began to reflect a more generalized flood control infrastructure, and the watershed's topography was represented with less detail. By 1948, a generalized map of components of the flood control system used bright, primary colors to indicate completed and proposed channels.

In the 1990s, citizens engaged in Los Angeles River advocacy began to use maps in a way that critically addressed experts' position of authority. Friends of the Los Angeles River (FoLAR) was the leading advocacy group from its inception in 1985. Advocates working with FoLAR produced maps that were hand-drawn and based on firsthand experience. Maps and other

visual materials were used to convince Angelenos that the river existed, that it was accessible, and the responsibility of all Los Angelenos, but particularly those living in neighborhoods along the river itself. Jim Danza, an ecologist and longtime member of FoLAR's Technical Advisory Board, noted that FoLAR's first job was to "get the river on the map, literally ("Questions & Answers," 1998). FoLAR had been established by activist poets and performance artists and Danza, a scientist, saw his job as helping FoLAR show technical expertise for its cultural narrative of river restoration. He noted there was a big void between the dream to un-pave the river and the engineering expertise it would take to accomplish it ("Questions & Answers," 1998). Maps were an important tool that helped residents establish where the river was and what it could be in relation to their neighborhood and their own lives.

The advocates' maps challenged cartographic authority in two ways: First, maps at the neighborhood scale focused on site-specific, cultural meanings for each neighborhood. Through neighborhood council meetings and workshops, advocates worked to include local residents' experience and visions, rather than experts', to gather data about needs at specific sites; residents were enlisted as support for revitalization advocacy as well. Secondly, the style and materiality of these maps take on an un-official, informal quality. They are hand-drawn, accessible, and playful.

Sourcing river-adjacent communities for river revitalization ideas also served the purpose of creating a constituency that would support advocates as they confronted local and federal agencies. For instance, a 1998 conference, The River Through Downtown, followed a series of neighborhood meetings in which residents were invited to contribute ideas for redevelopment of the river through central Los Angeles. The focus was on four specific topics and areas established by a group of architects, designers, and urban planners. Citizens were invited to

engage with four proposed projects: Pico-Aliso Village River Park, a River Walk Area through the old Chinatown railyards, River Bike Paths, and the 70-acre Taylor Yard ("River through downtown," 1998). In being invited to comment on specific proposals for each of these areas, residents were also enlisted as collaborators on proposals with new definitions of the spaces adjoining the river.

Maps and other visualizations created by advocates to produce new ways of thinking about the river are not representational but diagrammatic, working in much the same way as tourist maps do. They make places that are strange seem familiar. Diagrams and maps are a form of knowledge making; like stories, they involve ordering events and actions in space and time (Turnbull, 2007). In addition, diagrams form a virtual structure apart from what is on the ground (Farías, 2011). Diagrammatic maps created by advocates in the 1990s presented multiple-scale structures (neighborhoods in relation to the watershed) and so differed from earlier expert maps that focused on a single-function flood control channel and the watershed as a series of pathways to conduct water toward the channel. They were similar in that both determined an idealized river but not an integral whole (Farías, 2011): the expert maps identify the problem (flooding) and show a comprehensive infrastructural solution without addressing negative effects on the environment, social inequities or displacements that might result; the advocates' maps show points of access for the public, bicycle paths, recreational opportunities without considering the appropriateness for current residents in riverfront communities or the differences in assumptions about who a revitalized river is for.

Methodology

French cartographer and theorist Jacques Bertin distinguishes maps from diagrams. He notes that graphics become geographic "maps" when the elements of their geographic components are arranged on a plane in a way that corresponds with their observed geographic order on the surface of the earth. The map's title and legend enable us to identify the space being represented and decipher the symbols and their thematic significance. When the title and legend are insufficient to convey the meaning of the map, it can be classified as a diagram. Diagrams rely on words written on the cartographic plane to identify the map's elements (Bertin, 1983, p. 285).

Farías analyzes tourist maps of Berlin as diagrams and examines the work they do in producing destination space (Farías, 2011, p. 398). Maps, along with signage, bus placards and other way-finding devices alleviate anxiety and fear brought on by disorientation in unfamiliar places (Lynch, 1960). Tourist maps distinguish between space as extension and space as social and symbolic construction. Farías (2011) proposes that tourist spaces are not simply constructed by adhering to already existing material extension (what is on the ground) but that tourist maps produce physical space at the same time as they engage in its social construction, its identity, memory, marketing, and so on. Del Casino and Hanna (2006) show that tourist mappings bring new understandings of a place while the experience of the place helps decipher the map and advances the ongoing production of the map. Since this view of tourists assumes they are always producers and consumers of mapping, Kitchin et al. (2013) assert that tourist mappings are always ongoing; they are complex, recursive, and intertextual processes in which meaning emerges through action, at the same time as our understandings of space are shaped by meaning (p. 483).

Maps produced by environmentally- and culturally-focused Los Angeles River revitalization advocates "construct a real that is yet to come, a new type of reality" (Farías, 2011). I examine the evolution of maps created and distributed by FoLAR activists in relation to maps produced earlier by engineers and water experts. In board meetings, neighborhood council workshops, and in the organization's newsletter, *Current News: Voice of the River*, an oppositional stance is taken regarding the Corps' activities relating to the Los Angeles County Drainage Area (LACDA) project for flood control. Activities such as river clean-ups, river walks, appearances at city council meetings, and organizing neighborhood design workshops all established FoLAR's stance in opposition to earlier approaches to flood control. These earlier solutions were seen as single-purpose (or, at best, primarily about flood control and secondarily about water conservation), wasteful and destructive toward both natural and human habitat. FoLAR repeatedly positioned itself as the leader in conceptualizing a watershed-wide, multi-purpose, environmentally sensitive approach to a Los Angeles river system.

In this analysis, this is termed a "centrifugal river" with its physical boundaries and cultural definition focused on extension outward from a center. This conception counters the idea of a "centripetal river" that functions as the absolute center of a watershed so that all runoff is directed toward the river (in the case of Los Angeles, to be transported to the ocean).[9]

Topographic drainage maps of Los Angeles with detailed contour lines are not analyzed

[9] In urban theory, land use changes are influenced by forces directed toward a downtown city center (centripetal), as well as outward from the center toward suburban and exurban spaces (centrifugal). The terms 'centripetal space' and 'centrifugal space' have been used to refer specifically to the visual experience of urban modernization (as in film). Augé relates these concepts of space to 'anthropological places' and 'non-places,' respectively (Augé, 1995). One is the product of a process of compression, the other of a process of distribution. Dimendberg (2004) explains that cinematic representations of centripetal urban space are characterized by a fascination with urban density and the visible (recognizable public spaces, inner-city neighborhoods, skylines). Centrifugal space is characterized by immateriality, invisibility, and speed (101). Centrifugal spaces are illustrated by an "urban-industrial centre displaced, dispersed and re-routed along the nation's road networks" (Roberts, 2010, p.105). My research uses a different understanding of "centrifugal space," as characterized in my typology.

here as they function primarily to represent existing drainage. In a previous paper, I addressed expert-produced maps as technological tools to propose, plan, and predict flood control approaches and outcomes. The clean-up and river walk maps examined in this paper take advantage of, and attempt to subvert, cartographic conventions present in expert maps of the river. They function as diagrams of where and how to interface with the river. I look at these maps over time to understand the intention behind them and how they function as tools for a shifting concept of the relationship to nature (the river, its watershed, and water infrastructure) in Los Angeles.

Evidence and Argument

While supplementing a growing scientific knowledge base with academic theses and dissertations on various aspects of the Los Angeles River (Blake, 1990; Danza, 1994; Dermitzel, 1993; Tilkian, 1995), advocates began to include methods that accounted for an ecology of human and "more-than-human" actors. New methods – all undertaken within the realm of political and environmental advocacy – included activities such as performance, art, dance, and poetry linked to field activities borrowed from the sciences such as biota surveys, river clean ups, educational walks, gathering data on the river's total maximum daily load of pollutants (TMDL), to name a few. Over time, diagrammatic maps produced by activists and artists became an increasingly important tool in these activities.

Massey Map, 1991

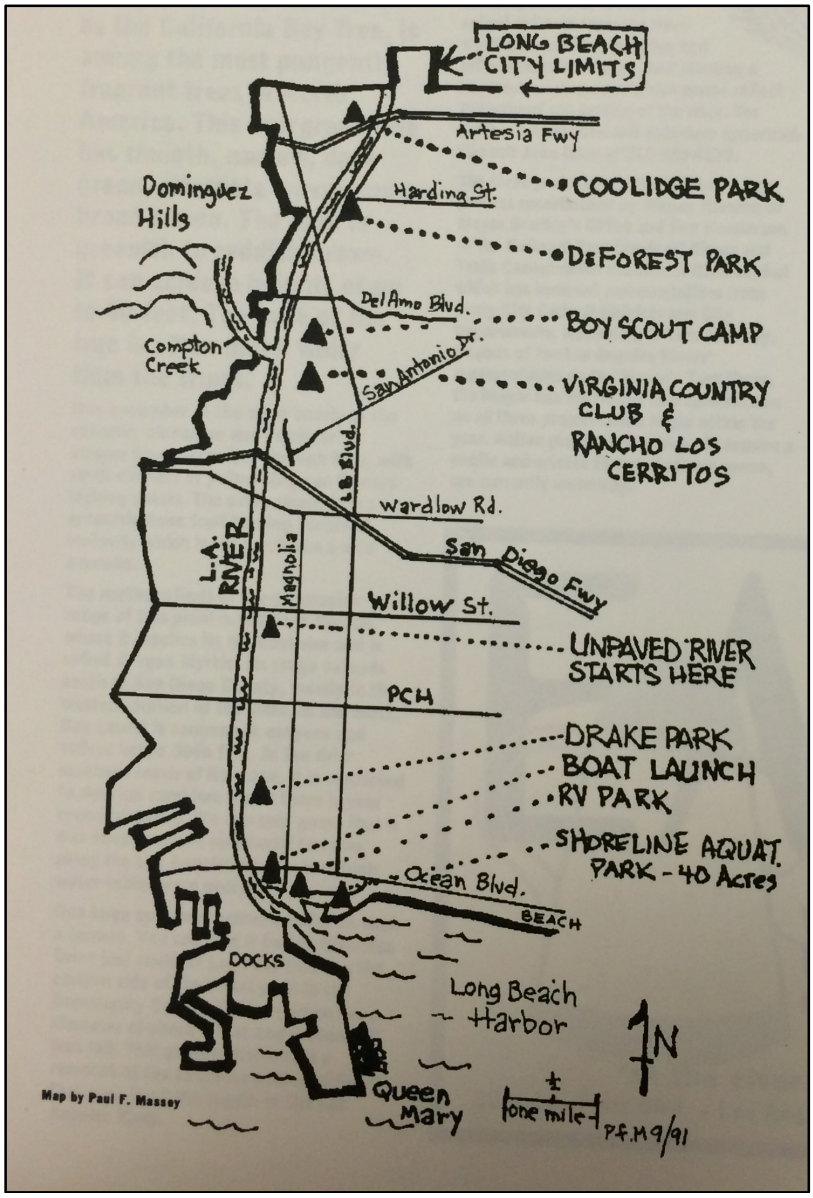


Figure 4: LA River in Long Beach map, used for recreation and camping (Massey, 1991)

FoLAR used maps as tools to educate readers about the location of natural habitat along the river, encouraging a human connection to parks and sites of recreational activities. One of the earliest maps created for this purpose appeared in 1991 in FoLAR's newsletter, *Voice of the River* (Figure 4). It was drawn by Paul F. Massey to accompany a short article about recreational and camping sites within Long Beach's city limits and along the lower Los Angeles River

(Massey, 1991). The hand-drawn map serves as a guide to sites in the city of Long Beach and extends from the Artesia Freeway south into Long Beach Harbor. City boundaries are indicated by heavy-weight black lines running north to south and paralleling the river. The river and one of its major tributaries, Compton Creek, are symbolized with wavy lines within parallel lines representing the channels. These wavy lines, a cartographic convention, also indicate Long Beach Harbor, into which the river empties.

Although cartographic elements such as a north arrow and scale bar are included, the selectivity of the hand-drawn map's content is clearly advancing a narrative asserting the natural aspects of the river channel. This content includes several parks (including the 40-acre Shoreline Aquatic Park), a Boy Scout camp, a country club, RV park, and boat launch. Streets are drawn in and labeled in relation to triangular map symbols indicating the location of these sites. "Unpaved river starts here," is indicated using the same symbology as the parks, in effect creating a destination "site" that encompasses the intersection of the built environment and natural features. The map in Figure 4 is an early example of how advocates used maps as tools to visualize an alternative to a single-use river as flood control channel. Unlike a comprehensive topographical map, this hand-drawn map identifies recreation and park sites along the river, a concrete flood control channel that is distinguished from surrounding freeways and surface streets. This map contradicts an on-the-ground experience of the concrete channel and proposes an alternative vision for the river.

Six Clean-up Sites, 1992

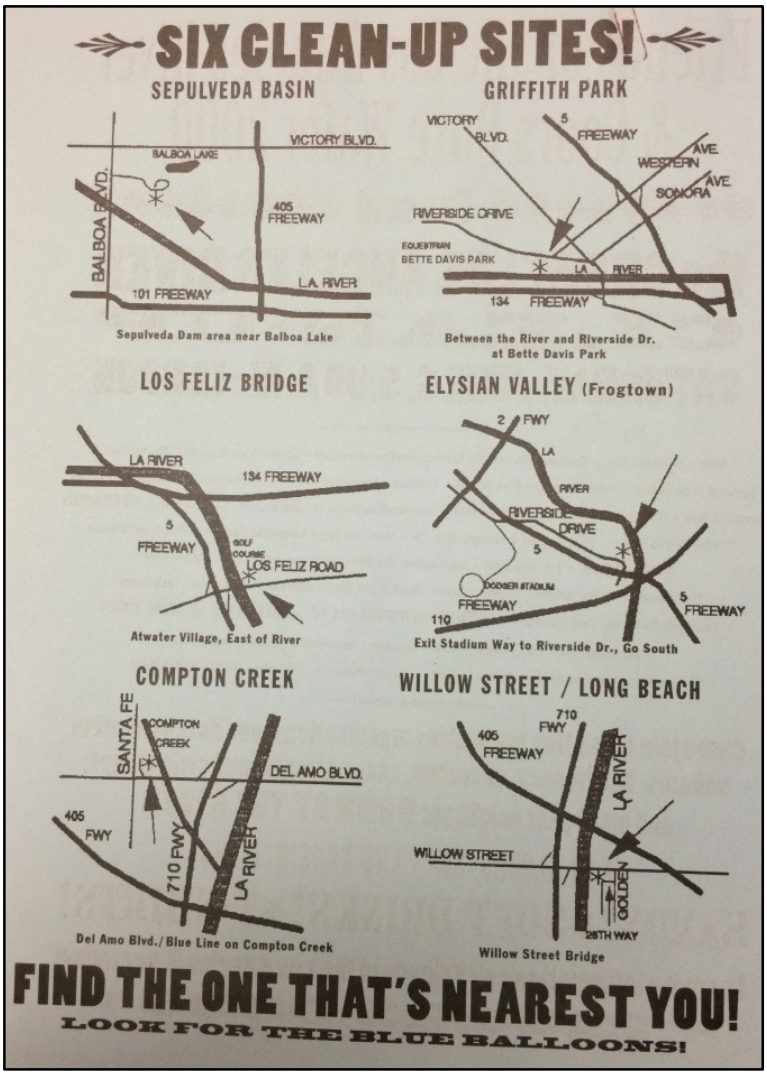


Figure 5: "On June 6, come down to the river" (1992)

FoLAR began organizing Los Angeles River clean up events beginning in 1990. In a meeting that year the Board of Directors answered the question, "What is the Los Angeles River?" by specifying its extent: the whole of Tujunga Wash, the tributaries as a well as the main branch, the complete watershed system that starts as streams in the mountains, and Los Angeles' last contiguous open space aside from its beaches (FoLAR board of directors September 26, 1990). Over the next two decades, advocates elaborated on their vision of the river by addressing land use, natural habitat, and recreational and park amenities as well as flood control and water

conservation. The river's appearance was largely industrial; in order to create a constituency to achieve the political clout for river revitalization in Los Angeles, FoLAR sought to enlist people's cultural and symbolic ideas about what a river is while continuing to educate the public about the environmental science of urban river restoration. During the 1990s, the institutional primacy of FoLAR's Technical Advisory Board declined while that of the Board of Directors grew. While this change may reflect institutional evolution (Gold interview, 2016), Board of Directors members were architects and business leaders rather than scientists and environmentalists and their focus was increasingly on the cultural and symbolic meanings of the Los Angeles River. FoLAR's organized river cleanups and ongoing series of river walks were effective programs that created opportunities for individuals to experience the river firsthand (MacAdams, 2005, p. xvi). The maps created to organize these activities functioned much as tourist maps do, producing destination spaces.

Maps defined the scale and framing of these spaces as largely localized, first-hand experiences of the river. An early river clean-up event was announced in a flyer (Figure 5) inviting participants to "Find the one that's nearest you!" referring to six clean-up sites along the river. An accompanying article identifies "six microclimates to choose from" ("On June 6, come down," 1992). The six discrete locational maps each have titles above them identifying the neighborhood where the clean-up site can be found. These include sites along the river that were each also a focus of advocate activities, including soft-bottom areas of the river at Elysian Valley (Frogtown) and Willow Street / Long Beach. Geographically, the six sites represent locations along the river from Balboa Lake near Encino south to Willow Street in Long Beach near the mouth of the river. The reaches of the river from its headwaters in Chatsworth through the west San Fernando Valley to the Sepulveda Dam recreation area were not included in these clean-up

sites. Rather than focus on the entire river, sites drew attention to local neighborhoods and human-scale, as opposed to system-wide infrastructural scale experiences of the river; if you are familiar with Atwater Village or the golf course in Griffith Park, then you probably have some experience of the Los Angeles River, even though it may primarily be a visual acknowledgment of its existence. FoLAR's neighborhood-specific clean-ups built upon this first-hand knowledge to draw participants into an expanded engagement with the river.

The maps lack north arrows, scale bars, topographical features, or terrain but serve to direct people to a point indicated on each map by an asterisk symbol as well as a heavy black arrow pointing toward this symbol. There are no symbols identifying a waterway as distinct from a freeway, for example, but the textual labels do all of this work. The Los Angeles River is included in each of these maps but is not readily discernable from the nearby freeways and streets; they are all presented as components of a network of black lines of varying weight. Labels identifying the freeways, streets, Compton Creek, and the Los Angeles River are essential to deciphering these maps. Landmarks are indicated on a few maps but these are not prioritized by symbols or text. Textual labels identify "Equestrian Bette Davis Park" and "Golf Course" as well as "Dodger Stadium" (indicated by a circular symbol). The proximity of these familiar landmarks helps make the river clean-up sites less strange as they link the river to safe and frequent sites of recreational activity. These maps at first appear to function primarily as locational maps to clean-up sites but in fact engage in what Farías (2011) terms *placing objects*, by synthesizing multiple places – Dodger Stadium and the nearby river-adjacent community known as Frogtown (Elysian Valley) – as they relate to one another to create spaces. In this case, the iconic baseball stadium in Elysian Park, home of the former Brooklyn Dodgers who put Los Angeles on the major sports league map, is linked spatially to Elysian Valley and its soft-bottom

stretch of the river with potential sports and recreation activities such as bike paths and the periodic rapids where the water winds around foliage in the center of the channel.

No River, 1975

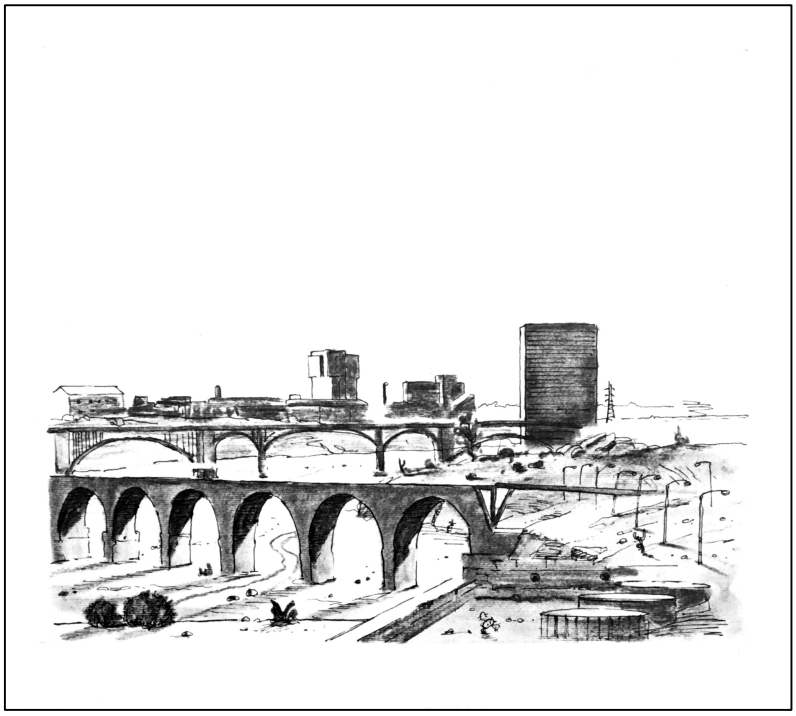


Figure 6: *No River* – Sketch 1 (Schoonhoven, 1976)

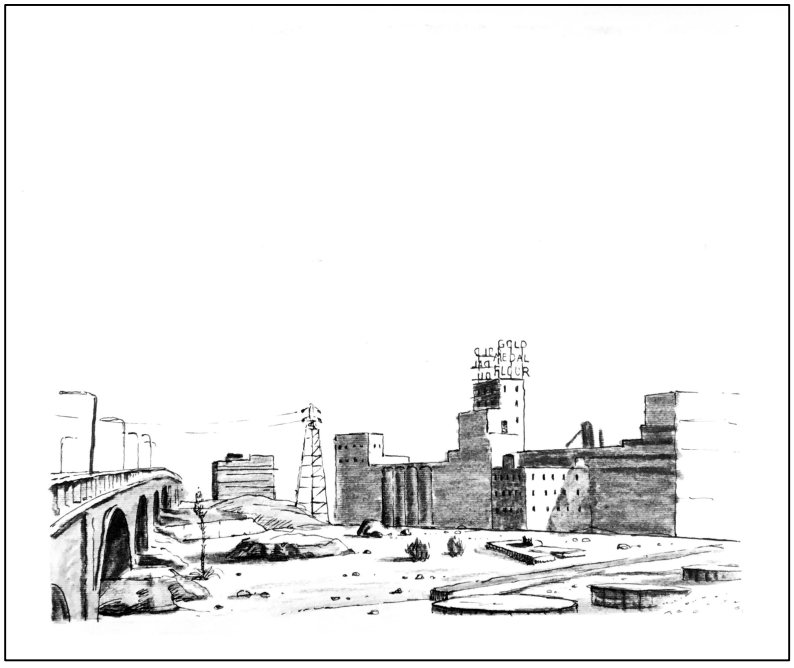


Figure 7: *No River* – Sketch 2 (Schoonhoven, 1976)

Advocates sought to combat the industrial identity of the Los Angeles River that had developed over the first half of the 20th century. The Los Angeles County Flood Control District and the United States Army Corps of Engineers successfully applied a single-use, technological solution to flood control. Concrete channelization occurred alongside the development of an extensive system of freeways and advocates felt it necessary to form a grassroots constituency to go against the experts by creating new cultural and symbolic conceptualizations of the river.

The United States Clean Water Act of 1972 established a basic structure for regulating pollutant discharges into waters, gave the Environmental Protection Agency the authority to set standards for industry, and made it unlawful to discharge unpermitted point-source pollutants into navigable waters (Federal Clean Water Act, 1972). Events such as the polluted Cuyahoga River in Cleveland, Ohio catching fire in 1969 and the first Earth Day in 1970 occurred alongside a heightened awareness of the negative effects of human activities particularly visible in urban areas. River revitalization advocates confronted the growing perception of Los Angeles as a city that had not only conquered nature but defied it. The Los Angeles River channel was hardly recognizable as a river, much less in relation to iconic American rivers such as the Mississippi. A frequent film location site for the region's entertainment industry, the river channel appeared in movies, television shows, and commercials as a post-apocalyptic roadway. If it was included on maps at all, it was hardly distinguished from the surface street, freeway, and rail network that had grown around it.

An example of the dystopian image of Los Angeles' River was included in an exhibit at the Walker Art Center in Minneapolis comprising images of the Mississippi River from the 19th century through 1975 (Figures 6 and 7). A wall painting entitled *No River* by Los Angeles-based Terry Schoonhoven was included in the exhibit. Schoonhoven transplanted the experience of the

Los Angeles River onto a hypothetical future Mississippi River. He envisions the Mississippi in an arid environment, following a severe drought that has caused a shift in the region's ecology. The resulting desert landscape of chaparral and scrub oak, readily identified with Los Angeles, serve as a cautionary vision of loss following environmental disaster Lyons, 1975). The work implies an environmental continuum: on one end is the rolling, wild Mississippi River, on the other is the Los Angeles concrete river channel.

The wall paintings by Schoonhoven are not maps but represent the iconic power of images of a channelized Los Angeles River. They are framed as if they were snapshots functioning as visual evidence. A wide and dry river channel with sloping sides and traversed by bridges and aqueducts reminiscent of those that cross the river near downtown Los Angeles (Figure 6) is depicted bordering industrial manufacturing of the kind that can be found along the lower Los Angeles River (Figure 7). A future Mississippi River is envisioned as the result of urban environmental destruction caused by human neglect. Schoonhoven's images seem to imply that the powerful Mississippi River can be reduced to a hardpan-bottomed, dry channel.

The paintings of the river echo photographs of bridges crossing the concrete Los Angeles channel; in this way, it is not necessarily the transformation of the Mississippi into the Los Angeles River but the assertion that the Los Angeles River is a river just as much as the Mississippi is. Visual imagery is used here to produce a cautionary tale, and transform how we understand our relation to urban rivers. It is not necessarily that the Los Angeles River occupies the negative end of the environmental destruction continuum that is significant; rather, it is its position on the continuum in relation to healthier urban rivers. Advocates embraced the move by the American Rivers organization when it placed the Los Angeles River on a list of the 25 Most Endangered Rivers in the United States. The negative designation reflected nationwide support

for the revitalization of the river and called attention to FoLAR's fight to oppose continued channelization approaches to flood control ("It's Official!," 1993).

Los Angeles River Watershed, 1997

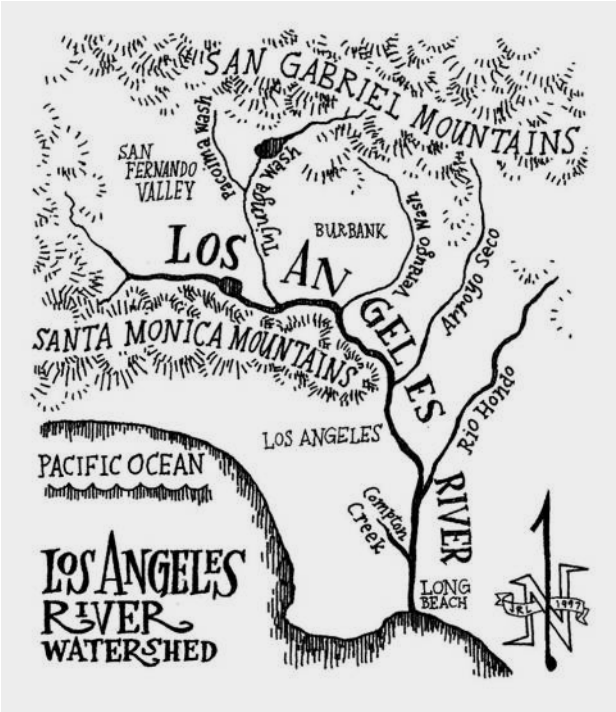


Figure 8: Los Angeles River Watershed (Linton, 1997)

The hand-drawn map of the Los Angeles River Watershed was created by Joe Linton for a FoLAR brochure in 1997 (Figure 8). The map's labels are likewise hand drawn. The label for the Los Angeles River is at the center and is the largest sized label. The San Gabriel and Santa Monica Mountains are the next largest labels in terms of size, indicating a direct connection between the river and surrounding mountains. This emphasizes the focus of the map: the Los Angeles River is not a concrete flood control channel but a component of the watershed. The next smaller labels indicate significant sub-regions in the watershed and include the San Fernando Valley, Burbank, Los Angeles, Long Beach. There are no freeways, railways, or surface streets included in the map.

There is no scale bar or map-to-ground representative fraction. The map's scale is at the watershed level. The map's boundaries are defined by its neatline with the Los Angeles River

channel at the center. The channel is presented in relation to the surrounding drainage topography, a system fed by several washes and streams. Hachure lines indicate the steepness of the grade and therefore the intensity of drainage. The lines that symbolize the river itself are generalized so that the channel's features that have been engineered to be straighter or where the geometry has been exaggerated (such as the tight-angled turn the channel takes at Griffith Park just before it heads south toward Elysian Valley) appear as gentler, naturally curving river banks. The map represents the river as both more natural and more stable (channelization actually fixed the river's parameters) while the absence of features of the built environment creates a river system integrated into the surrounding environment.

Although runoff drains toward the river, the river is drawn as a branching system, with individual streams and washes that narrow the farther they are from the river. Depicted much like a tree, the river emanates from the Pacific Ocean shoreline which is indicated by vertical lines that convey landmass solidity at the littoral boundary and reinforce the impression of a river branching up from its mouth, out of the harbor and toward its extended influence on the surrounding mountains. A relatively large north arrow is positioned at the lower right of the map near the river's mouth, emphasizing the importance of conceptualizing the river as directed outward and upward toward the mountains. This map fits into my typology as a centrifugal river in which the force of the river is represented as oriented outward to encompass the entire watershed.

Clean-up Sites, 1998

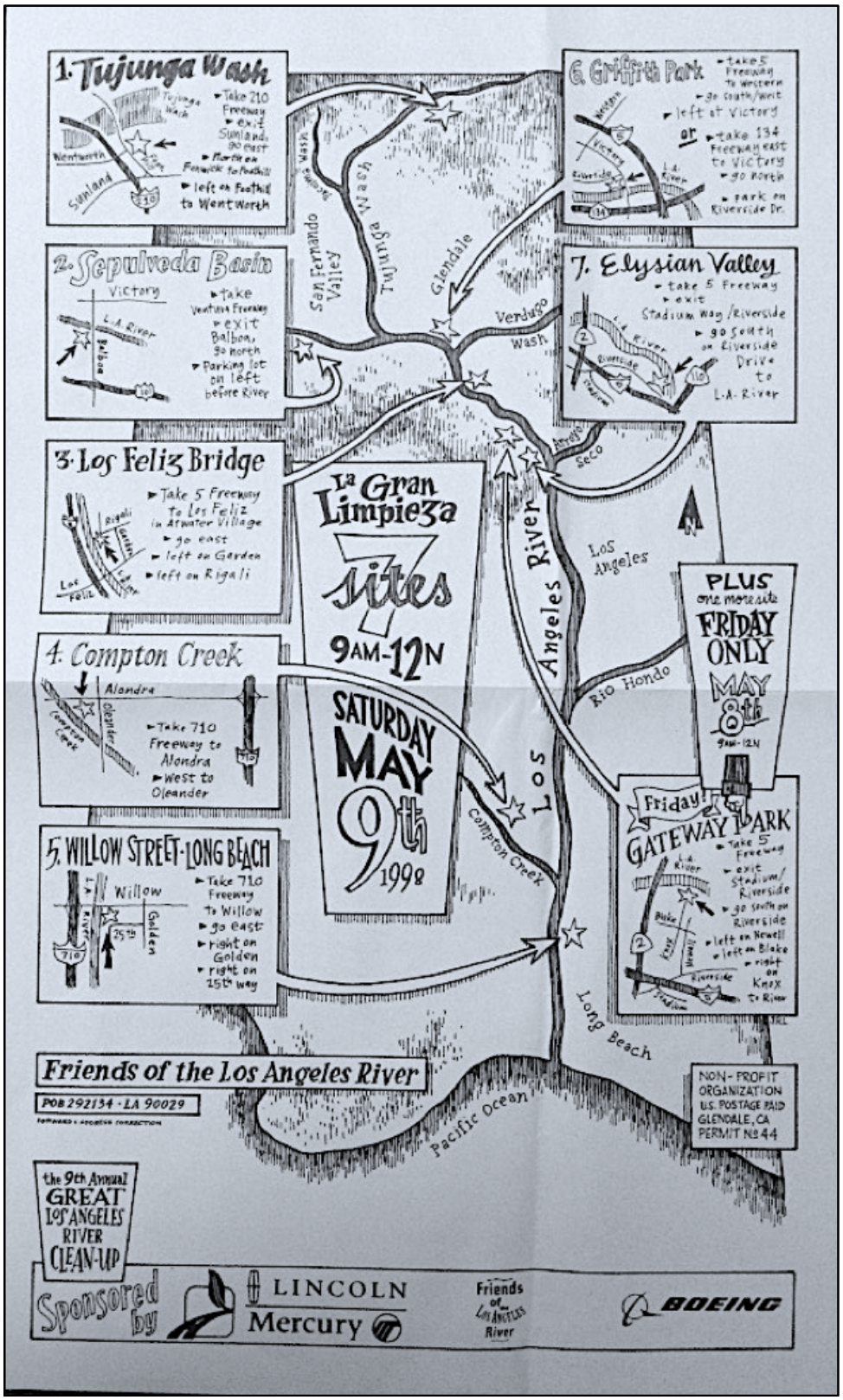


Figure 9: La Gran Limpieza (Linton, 1998)

After producing the map of the Los Angeles River watershed (Figure 8), Linton created a map of clean-up sites for FoLAR's May 9, 1998 "La Gran Limpieza" (Figure 9; Linton, 1998). This hand-drawn map combines aspects of Linton's watershed map with those of the 1992 map of clean-up sites (Figure 5). The "base map" is a version of the earlier watershed map, this time cropped to include only the reaches of the river that contain clean-up sites. These sites include the San Fernando Valley from the Sepulveda Basin and Tujunga Wash southeast through Elysian Valley, downtown Los Angeles, and on to the mouth of the river at Long Beach. Linton adapted aspects of the 1992 clean-up map (Figure 5) for his 1998 map. The earlier clean-up map comprised a series of locational maps without indicating any of the sites' qualities, while this 1998 map includes seven detail maps, each self-contained but linked to the base map through arrows indicating where the sites are in relation to the whole river.

The base map does not include the built environment; there are no freeways, streets, rail ways, or buildings. The river is symbolized by a branching network of black lines, reminiscent of trees or the human circulation system. More "natural" areas such as those surrounding the Tujunga and Verdugo washes, and the area running west from Griffith Park and including the Santa Monica Mountains are indicated by a fill of dense vertical lines. These lines resemble hachures but do not serve to represent changes in the steepness of the gradient; instead, they are generalized and symbolize mountainous terrain without quantifying topographical changes. A more densely drawn version of these vertical lines indicates where the land mass meets the ocean at the bottom of the map. Textual labels are hand-drawn with "Los Angeles River" as the largest, positioned to hug the contours of the river channel. Next largest are the tributaries and washes that feed into the river. Only three sub-regions or neighborhoods are labeled: San Fernando Valley, Glendale, and Long Beach as well as the Pacific Ocean.

The base map and detail maps are the main components of the flyer. The lower fourth of the legal-sized flyer functions as a mailer that includes logos of corporate sponsors along the bottom, FoLAR's non-profit permit where the stamp would typically be, the return address at the upper left side, and a blank space for the mailing labels (in the Pacific Ocean portion of the map, just south of Long Beach). The detail maps showing individual clean-up sites function as locational maps similar to the discrete site maps from the 1992 Los Angeles River clean-up flyer (Figure 5). The network of freeways and streets, absent from the base map, is the sole focus of each detail map. Hand-drawn textual instructions for finding each clean-up site accompany the graphical representation of the streets surrounding the site star symbols. Linton's clean-up flyer links each of the separate site maps to the underlying base map of the river and its watershed. Each of the detail maps is individually numbered (from 1 to 7) and the identifying name of each site is unique and hand-drawn with its own, distinct typeface. The asterisks symbolizing sites in the previous clean-up map have become outlined star symbols that appear in each of the detail maps as well as on the base map. The star symbols on the base map are drawn so that the point of view of the map user seems to be directly over Compton Creek and Long Beach where the star symbols are seen from directly overhead. As the eye progresses north toward the San Gabriel Valley, the star symbols are distorted as if in an oblique photo. The farther north, the more stretched and distorted the star symbols, which conveys mountainous terrain rather than a flattened built environment.

Each of the detail maps is contained within its own neatline but all of the neatlines are broken by an outlined arrow. The arrows extend from each individual detail map toward its site's location along the river. The star symbols link the locational function of the built environment detail maps to the locations of each site on the natural, watershed-focused map of the river. This

linking technique also creates an alternative identity for each of the sites along the industrialized, concrete infrastructure that, in contrast to the visual and embodied experience on the ground, produces a vision of a revitalized river. The clean-up events were intended to both educate people about this alternative vision for the river while enlisting their labor to create the river that Linton's map already produced.

The effect of this linkage between built and natural environments performs the diagrammatic function, *folding displacements*, that Farías (2011) attributes to tourist maps. *Folding displacements* visually traces routes that create connections "between here and there, one attraction and the next" (Farías, 2011, p. 409) to constitute a geography of contained movement. Farías, citing the literature in tourism studies (Edensor, 1998; Sheller & Urry, 2004; Farías, 2010, among others), contrasts these authors' focus on mobility and space as process, to the ways that space is presented through tourist maps. The tourist maps Farías cites intertwine multiple places such as tourist routes and surrounding urban sites to create new spaces. The Linton map extends this theoretical conception because it links, or folds together, the clean-up sites and their surrounding urban spaces with a visionary route, the future site as a component of a multi-use, centrifugal river and its watershed. The sites are thus a point where the dissonant experiences (Farías' displacements) of on-the-ground concrete channel and future restored river are not kept separate from one another but folded together.

Glendale Narrows River Walk, 2005

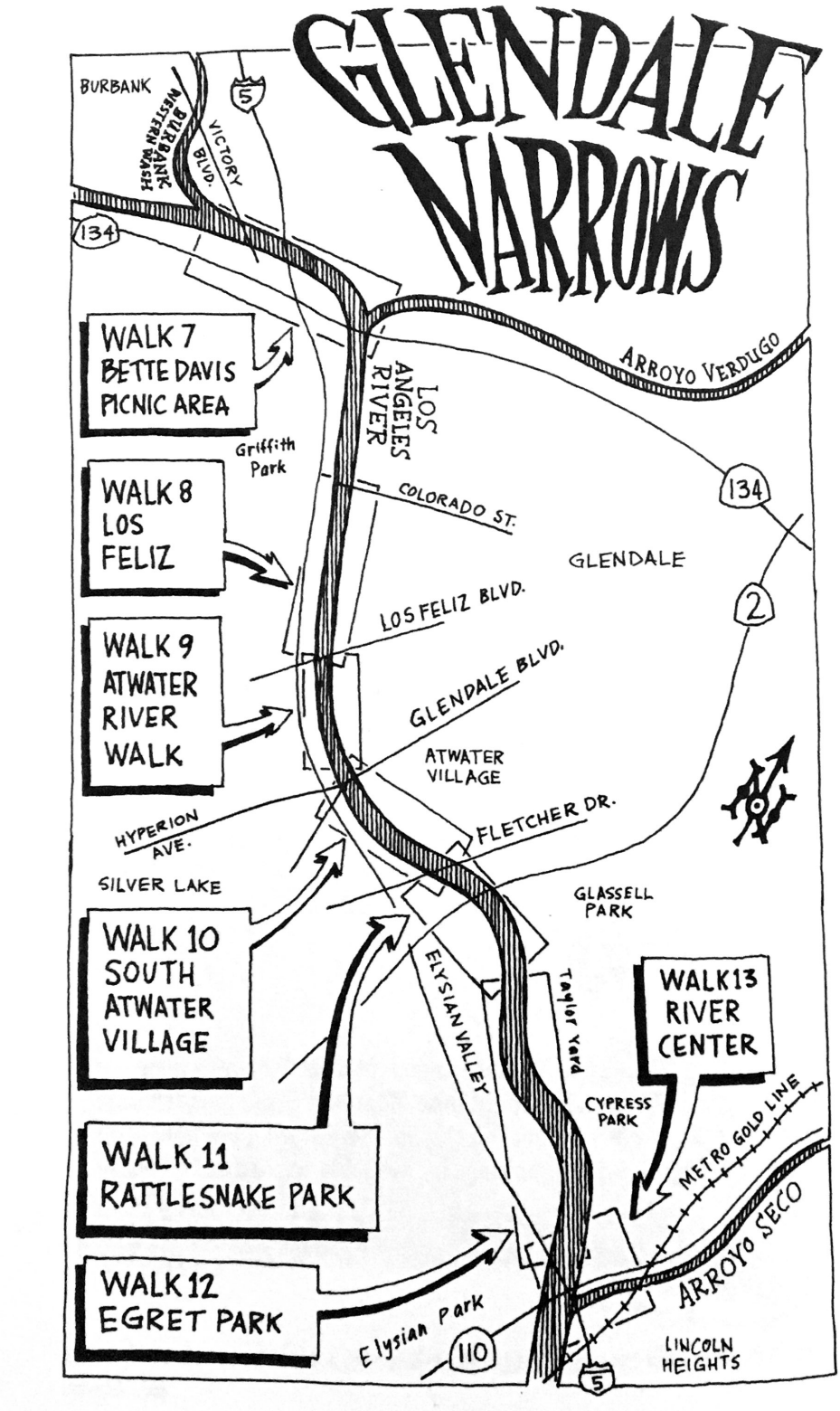


Figure 10: Glendale Narrows river walk map (Linton, 2005, p. 68).

Linton is known for his hand-drawn maps that promote a series of Los Angeles River walks and bike rides he developed and conducted. More than 40 walking, biking, and driving tours are included in "Down by the Los Angeles River: Friends of the Los Angeles River's Official Guide" (Linton, 2005). This book includes a more extensive map of the entire Los Angeles River system in the style of the Linton maps discussed above (Figures 8 and 9); in addition to Compton Creek, the Rio Hondo, Arroyo Seco, and the Tujunga Wash and Arroyo Verdugo, many smaller creeks and washes are included along with the San Gabriel River (Linton, 2005, p. viii). There are 27 walks and 12 bikeways; the walks are listed in order from upstream to downstream, beginning with the main stem of the Los Angeles River. Los Angeles River walks are divided into four sections: San Fernando Valley, Glendale Narrows (Griffith Park to Elysian Park), Downtown Los Angeles, and Downstream (Vernon to Long Beach); this is followed by walks on four of the main tributaries. The maps are not drawn to scale, and they lack any scale bars or map-to-ground ratios, though they always include at least one north arrow.

Figure 10 is the map of the Glendale Narrows, an eight-mile section from the north end of Griffith Park to the river's confluence with the Arroyo Seco and the longest soft-bottom area of the river. This map continues the depiction of the river as an organic, branching entity as in Figure 9's base map but the surrounding terrain is not symbolized by hachures to indicate changing gradient or parks and mountainous areas. This map's terrain comprises the river-adjacent urban built environment. Several freeways, the Metrorail Gold Line tracks, and a handful of surface streets that traverse the river are symbolized by light weight black lines in relation to the thick, dark presence of the river channel. Light weight lines are also used to draw rectangles around the seven areas of the river where individual walks are located.

The same approach to the detail maps we saw in Figure 9 is taken here using boxes (neatlines) broken by arrows that point to a river location on the base map. The difference is that the "details" here (Figure 10) are not maps but text indicating each of the seven walks. The base map in this case integrates the depiction of the organic, branching river into a locational map. This map functions as an index to the seven walks, each with their own map (see Figure 11 for an example). As we saw in the Linton clean-up map in Figure 9, the section title of "Glendale Narrows" is hand-lettered using its own typeface, as all sections have unique typefaces. The section titles break through the maps' neatlines, giving them a hand-crafted feeling that contributes to the uniqueness of each walk, as well as the distinctive character of each neighborhood.

These section maps function as diagrams and, like tourist maps, indicate how to find river access points and how to use the river and surrounding land. Lewis MacAdams, one of the founders of FoLAR, noted that Linton was "able to capture, with pen and ink, the spirit of this mysterious ad hoc collaboration between man and nature" (MacAdams, 2005, p. xvi). Diagrammatic maps produced by Linton offered new ways of using the river through guided walks and recreational activities. Later maps linked these activities into zones (of recreation), thereby extending the river's boundaries to include surrounding land. These maps functioned as tourist maps, delineating the river environs as tourist destinations, natural places to explore and visit. In this way, these tourist diagrams worked to produce a multi-purpose river that is in no way diminished in its flood control function but has a robust connection to its watershed and the natural world.

Glendale Narrows River Walk Detail: Rattlesnake Park, 2005

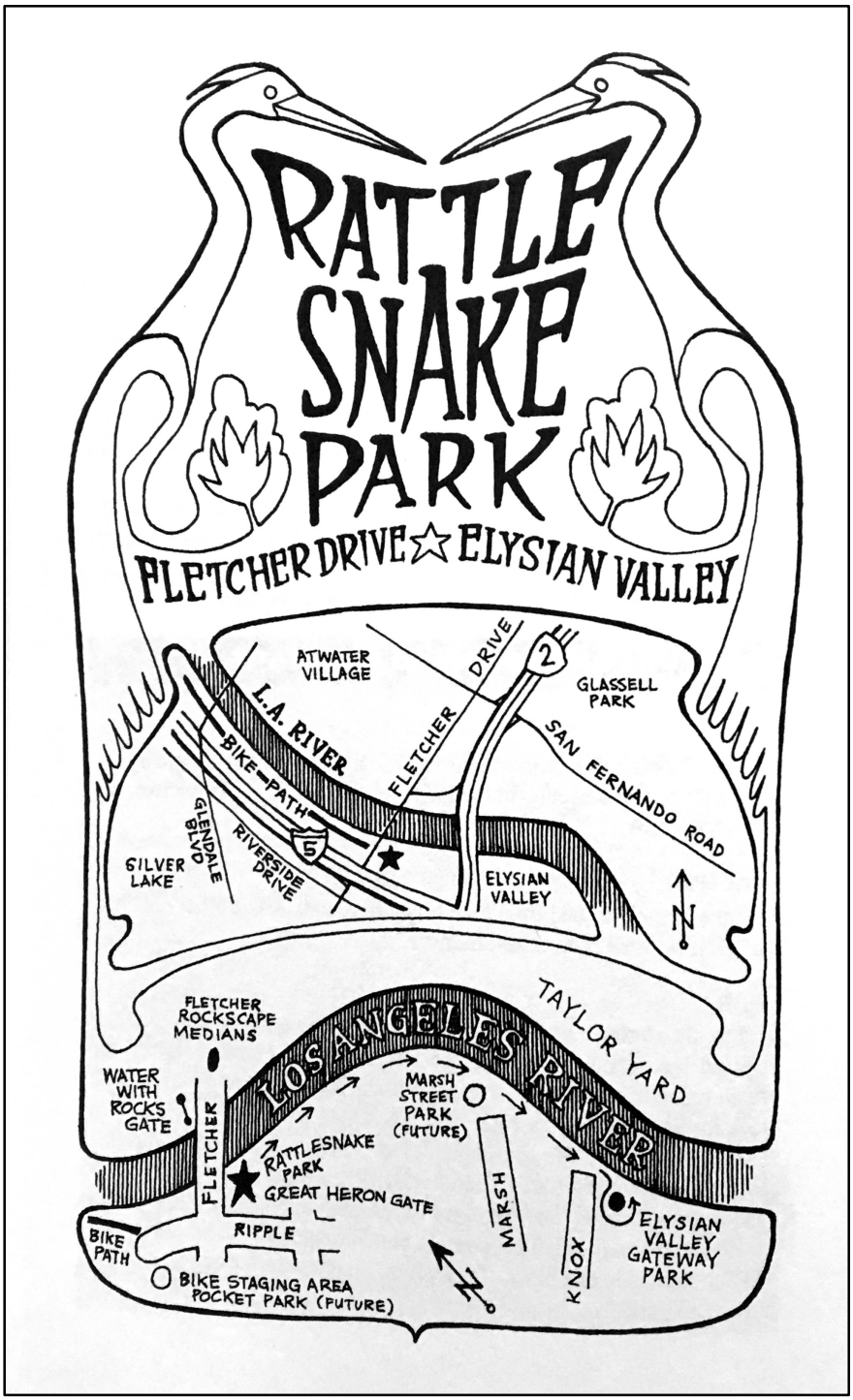


Figure 11: Rattle Snake Park river walk map (Linton, 2005, p. 86).

Walk 11 of the "Glendale Narrows" map (Figure 10) is Rattlesnake Park. Figure 11 shows the map that details this locale and is a guide to surrounding landmarks, some features that have not yet been built, and ways to use the river-front land. Figure 11 is a detail of the Figure 10 map which is, in turn, a detail of the overall watershed map. Maps of each individual walk include two hand-drawn and illustrated maps: one of the walk route indicating which way to go from the starting point and features found on the walk; the other map showing how to get to each walk whether by car, train, or bike (Linton, 2005).

Because it is a larger-scale, detail map, the walk route (indicated by a series of arrows) map (Figure 11) includes features that are at the neighborhood scale. These features are labeled with the same size hand-drawn font used for the freeways and larger streets in the associated locational map. Local features include small surface streets, the river bike path, Elysian Valley Gateway Park, and Rattlesnake Park including its Great Heron Gate. Both the Great Heron Gate and the Water with Rocks Gate were created by artist Brett Goldstone specifically to create landmarks that relate thematically to the river. According to Linton, the Great Heron Gate is the first to invite people to the river rather than keeping them out (Linton, 2005).

The focus of this map is not simply the material border of the Elysian Valley neighborhood where Rattlesnake Park is located. Rather, the map extends boundaries of river-centric recreational activities being promoted by FoLAR through its pocket parks, river-centric rock features, bike path and bike staging area. These boundaries include sites across the river from Elysian Valley and place the river at the center of the boundaries rather than assuming it is a border, dividing neighborhoods on one side from those on the other. These boundaries also include two sites that have yet to be constructed (Marsh Street Park and Bike Staging Area Park)

as well as Taylor Yard, a railroad yard that river advocates insisted must be purchased and converted to a park.

Farías (2011) suggests that tourist maps produce borders out of boundaries of particular activities, a function he terms *edging experiences*. The Rattlesnake Park map doesn't reference on-the-ground borders but extends the boundaries of recreational activities and "natural" areas, linking both sides of the river together into a single area. The map "qualifies spaces as localities of urban practices available for certain tourist practices" (Farías, 2011, p. 406); in this case, tourists are primarily residents of Southern California who are invited to engage in practices along the river that are new to them and that will be aggregated into the production of newly qualified space, the Los Angeles River.

Extension and linkages are produced on the map by labeling existing parks and recreation-themed sites as well as those that do not yet exist. Two small pocket parks (Marsh and Bike Staging Area) are labeled "future." The recreational boundary is extended spatially to include land across the river from Elysian Valley. This extension is also accomplished by thematically linking two built features that embody characteristics of the soft-bottom channel through the Glendale Narrows: the Water with Rocks Gate and the rockscape medians on Fletcher Drive, both across the Los Angeles River from Rattlesnake Park. By extending the boundaries across the river Taylor Yard (the site of a future mixed-use park to include active recreation and passive habitat) can be included in the borders of the map's space of recreation.

The newly conceptualized recreation area borders on the map go beyond representation or even boundary marking. They function as virtual borders that prefigure later borders to be constructed on the ground (Shields, 2006, p. 227). One could have the river walk map in hand and "see" an undeveloped, "future" area as a bicycle staging ground or a river-adjacent park.

These virtual spaces planned as future parks are connected by crossing the actual bridge at Fletcher Drive. The maps extend the spatial borders of a “natural” river using the existing boundaries of activity along with related future or imagined activities that both deepen and extend these boundaries.

FoLAR, Elysian Valley, 2014

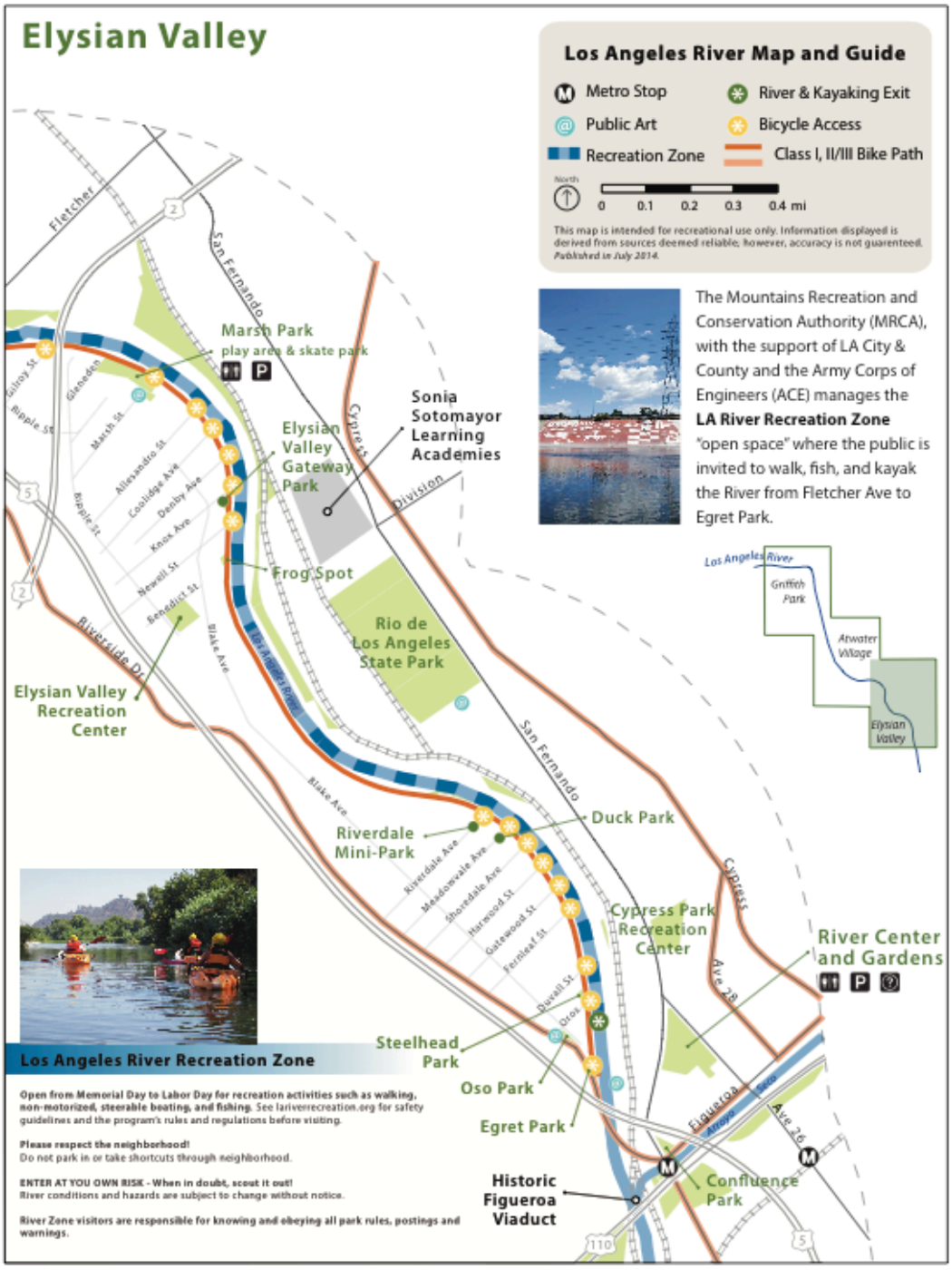


Figure 12: "Elysian Valley" (Elysian Valley Map, 2014)

The map in Figure 12 of Elysian Valley (included in the pamphlet "Glendale Narrows") was produced by FoLAR (2014) as part of its "LA River Map & Guides" pamphlet series. These

guides include groups of maps for the Glendale Narrows (Los Angeles River Map & Guide: Glendale Narrows, 2014) and the Upper River (Los Angeles River Map & Guide: Upper River, 2015) and Lower River (Los Angeles River Map & Guide: Lower River, 2015). Unlike the hand-drawn maps, all labels and text are digitally-generated, illustrations are photographs, and the rail, freeway, and Metro stop symbols follow cartographic conventions. The pocket parks include familiar symbols for parking and restrooms. The map includes a north arrow, scale bar, and legend indicating metro stops and river access points for specific recreational uses. The "Los Angeles River" label is placed on the river channel symbolized with alternating bands of color and identified in the legend as a "Recreation Zone." The river is integrated into the surrounding transportation system of freeways, surface streets, rail lines, and a riverfront Bike Path categorized as Class I or Class II/III. Local streets that dead end at the river channel are indicated with star symbols to indicate bicycle access. A southernmost point on the map is labeled River & Kayaking Exit. Gray areal boundaries show parks.

"Elysian Valley" maps the area of the river that has received the most attention regarding cultural and recreational activities, riverfront design, and funding. The borders of the mapped area transcend existing neighborhoods and include the river as well as land along both banks. Accompanying text on the map states that the Mountains Recreation and Conservation Authority (supported by LA City, LA County, and the Army Corps of Engineers) "manages the LA River Recreation Zone 'open space' where the public is invited to walk, fish, and kayak the River from Fletcher Ave. to Egret Park" (Elysian Valley, 2014).

The pamphlet invites users to participate in producing the diagrammatic map of the river: "Please share your experiences using this map! Your feedback will help us shape and refine the final version encompassing the entire Los Angeles River" (Los Angeles River Map & Guide:

Glendale Narrows, 2014). Elysian Valley (Figure 12) is an example of the way maps engage in placing objects, Farías term for the synthesis of multiple places as they relate to one another to create spaces.

Play the Los Angeles River card game

Figure 13: Marsh Park (Play the LA River, 2014)

Figure 14: Under Olympic Blvd Bridge (Play the LA River, 2014)

Maps have been used as tools of boosterism for the Los Angeles River as a unifying development project. Cultural and arts activities are a part of this "creative class" project, following the assertion that higher levels of economic development occur in cities that have a concentration of artists, and technology workers (Florida, 2002). "Play the LA River" is presented as a sort of game and comprises an overview map of the river and a deck of cards (Figures 13 & 14), with each card offering a detail map of a particular stretch along the river, "51 miles & 51 weeks of play" (Play the LA River, 2014). In these maps, sites along the river are treated much the same as tourist destinations. The maps promote the river as an urban amenity, a sort of cultural playground, while enlisting participants to engage in this "game of urban exploration and imagination" (Play the LA River, 2014).

Text labels have been placed over the Google base map to indicate where and how to interact with the river. Each individual detail map is designed to resemble a playing card indicating the suit (Valley, Glendale Narrows Downtown & South) and a rank for each. The fonts for the textual labels are digitally generated using a sans-serif type for titles and explanatory text. A digitally-generated script resembling handwriting appears in white boxes (like comic strip dialogue balloons) that provide brief information and recommend activities for the play sites. The handwritten quality of this digital script is reminiscent of the method used earlier by Linton to indicate clean-up sites and walks (Figures 9 and 10).

This script is also used in the "dashboard" or legend at the lower right of each card. Alongside a north arrow, this legend lists play activities, site features, and a gritty-to-green scale (there is no map scale on the cards). The activities vary according to the neighborhood and site, ranging from those related to the river (Summer Kayak Rentals) to less river-specific activities like Yo-Yo Olympics. The gritty-to-green scale categorizes each site and serves to direct the user

experience of the site. For example, the card for "Marsh Park," a site in gentrifying Elysian Valley on the south/west side of the river (Figure 13) is categorized as "green" and shows "Gym equipment – work out and gaze @ river." The river channel is symbolized with alternating bands recalling the "Recreation Zone" symbology used in Figure 12. In contrast, the card for "Under Olympic Blvd Bridge," an area in Boyle Heights where artists are critical of the role that the arts play in gentrification and have actively contested the presence of galleries, is characterized as "gritty." Text on this map includes "Caution: Site is very cool & also very gritty – go with friends" (Figure 14).

The Linton maps (Figures 10 and 11) offer directions to existing and proposed places where one can interact with the river without specifying how to interact. In contrast, the Play the LA River project conveys the collective's members' positionality, recommending not to be alone in a "gritty" east side neighborhood, though one wonders whether local residents in Boyle Heights experience the surroundings in the same way. The urban, post-industrial river with its "concrete form and abandoned nature" (Arroyo, 2010, p. 3) has served as the inspiration and location for many place-based art projects over the past 40 years.[10] Play the LA River's diagrammatic maps normalize the experiences of different neighborhoods along the river through the eyes of those promoting a "creative class" approach to development.

Conclusion

In this paper, I have shown how advocates for river revitalization produced hand-drawn maps as diagrammatic tools to make convincing arguments that the Los Angeles River should be

[10] See John Arroyo's master's thesis that catalogs 40 of these artworks including site-specific dance and performance art, visual and media arts such as graffiti, and film screenings (Arroyo, 2010).

approached as a mixed-used, watershed-wide river system. These maps employ vernacular graphics and symbology to promote the river as a friendly, familiar natural entity rather than a dangerous, urban infrastructural object. In these maps, the river is shown to be multi-faceted, specific to different neighborhood sites, and already being used by local residents in an unofficial, ad hoc manner.

River advocates have emphasized the cultural and aesthetic role of the river and visualizations of the river – in the form of photographs, maps, and diagrams – have become both tools of persuasion and tools of production for a new multi-function river. The success of Linton's early hand-drawn maps and diagrams to entice people to learn about and explore the river influenced subsequent visualizations and maps that depicted specified activities and land use. Visual products such as the "Play the LA River" card game (Figures 13 and 14) normalize the positionality and assumptions of the mapmakers. Assuming particular recreation and leisure landscapes along with river, landscape architectural renderings of revitalized sites along the river (Figure 15) reassert experts' authority to curate the river as a designed urban amenity. These visualizations that model a revitalized river experience will be addressed in a later paper.

Los Angeles River, Studio-MLA / Lehrer Visualization

Fig. 15: Los Angeles River revitalization image. Studio-MLA. (LA River Greenway design, 2018)

Following the growth of the environmental movement in the 1970s, an increased necessity to negotiate the mutual effects of natural processes and the built environment has meant a shift away from a strict binary mode of thought that positions humans as masters of nature (what Gibson-Graham refer to as "hyper-separation"), and a false sense of society's autonomy from nature (Gibson-Graham, 2011). FoLAR's Technical Advisory Board laid out the blueprint for a watershed approach that uses nature's rules to organize society. Activities in the field (river clean-ups, nature walks) brought people to the channel and made a new, embodied conceptualization of the river possible. Maps were a key in the mediation between the modernist flood control channel and the potential constituency that was needed to transform this channel. As one Technical Advisory Board remarked, after getting the river on the map and providing the

technical ground on which to advocate for revitalization using a watershed approach, the task ahead was to continue to develop an understanding of watersheds, rivers, and how people can manage them to benefit themselves and the environment (Danza, 1998).

In significant ways, the formation of FoLAR in 1985 and the tactics of those advocating for restoring the concrete channel to something 'natural' anticipated or tapped into experimental methods that geographers and other academics would develop over the next two decades. Several major changes in cartographic theory during the last quarter of the twentieth century included seeing maps as the outcomes of technical and social processes that, upon entering and circulating in the social world, became generators of further social processes. Scientific claims of maps' accuracy and objectivity were challenged, creative art practices linked to scientific mapping, and the understanding that maps play a key role in the power nexus that shapes geographies of the world all changed the course of recent cartographic history (Cosgrove, 2008, p. 155).

Although creative mapping holds out the promise to challenge assumptions regarding expert authority presented in expert-generated maps, it is necessary to be critical of these creative approaches and the representations they produce. A resident of William Mead Homes, the public housing project in Chinatown near the river, who worked as a docent conducting river tours for FoLAR, told me the changes to the river around Elysian Valley would be nice but they would not be for the people in the housing project (conversation with author, 2012). This paper has presented an example of the power of maps to normalize and reinforce particular visions. It has shown that creative mapping can, in some cases, reinforce the privileged positionality of some, even while appearing to be a playful tool available to anyone. Maps as tools cannot be isolated from the real effects on the people who reside in those designated neighborhoods.

References

Arroyo, J. C. (2010). *Culture in concrete: art and the re-imagination of the Los Angeles River as civic space* (Doctoral dissertation, Massachusetts Institute of Technology).

Bertin, J. (1983). *Semiology of graphics: diagrams, networks, maps* (WJ Berg, Trans.). Madison, WI: The University of Wisconsin Press, Ltd.

Blake, Marc Gregory. (1990). *A Study of the Los Angeles River* (Master of Architecture thesis, University of California, Los Angeles, 1990).

Cosgrove, D. (2008). *Geography and vision: seeing, imagining and representing the world.* IB Tauris.

Danza, J. M. (1994). *Water quality and beneficial use investigation of the Los Angeles River: Prospects for restored beneficial uses* (Master of Science thesis, California State University, Fullerton, 1993). Retrieved from ProQuest Dissertations Publishing, 1994.

Del Casino, V. J., & Hanna, S. P. (2006). Beyond the 'binaries': A methodological intervention for interrogating maps as representational practices. *ACME: An International E-Journal for Critical Geographies*, *4*(1), 34-56.

Dermitzel, Erica. (1993). *The Los Angeles River: its past, present and potential.* (Master of Arts in Urban Planning thesis, University of California, Los Angeles, 1993).

Edensor, T. (1998). *Tourists at the Taj. Performance and meaning at a symbolic site.* London, England: Routledge.

Elysian Valley map. (2014). LA River Map and Guide: Glendale Narrows. Friends of the Los Angeles River. Accessed at https://folar.org/wp-content/uploads/2017/04/LARiverMap-Glendale-Narrows-FINAL.pdf

Farías, I. (2010). Sightseeing buses: Cruising, timing, and montage of attractions. *Mobilities, 5,* 387-407.

Farías, I. (2011). Tourist maps as diagrams of destination space. *Space and Culture, 14*(4), 398-414.

Federal Clean Water Act, 1972. https://www.epa.gov/laws-regulations/history-clean-water-act).

Florida, R. (2002). *The rise of the creative class.* Basic Books, AZ.

FOLAR board of directors meeting notes. (September 26, 1990). Box 91, Folder 1. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Friends of the Los Angeles River Newsletter, Vol. 2, No. 4. (June 1992). Box 31, Folder 7. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Gibson-Graham, J. K. (2011). A feminist project of belonging for the Anthropocene. *Gender, place and culture*, *18*(01), 1-21.

Glendale Narrows map. (2014). LA River Map and Guides, FoLAR

Gold, Mark. (2016). Interview with author. University of California, Los Angeles. 1/22/2016.

"It's official! Los Angeles River joins endangered list." (1993). *Current News: The Voice of the River*, Vol. 3, No. 2, December 1993. Box 31, Folder 8. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Kitchin, R., Gleeson, J. and Dodge, M. (2013). Unfolding mapping practices: a new epistemology for cartography. *Transactions of the Institute of British Geographers, 38*(3), 480-496.

LA River Greenway design. Los Angeles River revitalization image. Studio-MLA. Accessed 2/2/2018 at http://studio-mla.com/advocacy/los-angeles-river/

Linton, J. (1997). Map of Los Angeles River watershed.

Linton, J. (1998). "La Gran Limpieza: May 9, 1998." Box 31, Folder 13. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Linton, J. (2005). "Glendale Narrows" map in *Down By the Los Angeles River: Friends of the Los Angeles Rivers Official Guide*. Wilderness Press.

Linton, J. (2005). "Rattle Snake Park" map in *Down By the Los Angeles River: Friends of the Los Angeles Rivers Official Guide*. Wilderness Press.

Linton, J. (2005). *Down By the Los Angeles River: Friends of the Los Angeles Rivers Official Guide*. Wilderness Press.

Linton, Joe. (2016). Interview with author. Ecovillage, Los Angeles. 1/29/2016.

Los Angeles River Map & Guide: Glendale Narrows. (2014). Friends of the Los Angeles River. Accessed at https://folar.org/wp-content/uploads/2017/04/LARiverMap-Glendale-Narrows-FINAL.pdf

Los Angeles River Map & Guide: Lower River. (2015). Friends of the Los Angeles River. Accessed at https://folar.org/wp-content/uploads/2017/04/LARiverMap-LowerRiver.pdf

Los Angeles River Map & Guide: Upper River. (2015). Friends of the Los Angeles River. Accessed at https://folar.org/wp-content/uploads/2017/04/20160907-LARiverMap-UpperRiver.pdf

Los Angeles River Master Plan (1996). Los Angeles County. Accessed at www.ladpw.org/wmd/watershed/LA/LARMP/

Lynch, K. (1960). *The image of the city* (Vol. 11). MIT press.

Lyons, L. (1976). No River: A Wall Painting by Terry Schoonhoven. *Design Quarterly*, 94-95.

MacAdams, L. (2005). "From the Friends of the Los Angeles River" in *Down by the Los Angeles River: Friends of the Los Angeles Rivers Official Guide*. Wilderness Press.

Massey, Paul F. (1991). "LA River in Long Beach used for recreation and camping." *Current News*, Vol. 2, No. 3, Oct.-Nov. 1991. Box 31, Folder 6. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Minutes, Board of Directors Meeting, September 26, 1990. Box 91, Folder 1. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

"On June 6, come down to the river." (1992). *Current News,* Vol. 2, No. 5. June 1992. Box 31, Folder 7. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Play the LA River. (2014). *Project 51/ Play the LA River* website. Accessed at https://playthelariver.com/

"Questions & Answers with Jim 'Mr. Scientist' Danza." (1998). *Current News: The Voice of the River*, Issue No. 35, Winter 1998. Box 31, Folder 13. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

"River through downtown conference slated for Feb. 28th." (1998). *Current News: The Voice of the River*, Issue No. 35, Winter 1998. Box 31, Folder 13. Friends of the Los Angeles

River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Schoonhoven, Terry. (1976). "No River." Two sketches in The River: Images of the Mississippi. *Design Quarterly.* (101/102), 1-102.

Sheller, M. & Urry, J. (2004). *Tourism mobilities: Places to play, places in play*. London, England: Routledge.

Shields, R. (2006). Boundary-thinking in theories of the present. European Journal of Social Theory, 9, 223-237.

The River: Images of the Mississippi. (1976). *Design Quarterly.* (101/102), 1-102.

"The Voice of the River" Friends of the Los Angeles River Newsletter, Issue 35. Box 31, Folder 13. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Tilkian, Gary V. (1995). *A Water Budget Analysis of the Upper Los Angeles River Basin.* (Master of Arts in Geography, University of California, Los Angeles, 1995).

Turhollow, A. F. (1975). *A History of the Los Angeles District. US Army Corps of Engineers, 1898-1965.* Army Engineer District Los Angeles CA.

Turnbull, D. (2007). Maps narratives and trails: performativity, hodology and distributed knowledges in complex adaptive systems–an approach to emergent mapping. *Geographical research*, *45*(2), 140-149.

IV. The Los Angeles River as a Linear Park: Visualizing a Socio-Natural Urban River

Introduction

Region-wide parkway plans, landscape architectural drawings and models, and Los Angeles River revitalization master plans have become increasingly focused on the rhetorical use of visualizations to promote the river as a linear parkway / greenway. River-adjacent parcels of land that were zoned industrial – brownfields – are envisioned as both park land and newfound real estate development parcels. Because park land can double as flood plain, converting industrial land into park land adheres to ecologists' approach to the river as a multi-use entity rather than as a single-use flood control channel. Idealized renditions of a revitalized river often contain figures of people engaging in recreational and leisure activities in and alongside the river. Visualizations of the Los Angeles River as a linear park/greenway encode a variety of values and points of view. These visualizations can be analyzed as visual rhetorical evidence intended to promote certain project outcomes.

The current paper is the third in a series that uses a typology I developed to analyze how maps and visualizations have produced conceptualizations of the Los Angeles River and its watershed. The first of two earlier papers demonstrated experts' use of mapping to produce a centripetal river, and the second showed river revitalization advocates' use of hand drawn maps to produce a centrifugal river. Centripetal refers to a largely single-purpose river system with its chief focus on the river as a flood control channel, designed by engineers as a system to channel runoff and drainage toward the center, the river, and out toward the ocean. Centrifugal refers to a system in which the river is at the center and envisioned as a river that extends outward into the

entire watershed. Its function is multi-purpose including water reclamation, ground water replenishment, and recreational and cultural functions, in addition to flood control.

This paper analyzes how the Los Angeles River is envisioned as a linear park / greenway. I focus on maps and landscape architecture visualizations beginning with the Olmsted-Bartholomew 1930 plan for parkways, then consider maps and renditions in the 1993 and 2007 Los Angeles River revitalization master plans. These latter documents rely increasingly on digital renderings of the recreational and cultural amenities a revitalized river will provide.[11]

Framework

After decades of advocacy for the Los Angeles River, those previously at odds over how the river functions and can support the surrounding region have found common ground in revitalization schemes. These schemes have dissolved some of the ideological tension between citizen participation, or green approaches, and technocratic expertise (Wachsmuth & Angelo, 2018; Finewood, 2016). The appearance of "green urban nature" in the form of bioswales, native plants, and soft-bottom sections of the channel are reconciled with "gray urban nature," technology and expertise that produces sustainability in the city. Rather than an exclusive property of nature, sustainability is a characteristic that can be found and mimicked or engineered in complex social systems (Wachsmuth & Angelo, 2018, p. 7). The synthesis of green and gray approaches to sustainability has developed over time as alternative visions of river revitalization that critique technological approaches present opportunities. The U.S. Army

[11] Other proposals – and opposition to them – that rely on visualizations have included a freeway through the Los Angeles River channel, proposed by Councilman Richard Katz in the 1990s; several proposals to use inflatable dams on the river to create a temporary lake; and a project to reconstruct a water wheel that brought river water to the nascent settlement in the 1800s by Annenberg fellow and artist Lauren Bon. This paper focuses on more comprehensive, official plans rather than these smaller projects.

Corps of Engineers and Friends of the Los Angeles River, for example, formerly at odds about how to approach flood control, have adopted some of their counterparts' ideologies.

The aesthetics of a revitalized river have also changed over time, driven in part by new technologies. The Olmsted-Bartholomew plan of the 1930s used line drawings of proposed vistas (Figure 16) to support an argument for the creation of parkways in a land use and public works approach to flood control. Today, renderings of a park-like river channel support a similar multiple-use approach for the river and watershed, but focus on how humans are shown engaged in various activities in and alongside the river. As the Los Angeles Times architecture critic Christopher Hawthorne noted, "Compared to the proposals landscape architects produce these days, with their sleek digital renderings of park users chatting on cellphones and walking their dogs, the Olmsted-Bartholomew plan, . . . is heavy on text and charts and light on images" (Hawthorne, 2011).

While current renderings illustrate humans thriving in hybrid socionatural environments (Swyngedouw, 1996), there remain concerns that a revitalized riparian greenway will ultimately be more "private" than "public." Fears of continuing gentrification and displacement of longtime low-income residents in river-adjacent neighborhoods grows alongside the development of condominiums, remodeling or rebuilding smaller modest housing, and bars and cafes that attract the creative capital class. Riverside pocket parks, some decades old, are visual indications of development opportunities that a revitalized river can create. This example of "green gentrification," a process in which public and private investment moves value from one class to another through the appropriation of un-revitalized environmental resources, is supported by state-funded environmental restoration projects. The state projects produce urban environmental amenities that are appropriated by developers and in-migrants. The environmental "goods"

(parks, clean air and water, and access to waterfront resources) are unequally distributed to those who occupy more desirable housing, determined by race and class (Gould & Lewis, 2016, p. 25).

Methodology

Using official documents (committee reports and master plans), semi-structured interviews with several key actors in Los Angeles river and watershed revitalization, and Friends of the Los Angeles River (FoLAR) archival documents (FoLAR Newsletters, meeting notes, correspondence), this research focuses on textual and visual discourse analysis. I analyze visual materials such as maps, drawings, and landscape architect renderings of Los Angele River revitalization projects to understand how this visual imagery promotes particular concepts of river revitalization. In addition, I analyze river revitalization advocates' textual discourse, including descriptions of what the river currently looks like, as well as what an imagined river could look like if particular projects are undertaken.

Discourse articulated in verbal texts and visual images is analyzed to understand how people use visual and textual language to construct their accounts of the social world (Tonkiss 1998, p. 247). Discourses on the Los Angeles River are socially produced over time, with many actors contributing to particular visions of revitalization goals and schemes. Since all discourse is "organized to make itself persuasive" (Gill 1996, p. 143), I analyze the discursive strategies these texts and visual images employ.

Evidence & Argument

This paper sets out to understand how visual imagery and textual descriptions of Los Angeles River revitalization schemes rely more and more on the aesthetics of the representation

of the river. It argues that current approaches to Los Angeles River revitalization represent a coming together of actors who were formerly in opposition. For example, long-time river advocate Melanie Winter is funded by the Los Angeles Department of Water and Power, an entity she had opposed in the past (Mark Gold interview with author). The narrative that has taken hold is one of a socially constructed river and river revitalization project that harnesses and works with natural processes rather than trying to control them. There is a sense that the central role of individual actors is giving way to coalitions of actors.

Los Angeles River revitalization in the twenty-first century is a synthesis of environmental (green) approaches – understood at the scale of direct citizen involvement – and technological expertise (gray) approaches. The "gray" approaches are a continuation of earlier modern flood control projects (Kaika, 2005), in addition to more recent water reclamation and alternative transportation projects along the river, and replacing impermeable pavement throughout the watershed. The river running in the concrete flood control channel will never be restored to its earlier riparian form (Goodwin, 1993). A revitalized Los Angeles River as linear park, the center of a watershed-wide system, does not result in a substantially altered concrete channel but alters it by widening it where riverfront land can be acquired. Effective flood control is not compromised by a greenway along the river channel.

The Los Angeles River as greenway rather than concrete channel takes a 'green infrastructure' approach to flood control. Green infrastructure refers to landscape design and engineering techniques that retain, absorb, and cleanse storm water runoff ("What is green infrastructure?", 2014). Green infrastructure projects that use natural systems to treat stormwater can increase tree canopy, riparian habitat and connect people to nature in urban areas (Lehrer & Latané, 2016). The abandonment of large, aging, single-purpose stormwater and energy

infrastructures signal a shift toward smaller, multi-purpose systems that overlap. Parks that double as spreading grounds and permeable pavement throughout Los Angeles are components of a watershed-wide flood control system. As a component of this multi-purpose approach, a greenway is a familiar aesthetic referent; it indicates environmental stewardship and sustainability. When integrated into a network of concrete flood control channels, a greenway also communicates the ecological content of this gray urban nature (Wachsmuth & Angelo, 2018, p. 15).

Olmsted-Bartholomew Parkway, 1930

Figure 16: Sketch for a broad, dignified and attractive parkway 225 feet in width with three roadways planned to extend from Los Angeles city to the sea at Palos Verdes (Olmsted & Bartholomew, 1930, Plate 57).

Features

The Frederick Law Olmsted, Jr. and Harland Bartholomew and Associates report, *Parks, Playgrounds, and Beaches for the Los Angeles Region,* includes plans for a Los Angeles River Parkway (129), an Upper Los Angeles River Parkway (130), and a Lower Los Angeles River Parkway (125). Two hundred copies of the 178-page clothbound document were printed in 1930 and included large-format, fold-out color maps. Charts and tables describe the extensive administrative, financial, and policy network that was involved in implementing the plan. The report was completed following three years of fieldwork and analysis by the Olmsted firm,

which had worked on projects in the New York City, Brooklyn, and Boston park systems, among others.

The report is a regional plan, covering 1500 square miles from Malibu to Riverside, and the Antelope Valley to Long Beach harbor. It contains diagrams, plans, and descriptive text to present the design for a system of neighborhood playgrounds and local parks, all linked to "reservations." Permanent reservation of land on the Pacific coastline and interspersed among surrounding foothills, mountains, and desert had recreational value; the mountains also had scenic value for those living in the urban areas of Los Angeles (10). The report cites the need for a system of interconnected pleasureway parks, or parkways, regional in scope, as a way to address "long, tedious stretches of unrefreshing, monotonously urbanized territory." Parkways are defined in the report as elongated real parks that include roadways for automobile travel that are well screened from urban and suburban surroundings (12).

Olmsted and Bartholomew approached flood control through combinations of land use and public works. They sought to limit private encroachment within the 50-year floodplain, and preserve natural channels that could double as spreading grounds, and nature preserves, recreational parks, and scenic parkways (Davis, 1998, p. 69). Different locations along the river presented different opportunities and the report emphasizes site-appropriate land use. The lower stretch of the river, from the Rio Hondo to Long Beach, presented an opportunity for multiple use of land as recreational park space and flood control site. Stretches of the river lying just south of where the 91 freeway is today were developed for commercial use, making "construction of an interesting character . . . difficult and costly" (Olmsted-Bartholomew, 1930, p. 125). Above this location, however, the report recommends acquiring a 1000-foot wide right-of-way for park space that doubles as spreading grounds for flood waters.

Purpose

The report was commissioned by and submitted to the Los Angeles Chamber of Commerce, whose members were politically powerful businesspeople who sought to develop the city for profit (Hise & Deverell, 2000, p. 10). Its purpose was to identify future needs, design a county-wide system, and establish guidelines for implementation. Olmsted and Bartholomew urged members to address the lack of park space and infrastructure that such an environmentally rich area deserved, emphasizing the economic importance of tourism for the region. In the report, they noted that climate and scenery brought thousands to the Los Angeles Region annually, but many were disappointed by the inferior outdoor facilities. It states that scenic resources are dwindling, beaches are fenced off, and mountains are losing their value because of intensive urban growth (Olmsted-Bartholomew, 1930, p. 24).

Dissemination

The report has come to represent a missed opportunity for Los Angeles to become a model of social equality and environmental preservation. There were no follow-up stories in local papers, nor further discussion of the plan in official minutes of the Regional Planning Commission, the Parks Department, and the Playground and Recreation Department. The 200 copies went to members of the "citizens committee," composed primarily of Chamber of Commerce members, including representatives of local manufacturing, industry, the financial sector, real estate, and commerce (Hise & Deverell, 2000, p. 2). The members of the committee quashed the process by not distributing or discussing the report. Comprehensive visions of public space alarmed members of the committee. Its recommendation to establish a metropolitan park district to carry out the plan was opposed by the *Los Angeles Times*. The *Times* persuaded 27

committee members to withdraw support for the park legislation, which led to a collapse of support for the plan just as the report was about to be disseminated (Davis, 1998, p. 68).

Significance

The Olmsted-Bartholomew plan for a watershed-wide, multiple-use system of parks and flood control through a rezoning, land-use approach was completed in 1930 but immediately suppressed. The opposing vision for Los Angeles (flood protection for the growing population and increased industrial development) and its river (a paved channel to transport runoff efficiently) won out. Intense flooding in the late 30s, New Deal funding that provided thousands of construction jobs for the unemployed, passage of the Flood Control Act of 1941, and the Army Corp of Engineers' authorization to oversee channelization of the region's streams resulted in the construction of the extensive system of concrete flood control channels.

The base-maps used in the Olmsted-Bartholomew report were provided by the Automobile Club of California, and the plan sought to provide motorists with aesthetically pleasing vistas. The line drawings in the report envision the sights that motorists would encounter on the parkways, but there are no scenes of people in the landscape. The technological expertise of engineers and industrial investment determined the modernist approaches to flood control and domination of natural processes that prevailed in the 1940s. Subsequent Los Angeles River revitalization master plans include increasing numbers of renditions of the river as a greenway, showing how people will interact with the river, not simply gaze upon it.

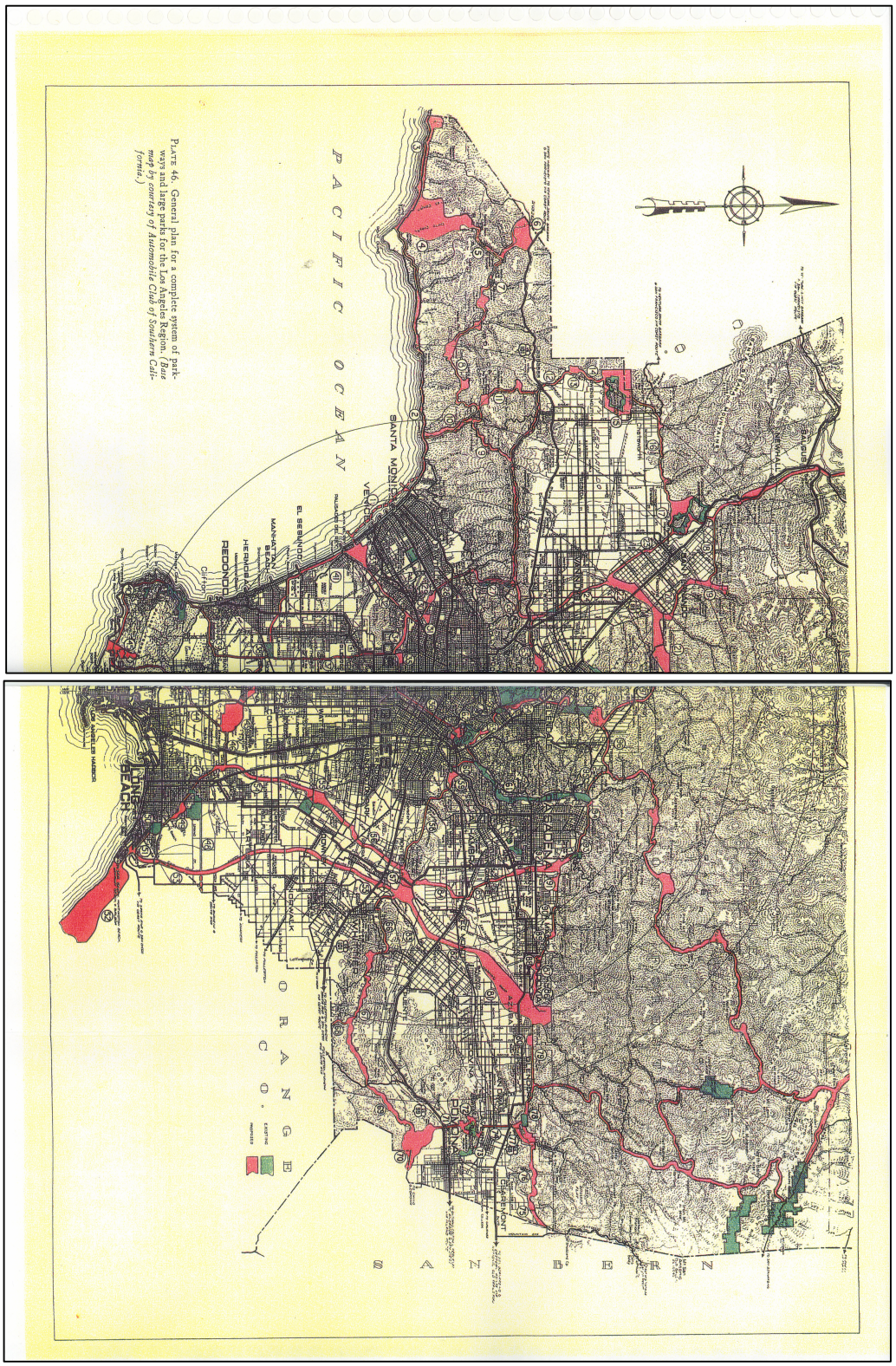


Figure 17: General plan for a complete system of parkways and large parks for the Los Angeles Region. (Base map courtesy of Automobile Club of Southern California), Plate 46, Olmsted-Bartholomew, 1930.

Report of the City of Los Angeles, Los Angeles River Task Force, January 1992

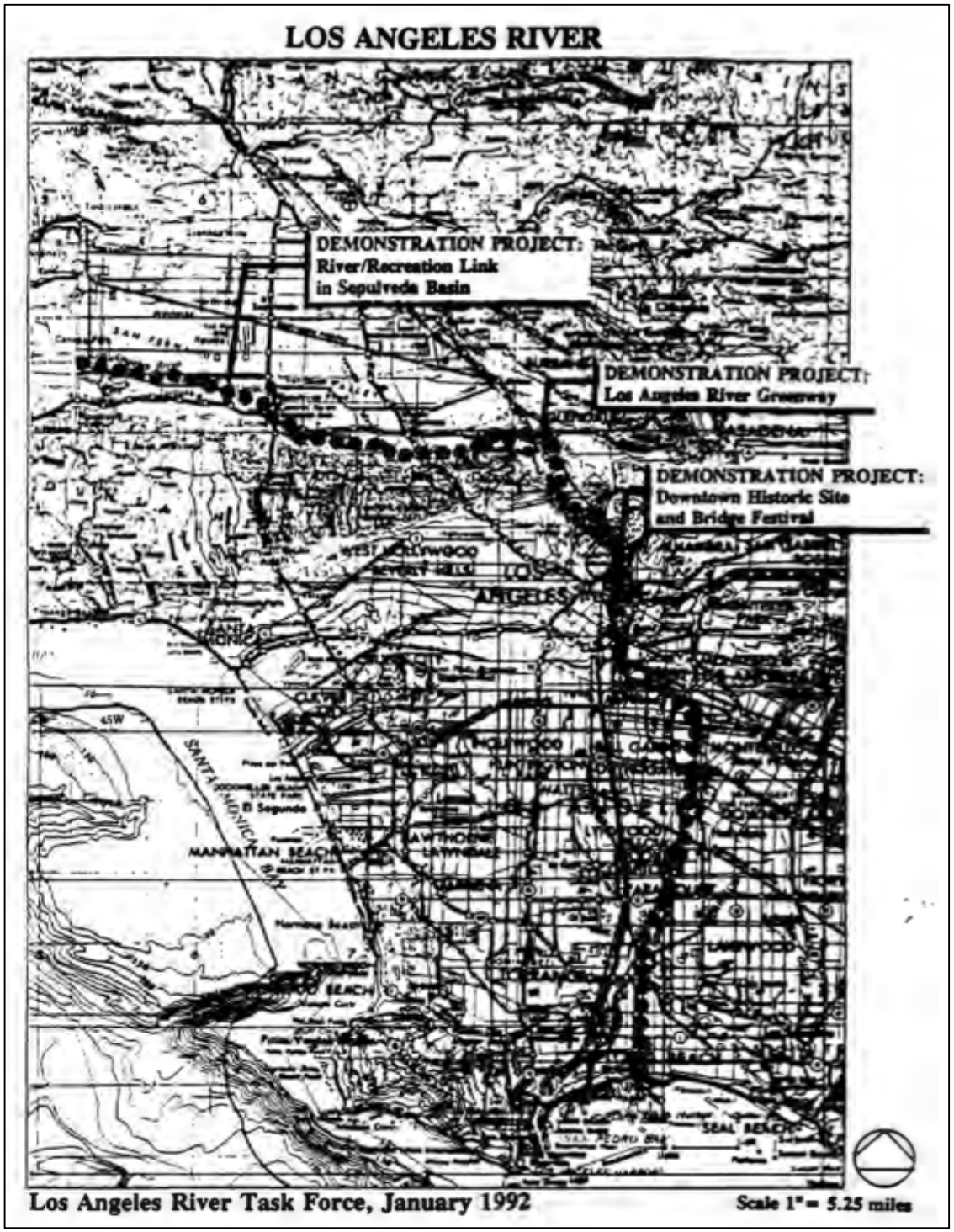


Figure 18: Locational map showing three proposed demonstration projects Report of the City of Los Angeles Los Angeles River Task Force, January 1992).

Features

This photo-copied report contains four locational maps of proposed demonstration projects but no photos or drawings. These four maps appear to be photocopies of U.S. Geological Survey maps and their poor quality provides little information beyond a general location of demonstration projects. The report chiefly presents a vision for the river through textual description. These descriptions evoke a historic river that "once supported a ribbon of lush vegetation as it wound across the coastal plain"; the early 1990s river as one that "exhibits the neglect and disregard . . . . [C]ontained within a geometric, concrete lined channel . . . it weaves through the city, hidden beyond the back yards of homes"; and an imagined river toward which people are turning "with the vision of trails and bike paths set in shady greenways forming connections between neighborhoods, parks, and other urban centers" (1).

The Task Force proposed three sites for demonstration projects. Two projects were in the Griffith Park and Downtown reaches and the third was in the San Fernando Valley at the Sepulveda Basin. No lower river sites were agreed upon.

Eleven stated Task Force goals that address a multiple-use river that meets flood control needs, restores of the river's ecosystem, water quality, aesthetics ("the inherent beauty of the river and its environs"), recreational opportunities, alternative transportation, land use and governance, public awareness, and adopts a master plan and strategies for its implementation (4). These goals grew out of a 1990 Task Force "brainstorming session" that generated 148 ideas for the Los Angeles River. These ideas are presented in the report according to subject area (Flood Protection, Natural Resources and Systems, Aesthetics and Visual Quality, and so on.) and time frame (1-5-year, 6-10-year, and 11-40-years).

The "Aesthetics and Visual Quality" subject heading outlines 1-5 year goals: volunteer corps to clean up the river; debris removal and graffiti prevention with infractions punished by "doing time" cleaning the river; repainting the cats imagery on the drain inlets in the channel; responsibility for keeping the river clean shared by all agencies; and the use of landscaping to improve aesthetics. Eleven- to forty-year goals include enhancing existing downtown bridges as they relate to the river, and bury or relocate power poles and high tension lines.

The three demonstration sites were all intended to increase awareness of the river through clean-ups, nature walks, cycling, and installing interpretive signs to educate the public about the role of the river in Los Angeles' history. An article in the FoLAR newsletter called the first project site the "Central Park" of the San Fernando Valley to accentuate the project's significance for park space in Los Angeles (Mayor's Task Force Announces Demo Projects 1991). The Los Angeles River Greenway was to be constructed along the route of the proposed Los Angeles River bikepath to encourage cyclists to use the river corridor as an alternative transportation route (Los Angeles River Greenway Action Plan, n.d.).

Purpose

Mayor Tom Bradley created the Los Angeles River Task Force in 1990, comprised of Council District Field Deputies, City Departments employees, and Commissioners. The Advisors to the Task Force included concerned citizens, river and environmental interest groups, and involved county, state and federal agencies. According to the published report, the Task Force envisions a river corridor that has clean and wisely-used water and is alive with people, plants, birds and animals while maintaining and improving the flood protection capacity (1).

Dissemination

Following several months of discussion among representatives of a wide range of disciplines, a consensus was reached and the recommendations included 1) Enforce the Task Force goals for the Los Angeles River; 2) Implement 3 proposed demonstration projects along the River to show feasibility of environmental enhancement; 3) Work toward cooperative interagency planning efforts to revitalize the River (2).

Significance

The recommendation in the Task Force report to create and implement a Los Angeles River Master Plan resulted in the LA County Board of Supervisors calling for the development of such a plan in 1991; the plan was completed in 1996. The Task Force's emphasis on consensus building and the inclusion of a wide range of participants opened up the revitalization planning process to include concerned city residents along with representatives from county, state and federal agencies and elected officials, recreational and environmental interests, and professional organizations with interest in the river (Report of the City of Los Angeles River Task Force, 1992). Although it didn't produce a polished planning document, the proposed demonstration projects were intended to "capture the imagination, move and inspire" and "generate the greatest response & desire to participate" by making the "visibility/workability of the site/activity self evident" (Report of Demonstration Project Subcommittee, 1991). Later digitally-generated renditions of riverfront projects had the same intentions but stated them visually.

The County of Los Angeles Los Angeles River Master Plan, 1996

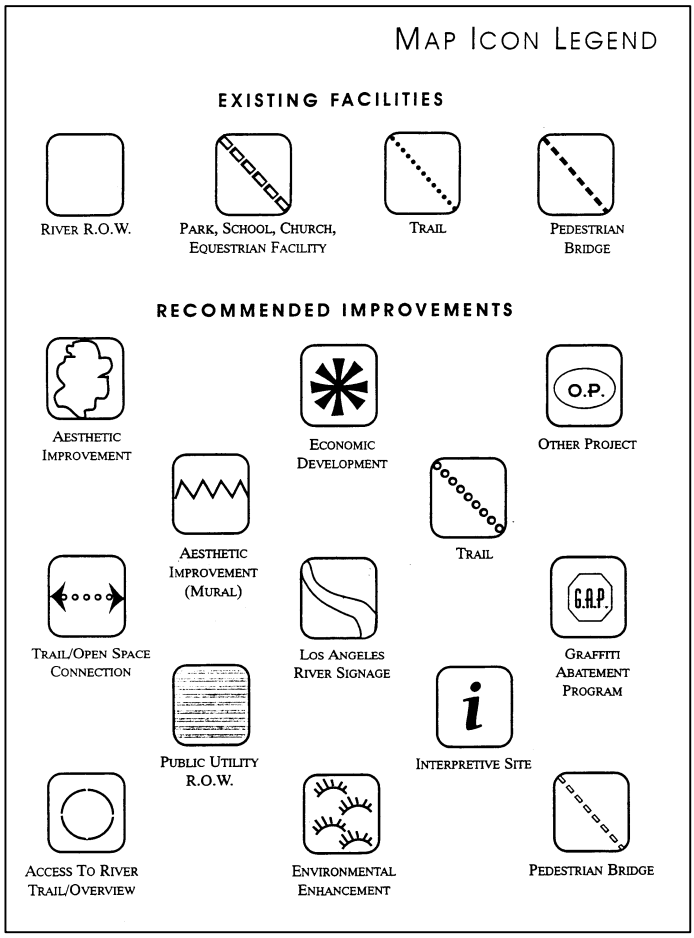


Figure 19: Los Angeles River Master Plan, 1996, p. 40

Features

The plan addresses each section, or reach, of the river in two ways. First, using descriptive text (the length, type of channel configuration and other material characteristics, adjacent land uses and zoning designations, how people use the river in this section), what issues are present that could complicate projects (freeways, high development costs), any plans adopted or projects already proposed, and finally what is being recommended for each section based on Master Plan Goals. The same sorts of information (with the addition of demographic and economic statistics) is included for any cities that fall within the reach.

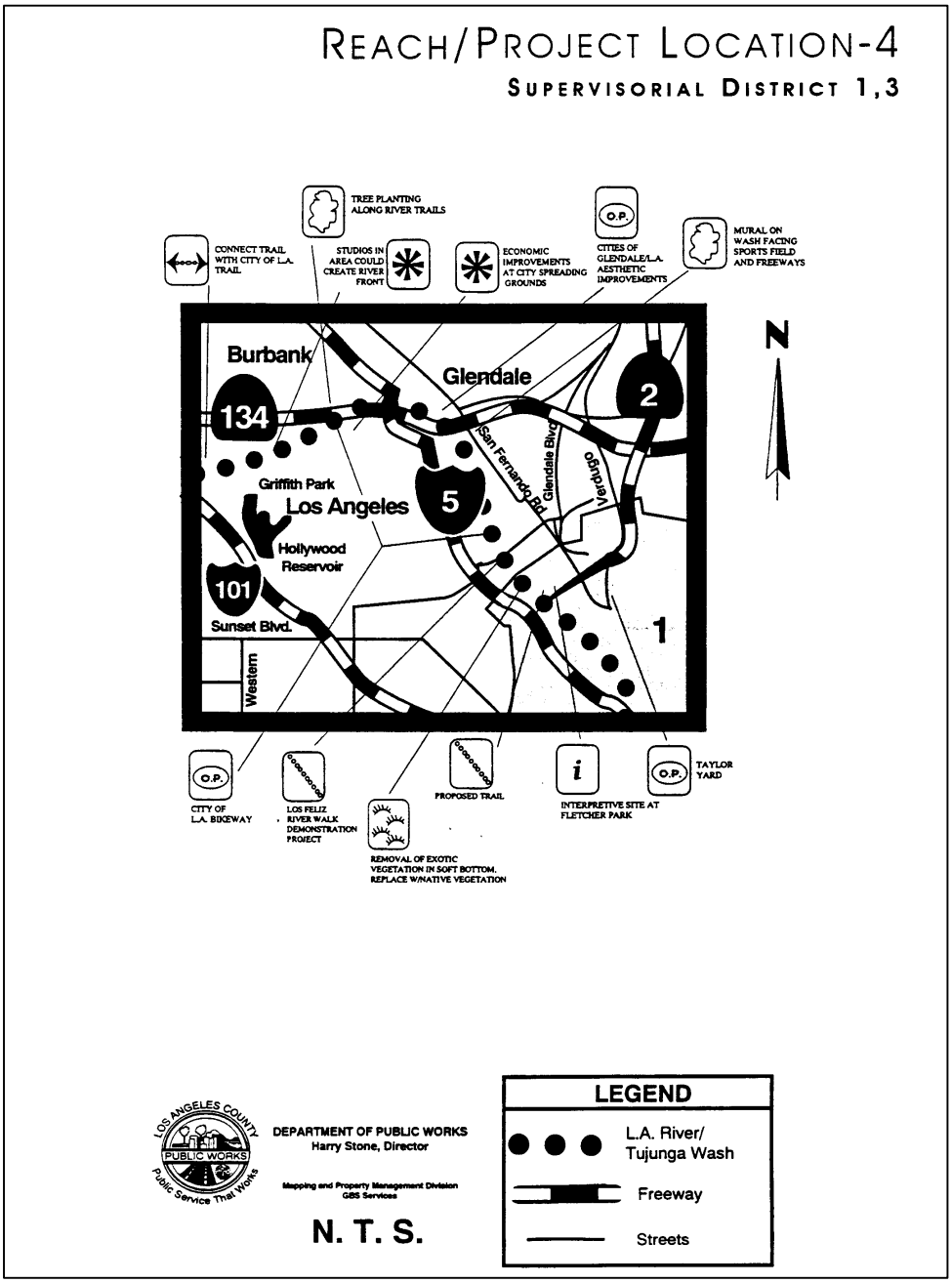


Figure 20: Los Angeles River Master Plan, 1996, p. 41.

Secondly, the plan contains maps of each individual reach along the river and incorporated cities that are in close proximity to, and have an interest in, the river. Each section contains an overall black-and-white "Reach Location Map" featuring Los Angeles city and that section's area

indicated by thick black lines; these maps are general street maps compiled in 1993 for the Master Plan and on file at the Los Angeles County Department of Public Works - Planning Division[12]. The section's area is shown as a detail map with significant locations indicated by icons (Figure 20).

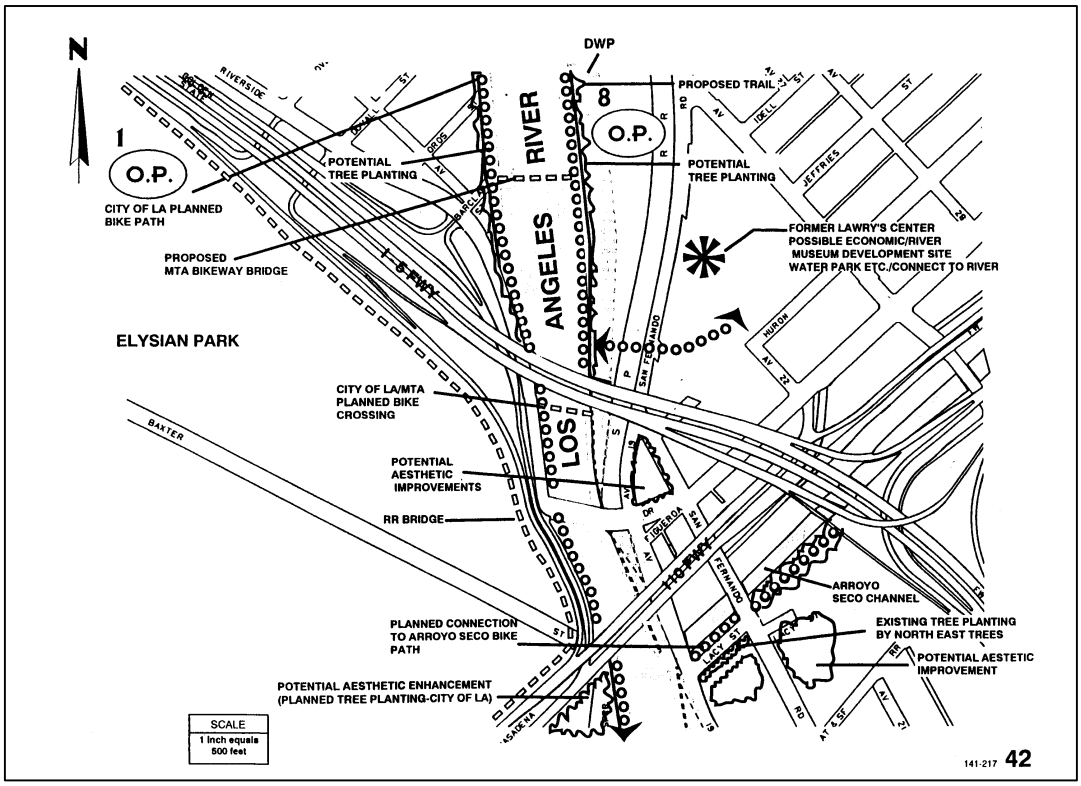


Figure 21: Los Angeles River Master Plan, 1996, p. 42.

The plan was printed using a standard trim size, 8-1/2 x 11, and is now available in a digitized version from the Los Angeles County Department of Public Works (ladpw.org/wmd/watershed/LA/LARMP/). Several larger scale maps detail existing and recommended projects as they link to the plan's goals.

[12] See Appendix G: Los Angeles River Source Maps, Los Angeles River Master Plan, 1996. It contains a table identifying the source of each type of map in the plan, physical description (format, scale, color), who compiled and maintains each map, and how it may be accessed.

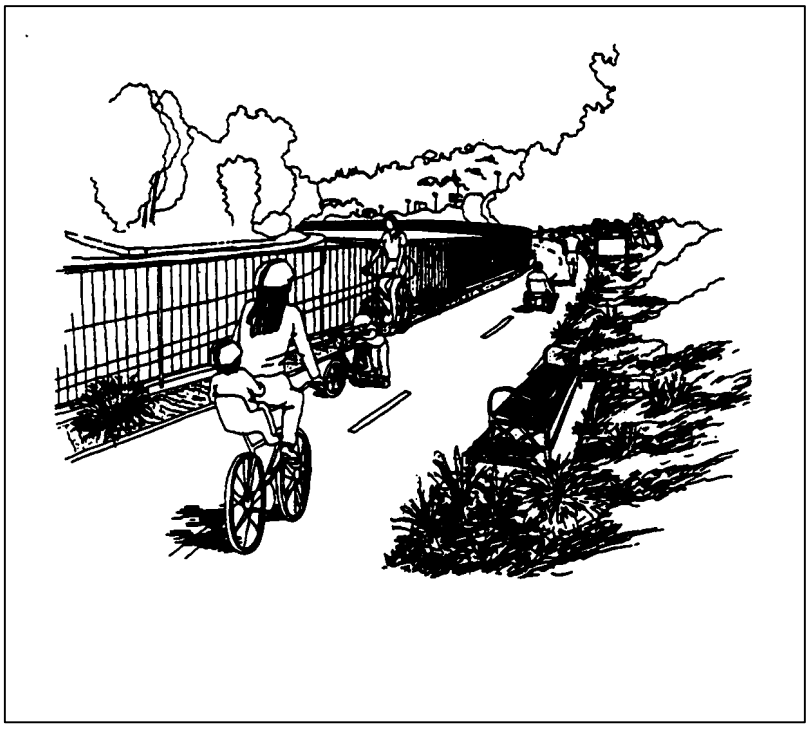


Figure 22: Tujunga Wash, p. 287

Many sections also contain line drawings showing people engaged in leisure and recreational activities at locations along the river (Figure 22). These echo the line drawings in the 1930 Olmsted-Bartholomew report except here, revitalized "natural" stretches of the river include people engaged in a variety of recreational activities. Instead of parkway-vistas designed to be enjoyed from private automobiles, these are landscapes designed for bicycle, equestrian, pedestrian, and other non-motorized modes of transportation. These are not visual landscapes to be enjoyed as if they were pieces of art, but they are depictions of settings for engagement with the river and the surrounding greenway.

Purpose

The 1996 Master Plan formulated a multi-objective program for the entire 52-mile river while recognizing its primary purpose for flood protection (lariver.org/los-angeles-river-revitalization-0). Overall, the Master Plan advocates "aesthetic, recreational, flood control and

environmental values by creating a community resource" ("Mission Statement," 1996). With similar goals, the City of Los Angeles' 2007 Los Angeles River Revitalization Master Plan builds upon the County of Los Angeles' 1996 Los Angeles River Master Plan, but specifically focuses on the 32 miles of the river within the city (LARRMP, 2007).

The 1991 plan was generated by Los Angeles County and approved in 1996 by the Board of Supervisors to be released to the public.

Significance

The plan proposes a systematic approach to revitalization along the entire river. It recognizes the river as a body of resources that can serve human needs in a broader sense than it did at the time, including using riverfront property for commercial and recreation uses ("Executive summary," 1993). The community at large was invited to participate in the planning process and public workshops were held inviting interested parties to "come share your ideas for the future of the Los Angeles river in your community," including ways to improve the appearance of the river, economic development, and water conservation (Los Angeles River Master Plan Public Workshops, 1993). In its site specificity, the plan asserts the uniqueness and importance of participation by all communities along the length of the river and, through the workshops, enlists individuals to express their own needs and visions for waterfront land use.

Coordination of the plan involved representatives from federal, state, regional, county, and separately incorporated cities. FoLAR is the only private organization that participated in coordinating the plan (Coordination, Section 7.0, 1996). FoLAR members had already worked on a policy level to insure the Los Angeles River could be a practical site for revitalization visions. In 1991, the Los Angeles City Planning Department adopted a new zoning ordinance

designating certain areas as "open space" for use as parks and playgrounds; other areas were designated "public facilities" such as sewage treatment systems, airports, and freeways. The Planning staff recommended the river be zoned as a public facility. FoLAR members worked with the Planning Commission's chairman to amend the ordinance to designate the river as "open space" (Minutes of September 5, 1991 Board Meeting).

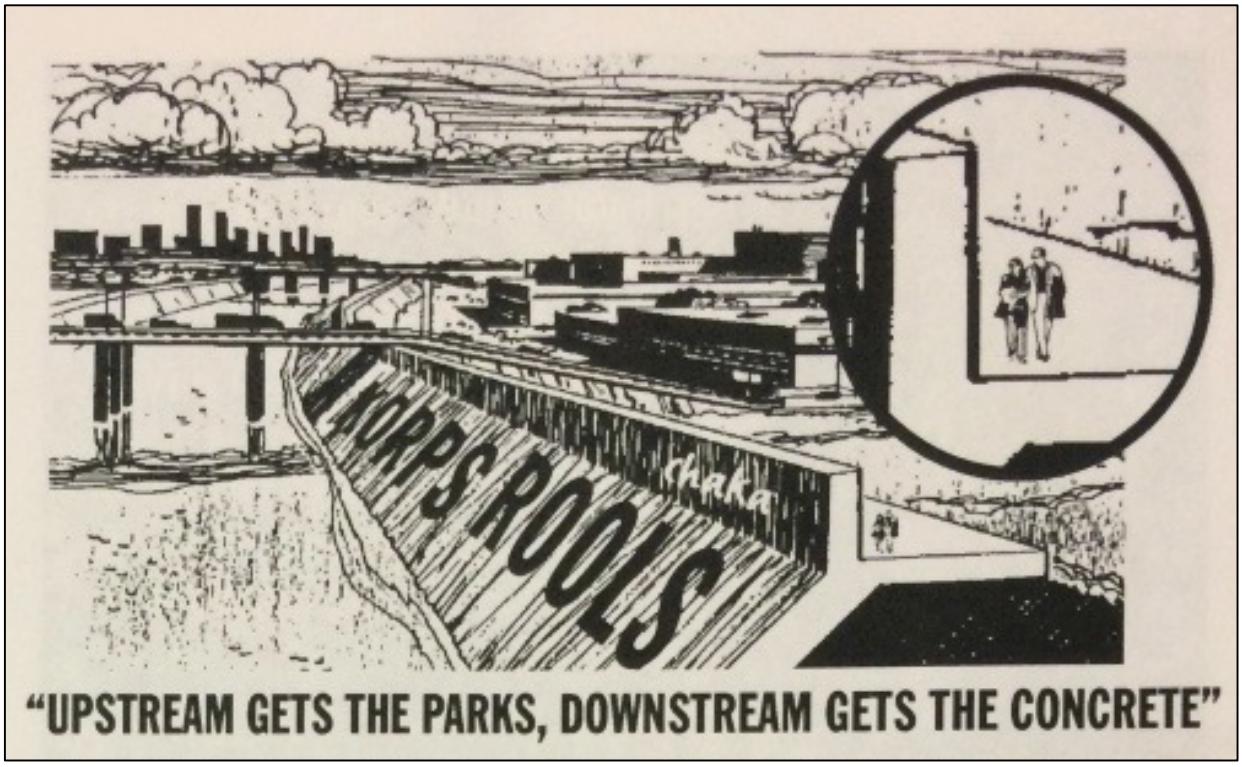


Figure 23: Cartoon accompanying an article, "Woo Calls on L.A. City Council to Oppose County/Corps' Flood Control Project," (1992, p. 2).

The designation of the river as open space was significant for enabling people to envision the river as a park. Instead of functioning as a divisive boundary, FoLAR believed the river "should invite its neighboring communities and indeed, all the citizens of Los Angeles, to its banks" ("The Who, What, Why, When, and How We Do It," 1996). This article states that the majority of river-adjacent communities are poor and politically underserved and claims,

"Upstream gets the parks; downstream gets the walls" (Figure 23), referencing the caption of a cartoon that had appeared in its newsletter in 1992. This cartoon shows a huge monolithic wall along the river, tagged with "Korps Rools" referring to the Army Corps, and an enlarged detail of two figures walking along the river. The river is hardly distinguishable from the surrounding industrial landscape and it dwarfs the human figures both in size and in significance. According to the 1996 article, the economic and social well-being of these poor communities could only be addressed through "greening" the river (creating pocket parks, permeable surfaces, and wetlands), which would create much-needed park lands while conserving water and recharging ground water. In another article about the Trust for Public Land's (TPL) campaign to create an L.A. River Greenbelt, a multi-purpose project, FoLAR notes that integrating flood control has not been addressed by TPL. FoLAR's Denis Schure urges the TPL to include active recreation on the river as a way to convince people that "this is a true river when you are down near the water" (Explore the Opportunities / Discover the Possibilities, 1996, p. 4).

The plan asserts the distinctiveness of neighborhood projects and activities through its maps and line drawings. These are intended to reconceive the river at the human scale, neighborhood by neighborhood.

Other cities' revitalization plans

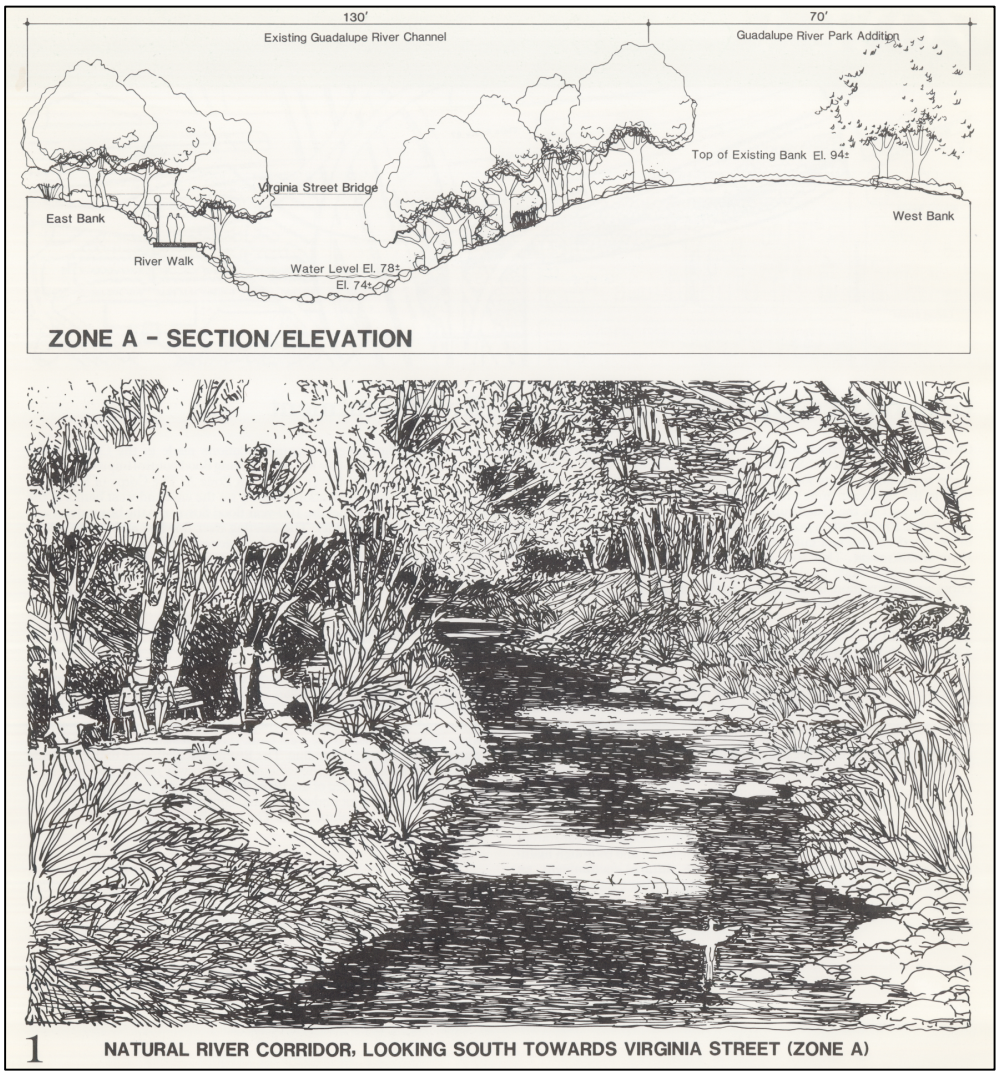


Figure 24: Guadalupe River Park Master Plan, 1995.
https://sanjoseca.gov/DocumentCenter/View/9471

River advocates in Los Angeles looked to other cities for alternative images of urban rivers, even though the Los Angeles River channel, flood plain, and watershed characteristics are distinct from other urban rivers they referenced as models for revitalization. Los Angeles was the only metropolitan region that had developed completely since the invention of the automobile (Olmsted-Bartholomew report cited in Hise & Deverell, 2000, p. 23). FoLAR cited other cities'

projects to reclaim industrialized rivers as having great civic effect ("The Who, What, Why, When, and How We Do It," 1996).

Mayor Tom Bradley's office distributed a memo in June 1991 that outlines suggestions for thirty-six demonstration projects as part of the ongoing Los Angeles River Task Force ("Los Angeles River Task Force Proposed Demonstration Projects," 1991).[13] Included were "Lawry's Riverwalk" (see Figure 21 above) to be developed into a San Antonio-type Riverwalk loop, filled with reclaimed or waste water, linking Lawry's with the river ("Los Angeles River Task Force Proposed Demonstration Projects," 1991). San Antonio is one of the earlier urban river revitalization projects in the United States, originally conceived in the late 1920s and constructed in the 1930s by federal Works Progress Administration craftspeople and artisans (Jordan, 1997).

Advocates also looked to the Guadalupe River in San Jose, California, for river revitalization guidance. Conflicts among different approaches to the Guadalupe anticipated battles over revitalization in Los Angeles. In San Jose, the Army Corps of Engineers (ACOE) planned to widen and line channels with concrete and restrict public access to the river; the Guadalupe River Park Project sought to build a river park that would also serve as flood control (Figure 24). By 1991, the ACOE and River Park Project approaches were merged into the Guadalupe River Project (Guadalupe River Park Master Plan, 2002).

According to FoLAR board member Joe Linton, although places like Denver are 20 years ahead of Los Angeles in terms of multi-purpose approaches to urban river revitalization, the ACOE and others see the steepness of the mountains and flatness of the plains in Los Angeles as

[13] This "Demonstration Project Ideas" memo is a remarkable document in that it lays out many of the projects spearheaded by FoLAR and other Los Angeles River advocacy groups leading into the 1993 Task Force. These included a river bike path, an event to spread awareness of the cultural significance of downtown bridges, develop a river-focused magnet high school along the river, enhanced signage at points where highways that crossed the river, among others.

constraints. “I remember having a tour with some river people in San Jose, California and thinking like, oh, we could do it just like this and an Army Corps hydrologist, some San Jose person, said, oh no, it’s ten times worse in L.A. than in San Jose” (Linton, 2016).

FoLAR representatives visited Toronto to confer with advocates for the Don River that had been channelized in the mid-1800s. A citizen’s group, “Bring Back the Don,” grew to encompass several river advocacy groups that worked in collaboration with regional conservation and waterfront development entities; it was eventually staffed by the City of Toronto and housed in City Hall. A FoLAR newsletter profile of the don River organization noted that, “As much as we’d like it to be, the formula to Bring Back the Don is not exactly the same for the Los Angeles River” (FoLAR Goes International, 1996).

The South Platte River in Denver, Colorado, was a model for the conversion of former river-adjacent rail yards into office, housing, and recreation sites. Denver’s multi-objective approach had been to retain the engineered flood defenses but set them back under embankments and disguise them as park land. The South Platte’s flood control function was retained while its boundaries (both in terms of physical extension and cultural, social, and recreational functions) were expanded (Rebchook, 1994). Moving the flood protection levees back created more cross-sectional flow – a wider river – that could reduce velocities during flood events. In 1993, Peter Goodwin, a hydrologist and adviser to FoLAR, cautioned using the term ‘restoration’ in relation to the Los Angeles River. Due to extensive disruption, the intention cannot be to “let the river do its own thing” (Goodwin, 1993, p. 29).

Los Angeles River advocates personally visited cities to learn about river revitalization projects, including the Chicago River revitalization and Seoul, South Korea’s Cheonggyecheon Stream restoration and others in addition to the cities enumerated in the Summer 1996 *Current*

News (“The Who, What, Why, When, and How We Do It,” 1996). FoLAR used these projects as examples of what other cities had accomplished to show that Los Angeles was not keeping up with progress made in other cities, and that even “streams” like the Cheonggyecheon that had been covered by an elevated freeway could be restored to economic, cultural, and ecological effect. The before and after images of these rivers, along with the proposed design plans worked to normalize urban river revitalization schemes and engage Los Angelenos to support them.

Los Angeles River Revitalization Master Plan, 2007

Figure 25: Los Angeles River Revitalization Master Plan, 2007, p. ES-1.

Features

The Los Angeles River Revitalization Master Plan's goal is to create a 20-year blueprint for development and management of the Los Angeles River, according to a Bureau of Engineering, Department of Public Works handout entitled "Frequently Asked Questions." The consultant team for the plan was charged with identifying five specific areas (nodes) where more intense modifications may be developed. These nodes will be identified with input from river-adjacent communities. Public meetings and workshops were publicized in 2005 in multiple languages (Spanish, Korean, Chinese, and others) via mailings, mainstream and community newspapers, the project website www.lariver.org, and radio and cable TV advertisements. Multi-lingual translators attended workshops and meetings (Frequently asked questions, 2005).

The 2007 Los Angeles River Master Plan (LARRMP) uses historic photos of the river before, during, and after channelization in the mid-1900s. It includes computer-generated maps showing existing zoning and land use designation as open space, industrial, multiple or single family residential, commercial, and so on, an overall map of community plan areas along the river channel from Canoga Park to Boyle Heights (Community Planning Framework, 2007). Computer-generated maps are used throughout, some with satellite imagery at the neighborhood scale to show the spatial extension of proposed improvements, accompanied by before- and after images (Capture Community Opportunities, 2007). It also uses oblique photos to give a bird's-eye view of the river and surroundings, sometimes with the river drawn on the photograph (Figure 25). This type of image combines the authenticity of a photograph and the authority of a map. Digitally-generated landscape architectural renditions of a revitalized river are prevalent in the plan. These images include people engaged in a variety of activities including biking along the riverfront and boating within the river channel. They show the river channel full of water and river adjacent land planted with mature trees and wide expanses of green lawn.

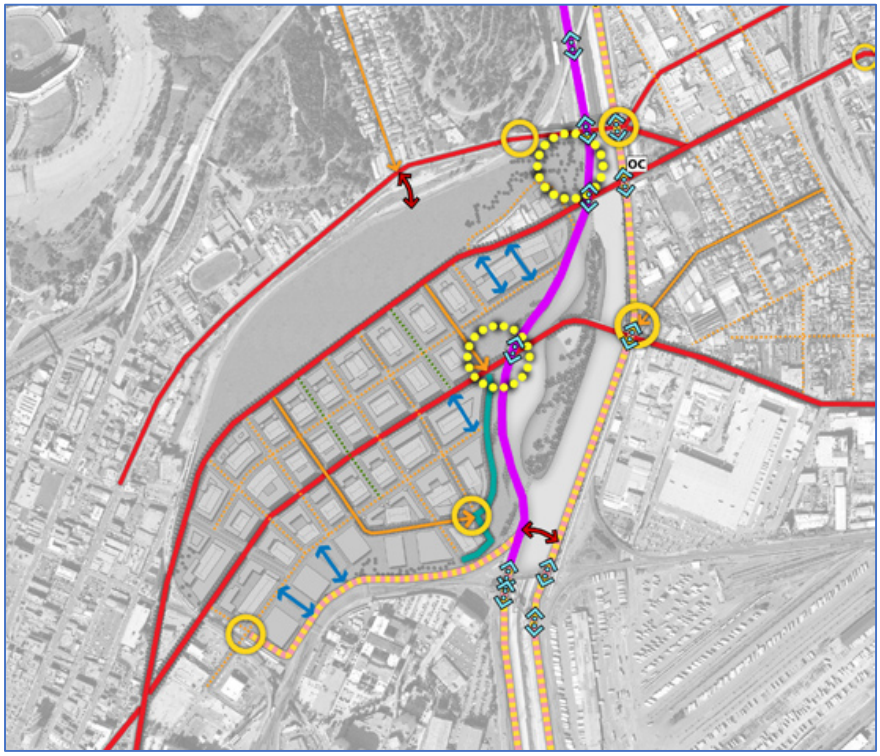


Figure 26: Open-Space Typology Map – A system of green connections provides safe ways to get from home to the revitalized River (Capture Community Opportunities, p. 6)

Figure 27: Existing – Broadway Bridge, taken from Downey Recreation Center on the east bank of the River (2006, Capture Community Opportunities, p. 6)

Figure 28: Future – Through terracing, planting and locating the existing rail on trestles, the Los Angeles State Historic Park and the River Greenway act as a unified system (Capture Community Opportunities, p. 6)

There are four goals stated in the master plan: revitalize the river, green the neighborhoods, capture community opportunities, and create value ("Executive Summary," 2007). Because this research is concerned with the work that visual materials do in producing a Los Angeles River Greenway, as well as their aesthetic rhetoric, analysis of the 2007 Master Plan will focus on the "Green the Neighborhoods" section that includes creating a continuous river greenway. The plan visualizes what Kondolf and Pinto refer to as lateral, longitudinal, and vertical connectivity (Kondolf & Pinto, 2016), connectivity that creates spatial and social relations. *Laterally*, it envisions a greenway or "green ribbon through the City" with strands to extend the river's influence outward from the channel, connecting it to adjoining neighborhoods and re-establishing connections between neighborhoods on both sides of the river through planned bridges. It connects the river *longitudinally* through a continuous series of bikeways and pedestrian paths along its entire length of the river. Finally, it creates *vertical connectivity*, or

pathways to access the river itself by creating riverfront parks and terracing the concrete channel walls (see Figure 28). A FoLAR Board of Directors retreat produced a draft letter outlining its master plan visions. The letter recommends that the plan should create the vision of "one park" unified system of open space along the entire length of the river. In addition, a continuous bike path along the entire river should include connections to neighborhoods. Any parks along the river must include direct access to the river, favoring pedestrian, public transit, and bicycle use over automobiles (Draft position letter, 2006).

Figure 29: Los Angeles River Revitalization Master Plan 2007 Executive Summary, pg. ES-4 "A proposed secondary channel in the Chinatown-Cornfields Opportunity Area could provide an accessible and active River edge."

Much of the imagery in the LARRMP 2007 was created by Mia Lehrer + Associates landscape architects (now Studio-MLA), including the 'existing' and 'future' imagery in Figures 27 and 28. According to Lehrer and Latané, *The Los Angeles River Revitalization Master Plan* is a 32-mile green infrastructure framework for the Los Angeles River within the boundaries of the

City of Los Angeles (Lehrer and Latané, 2016, p. 2). They see the primary goals of the plan to be connecting communities and individuals to the river, improving water quality and flood storage, and creating a community planning framework. It characterizes the river as a multi-benefit community asset and participated in a public debate over which revitalization option to fund, contributing to the decision to adopt the $1.4 billion implementation plan option known as "Alt 20." The master planning process included dozens of community meetings to gather local knowledge on issues & opportunities connected to the river, enabling the design team to provide plan elements that spoke to specific community goals and fostered a deep sense of connection to the project (Lehrer & Latané, 2016, p. 3). Studio-MLA has worked on segments of the Los Angeles River Greenway Trail, the first phase of Marsh Street Stormwater Park, and Vista Hermosa Park, the first downtown Los Angeles park to be built in 100 years (Lehrer & Latané, 2016). This 9-acre park treats urban runoff, harvests rainwater to re-use as irrigation, and provides a "window to the mountains" (echoing back to the Olmsted-Bartholomew plan's emphasis on vistas created along parkways), with the goal of bringing nature to a park-poor, working-class neighborhood (Lehrer & Latané, 2016, p. 2).

Significance

Themes of connectivity, synthesis, community engagement, and cooperation characterize discussions of "Alternative 20" in the 2007 LARRMP. Renderings of a revised river channel include figures connected to the river through leisure and recreational activities. The river is connected to the surrounding watershed, serving both ecological and social functions, as well as expanding funding sources. Faced with growing populations, many cities are using local, state and federal stormwater grants to develop public parks (Lehrer & Latané, 2016). Visions of the

river as a single, 51-mile linear park represents the river as a point of connectivity, geographically and socially, rather than a dividing boundary.

Los Angeles River Ecosystem Restoration: Volume 1: Integrated Feasibility Report, September 2015, US Army Corps of Engineers, Los Angeles District

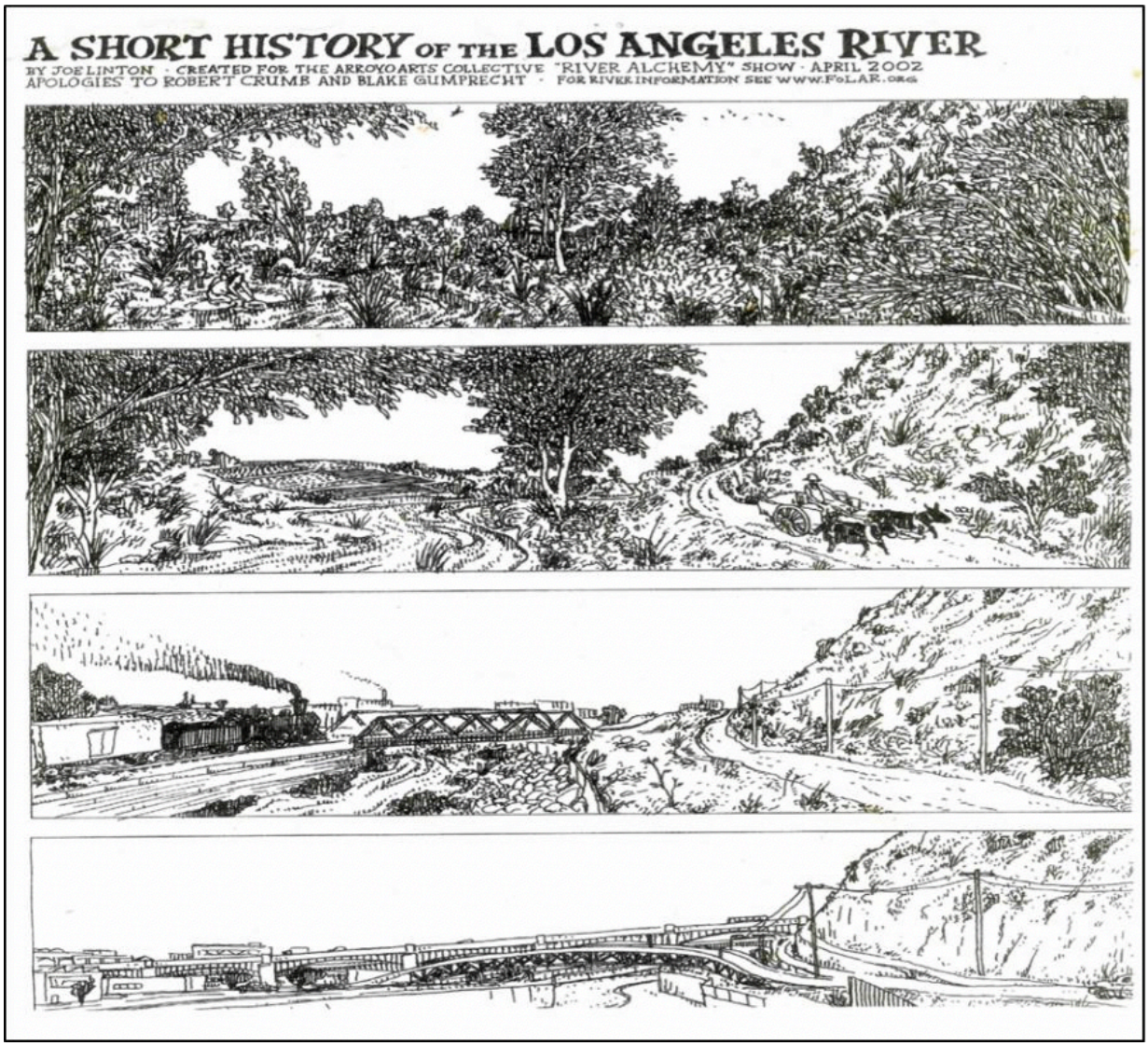


Figure 30: Joe Linton's "A Short History of the Los Angeles River" in the Ecosystem Restoration Report, 2015, pg. ES-2

Features

The 2015 Ecosystem Restoration Report grew out of the 2006 *Area with Restoration Benefits and Opportunities for Revitalization* (ARBOR) Study. The focus of the report's proposed projects is restoration of the Glendale Narrows, an 11-mile stretch with vegetation growing in the center of the soft-bottom section of channel. The congressional study initially comprised a plan for a 32-mile stretch between Vernon and the San Fernando Valley, but its focus was reduced to an 11-mile section between Griffith Park and downtown Los Angeles determined to have the most potential for eco-system restoration by the Army Corps (Los Angeles River Ecosystem Restoration Integrated Feasibility Report, 2015).

The Los Angeles River Revitalization Master Plan (LARRMP), adopted by the City Council in 2007, proposes ecosystem restoration with natural open spaces, wildlife habitat areas, recreational facilities and more than 240 projects connecting to five key "opportunity areas": Canoga Park, River Glen, Taylor Yard, Cornfields/Chinatown, and Downtown Industrial.

A reproduction of FoLAR activist and artist Joe Linton's drawing of the history of the Los Angeles River (Figure 30) appears at the beginning of the report (Los Angeles River Ecosystem Restoration Integrated Feasibility Report, 2015, p. ES-2). The drawing consists of four panels that portray the progressive denuding and industrializing of the river. The impression given is that, before settlement, the river was a lush, overgrown, spreading channel.

The Army Corps of Engineers originally oversaw the paving of the river channel and was the target of Los Angeles River advocates' ire beginning in the 1980s. The Corps' solution to flooding, the Los Angeles County Drainage Area (LACDA) project to construct higher walls along the lower river, became the object of a lawsuit brought by FoLAR and was used to raise awareness of river revitalization efforts to remove concrete from the channel (Letters needed to

bring down walls, 1991; What about the concrete?, 1991). FoLAR lost the lawsuit to stop the construction of the parapet walls, but the process was valuable in developing a network of government and community members who supported a multi-functional approach to flood control. The Corps' use of Linton's drawing illustrates how former adversaries came to an understanding about how to develop the river channel.

The report's map showing the Los Angeles River Watershed (Figure 31) omits freeway, rail, and road networks. On the earth-colored topographical base map, a black line (broken with dashes and dots) traces the outline of the watershed within which the Los Angeles River, and its major tributaries are labeled. Diagonal lines are used to indicate the areal extent of the cities of Los Angeles, Glendale, and Burbank. These areas overlap the watershed but are not wholly contiguous with it. There are large portions of the map that do not fall within the boundaries of these cities; some areas within Los Angeles are incorporated as separate cities (Culver City, Beverly Hills, San Fernando).

Study Area, ARBOR Reach (Figure 32) shows the 11-mile section between Griffith Park and downtown. The project is represented on high-transparency satellite imagery showing the network of streets and buildings. The locations of significant landmarks and proposed projects are labeled. City boundaries of Burbank and Glendale are indicated with gray lines that blend into the underlying imagery. Freeways are overlaid and labeled on the base map alongside the river channel. The geomorphic reaches of the river that fall within the project are symbolized by bright colors and their extent identified in the legend in relation to surrounding streets (i.e., Reach 7, symbolized with a dark red line, spans from I-5 to Main).

Purpose

The goals of restoration in this section are to "transform the river corridor into the 'green spine' of the City" (FoLAR website, Alternative 20 and the ARBOR Study, retrieved from http://folar.communecommunication.com/alternative-20-and-the-arbor-study/). In addition to restoring the Glendale Narrows soft-bottomed section, broadening Taylor Yard, and creating wetlands at Piggyback Yard, parts of the river at Riverside Drive will be terraced. This section of the river was chosen because it contains tributary confluences (Verdugo Wash and the Arroyo Seco) as well as open space that is already planned to be used for publicly accessed parks. Another stated goal of restoration is to provide recreational opportunities. Flood protection will be maintained as well.

The Glendale Narrows has a relatively large amount of indigenous in-channel habitat that is prioritized for restoration. The aim is to strengthen habitat connections along the river to support small mammal and avian species. Communities surrounding the Glendale Narrows supported this section of the river for ecosystem restoration. California State Parks recently acquired parcels along the river at Taylor Yard and the Cornfield (site of the Los Angeles State Historic Park). The area is known as a site for fishing and kayaking along the river.

Significance

The Army Corps decided on the ARBOR Reach because it was deemed to have the most potential for ecosystem restoration. The plan presents a river incorporated into the surrounding watershed and yet separate from it. Incorporated city boundaries are symbolized as independent of the watershed in Figure XX; large portions within Los Angeles do not share territory with the watershed. The ARBOR study site is located near downtown Los Angeles where soft -ottom

sections offer visual evidence of vestiges of a natural vision of the river, and large brownfield parcels are slated to be transformed into parks. Although it references the historical character and cultural significance of the river, the plan persists in maintaining a human-nature binary. It does not deal with water quality from the standpoint of ecosystem benefits – a watershed approach – but instead is more about the benefits of open space and urban revitalization (Gold, 2016). In referencing a socio-natural river, the plan is focused on greening the channel and adjacent property rather than on reconstructing the channel to serve the health of the watershed and its inhabitants.

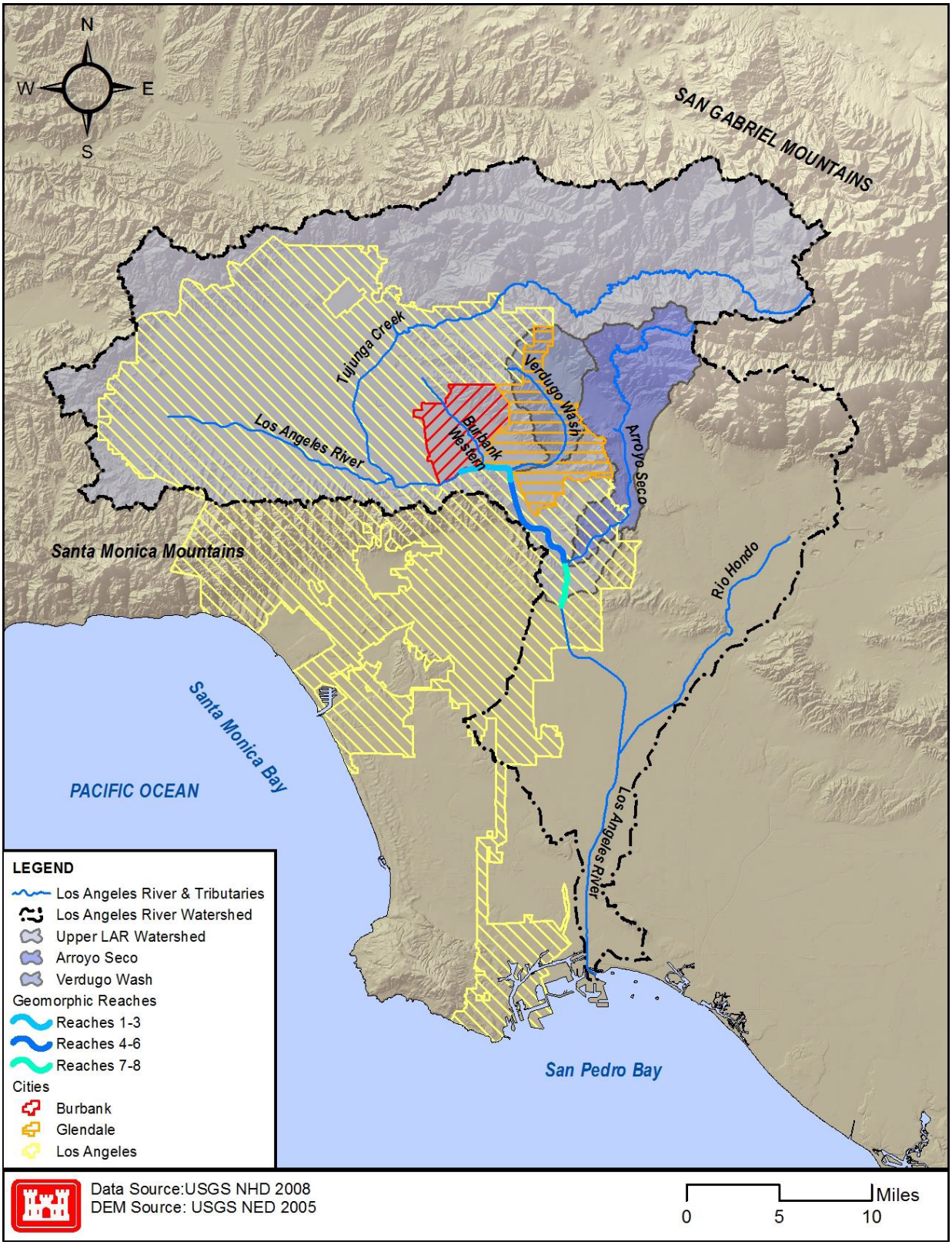


Figure 31: Los Angeles River Watershed (Figure ES-2, Los Angeles River Ecosystem Restoration: Final Integrated Feasibility Report, September 2015).

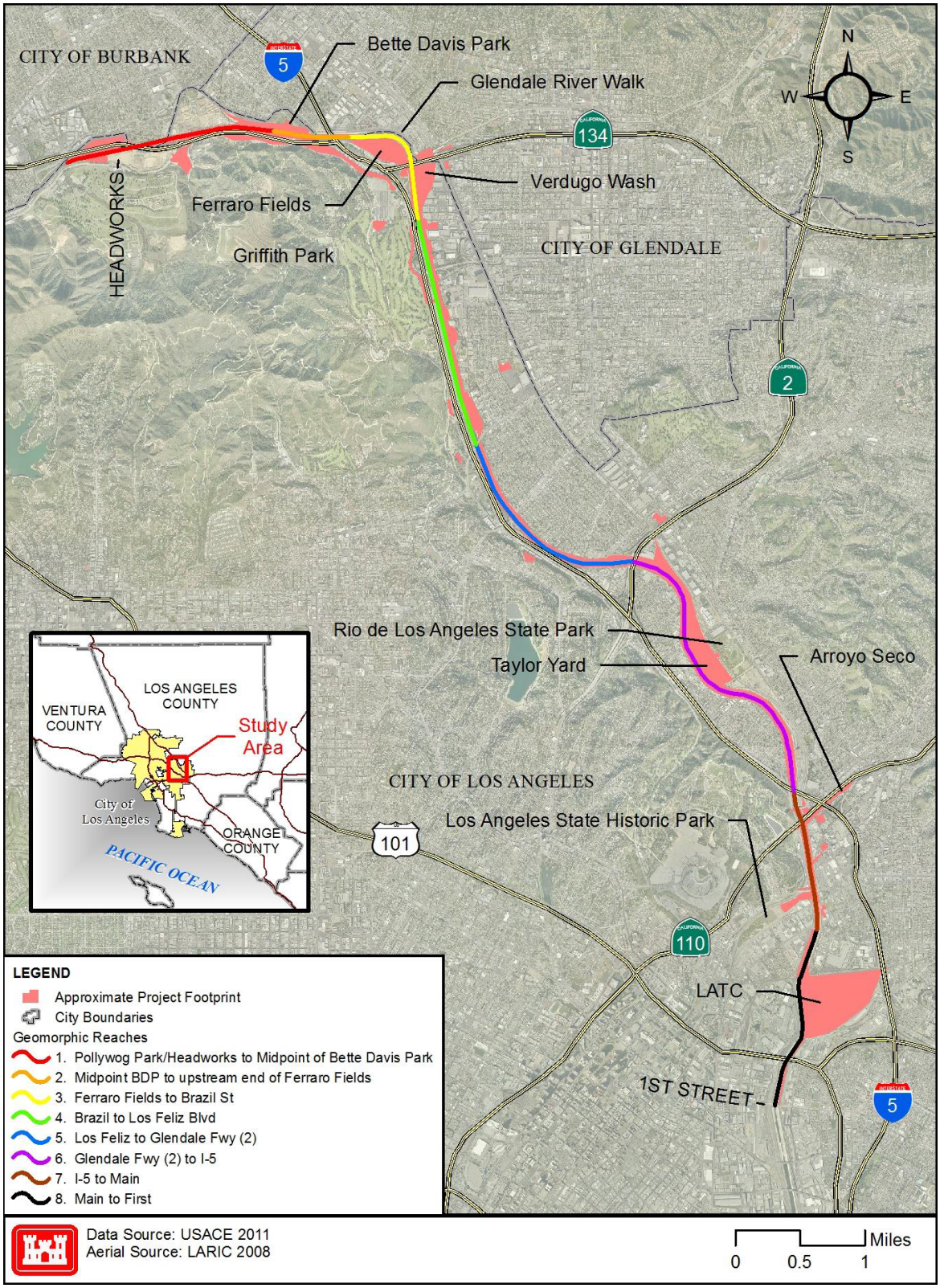


Figure 32: Study Area, the ARBOR Reach (Figure 1-2, Los Angeles River Ecosystem Restoration: Final Integrated Feasibility Report, September 2015).

Conclusion

This paper has addressed plans that involve the Los Angeles River, starting with the 1930 Olmsted-Bartholomew Parkway plan, and proceeding chronologically from the 1992 Los Angeles River Task Force, the 1996 Los Angeles County plan, the 2007 Los Angeles River Revitalization Master Plan, and finally the Army Corps of Engineer's Ecosystem Restoration Study. I show how early renderings of idyllic scenic vistas along a parkway (Olmsted-Bartholomew, 1930) have been supplanted by renderings showing people engaged in leisure activities in park-like settings along a revitalized concrete flood channel.

The Olmsted-Bartholomew plan, though never realized, remained influential for decades. The 1941 Preface to a Master Plan followed its structure, and its analysis and recommendations formed the basis for landscape architectural investigations into open space in the 1960s and 1970s (Hise & Deverell, 2000, p. 48). In 1998, Mike Davis wrote that implementation of the Olmsted-Bartholomew proposal might have overturned the hierarchy of public common space versus the space of private subdivisions, with private natural ecosystems imposing boundaries on urbanization (Davis, 1998, p. 68). The Olmsted firm, however, was operating within a framework that sought to engineer "natural" environments with human use in mind. In designing and engineering Yosemite National Park, Frederick Law Olmsted Sr. created paths and prospects to shape visitor's experience of "natural scenery," which he believed would enhance human health (Spirn, 1996). This anthropocentric approach can be seen in the scenic vistas for motorists proposed in the Olmsted-Bartholomew Plan for Los Angeles.[14]

[14] Olmsted Sr.'s use of aesthetics in designed pleasing, "natural" vistas, reconciled Muir's idea of nature as "temple" and Pinchot's idea of nature as "workshop." Olmsted neglected to fully take into account the social and political processes that were involved in the human construction of nature. In the end, his ability to successfully disguise the artifice of his designs – to conceal the creative and physical labor behind them – made them appear so natural that designed landscapes like Yosemite and Niagara became symbols of untouched nature, not landscapes where humans had dominated nature. This reinforced the perception of a separation between society and nature (Spirn, 1996).

The way that urban sustainability is visualized reveals the relationship among green and gray urban nature, chiefly how green serves to legitimize gray (Angelo & Wachsmuth, 2018). This paper has shown how revitalization schemes for the Los Angeles River as a greenway or linear park are supported by landscape architectural renderings of a "green lifestyle" – people engaged in leisure and recreational activities along the river – that is understood to promote a closer connection among humans and natural processes in cities. Revitalization plans for the river are essentially development plans for river-adjacent open space and parks, not a deepening of the connections to the health of the river's and its entire watershed. In this way, planners are still focused on a bank-to-bank approach to the river, rather than a watershed approach (Gold, 2016). Visualizations in the 2015 ACOE Ecosystem Restoration ARBOR project, drawn from the 2007 LARRMP show people frolicking alongside the concrete river bank, deepening the anthropocentric construction of a socio-nature found in the 1930s Olmsted-Bartholomew plan.

References

Capture Community Opportunities. (2007). *Los Angeles River Revitalization Master Plan, April 2007.* City of Los Angeles Department of Public Works, Bureau of Engineering.

Community Planning Framework. (2007). *Los Angeles River Revitalization Master Plan, April 2007*. City of Los Angeles Department of Public Works, Bureau of Engineering.

"Coordination, Section 7.0". (1996). *Los Angeles county Los Angeles River Master Plan,* 7-2.

Davis, M. (1998). *Ecology of fear: Los Angeles and the imagination of disaster*. Vintage Books, Random House, Inc.

Draft position letter on Los Angeles River Revitalization Master Plan. (2006). Friends of the Los Angeles River, January 18, 2006. letter from FoLAR. (2006). Box 94, Folder 10. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

"What is Green Infrastructure?" (2014). *EPA Science Matters Newsletter.* United States Environmental Protection Agency. Retrieved from https://www.epa.gov/sciencematters/epa-science-matters-newsletter-what-green-infrastructure

"Executive Summary". (2007). Los Angeles River Revitalization Master Plan, April 2007. City of Los Angeles Department of Public Works, Bureau of Engineering.

"Executive summary". (1993). Los Angeles River Master Plan Draft Report, May 1993. Box 27, Folder 2. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

"Explore the Opportunities/Discover the Possibilities". (1996). *Current News, 4*(4), June 1996, p. 4. Box 31, Folder 11. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Finewood, M. H. (2016). Green infrastructure, grey epistemologies, and the urban political ecology of Pittsburgh's water governance. *Antipode 48*(4). 1000-1021.

"FoLAR Goes International". (1996). *Current News,* Fall 1996, pg. 3. Box 31, Folder 11. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

"Frequently asked questions." (2005). Los Angeles River Revitalization Master Plan. Bureau of Engineering, Department of Public Works, 9/6/2005. Box 27, Folder 6. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Gandy, M. (2006). Riparian anomie: reflections on the Los Angeles River. *Landscape Research*, *31*(2), 135-145

Gill, R. (1996). Discourse analysis: practical implementation. *Handbook of qualitative research methods for psychology and the social sciences*, 141-158.

Gold, Mark. (2016). Interview with author. University of California, Los Angeles. 1/22/2016.

Goodwin, P. (1993). Consider these ideas. *California Coast & Ocean, 9*(3), Summer 1993, 28-29.

Gould, K. and T. Lewis. (2016). *Green gentrification: Urban sustainability and the struggle for environmental justice.* London and New York: Routledge.

Guadalupe River Park Master Plan. (2002). City of San Jose, San Jose Redevelopment Agency, Santa Clara Valley Water District, United States Army Corps of Engineers.

Hawthorne, C. (2011, November 11). Reading L.A.: The Olmsted Brothers plan and what might have been. [Web log post]. Culture Monster, Los Angeles Times. Retrieved from http://latimesblogs.latimes.com/culturemonster/2011/11/reading-la-the-olmsted-bartholomew-plan-and-what-might-have-been.html.

Hise, G., & Deverell, W. F. (2000). *Eden by design: The 1930 Olmsted-Bartholomew plan for the Los Angeles region*. University of California Press.

Jordan, Anne. (1997, August). "River of Dreams." *Governing Magazine*. Box 45, Folder 3. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Kaika, M. (2005). *City of flows: Modernity, nature, and the city*. Psychology Press.

Kondolf, G. M., and Pinto, P. J. (2017). The social connectivity of urban rivers. *Geomorphology, 277*, 182-196.

LARRMP. (2007). Los Angeles River Revitalization Master Plan, April 2007. City of Los Angeles Department of Public Works, Bureau of Engineering. LARRMP, Chapter 8 Community Planning Framework).

Lehrer, M. and Latané, C. (2016, February 25). "Connecting Community by Advocacy and Design". Local Government Reconsidered. Paper 3. Retrieved from http://digitalcommons.chapman.edu/localgovernmentreconsidered/strengtheningdemocracy/papers/3

"Letters needed to bring down the walls." (1993). Memo from Friends of the Los Angeles River Technical Advisory Board, July 1, 1993. Box 91, Folder 3. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Linton, Joe. (2016). Interview with author. Ecovillage, Los Angeles. 1/29/2016.

Los Angeles River Ecosystem Restoration Integrated Feasibility Report. (2015). Volume 1: Integrated Feasibility Report, Los Angeles County, California. U.S. Army Corps of Engineers, Los Angeles District. Volume 1, September 2015. Accessed at USACE Digital Library https://cdm16021.contentdm.oclc.org/digital/collection/p16021coll7/id/2339

Los Angeles River Greenway Action Plan. (n.d). Box 32, Folder 10. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Los Angeles River Master Plan. (1996). Los Angeles County Departments of Public Works, Parks and Recreation, and Regional Planning, June 1996. Accessed at http://ladpw.org/wmd/watershed/LA/LARMP/

Los Angeles River Revitalization: Our River, Our Future. (2017). City of Los Angeles. Accessed at http://lariver.org/los-angeles-river-revitalization

"Los Angeles River Master Plan Public Workshops". (1993). U.S. Army Corps of Engineers Los Angeles District, October 27, 1993. Box 91, Folder 3. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

"Los Angeles River Task Force Proposed Demonstration Projects." (1991). June 6, 1991. Box 32, Folder 10. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

"Mayor's Task Force Announces Demo Projects." (1991). *Current News 2*(3). October-November 1991. Box 31, Folder 6. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Minutes of September 5, 1991 Board Meeting. (1991), Box 91, Folder 1. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Mission Statement. (1996). *Los Angeles County Los Angeles River Master Plan.*

Olmsted Brothers, and Bartholomew and Associates. (1930). *Parks, Playgrounds, and Beaches for the Los Angeles Region.*

Rebchook, J. (1994, May 1). "Valley of dreams: It's a wasteland and a vision, and a river runs through it." *Rocky Mountain News*. Denver, CO.

Report of Demonstration Project Subcommittee. (1991). Los Angeles River Task Force, May 2, 1991. Box 32, Folder 10. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Report of the City of Los Angeles Los Angeles River Task Force. (1992). Office of the Mayor, City of Los Angeles and National Park Service, Rivers, Trails and Conservation Assistance Program, January 1992.

Spirn, A. W. (1996). Constructing nature: the legacy of Frederick Law Olmsted. Uncommon ground: Rethinking the human place in nature, edited by William Cronon. New York, NY: W.W. Norton & Co.

Swyngedouw, E (1996). The city as a hybrid: on nature, society and cyborg urbanization. *Capitalism Nature Socialism, 7*(2), 65-80.

"The Who, What, Why, When, and How We Do It," (1996). *Current News, 4*(4), June 1996, pg. 2. Box 31, Folder 11. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

Tonkiss, F. (1998). 'Analyzing discourse' in Seale, C. (2004). *Researching society and culture*. Sage.

Wachsmuth, David, and Hillary Angelo. (2018). "Green and gray: New ideologies of nature in urban sustainability policy." *Annals of the American Association of Geographers*, *108*(4), 1038-1056.

"What about the concrete?" (1991, April 1991). *Current News, 2*(1), p. 2. Box 31, Folder 6. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

"Woo calls on L.A. city council to oppose county/corps' flood control project." (1992, June). *Current News, 2*(5), p. 2. Box 31, Folder 7. Friends of the Los Angeles River records (Collection 2215). Library Special Collections, Charles E. Young Research Library, UCLA.

V. Conclusion

If the Los Angeles River is incorporated into a watershed-wide approach to flood control and conservation, runoff and stormwater will percolate through permeable pavement, and treated wastewater will be captured in spreading grounds so that it can seep through the soil and recharge groundwater aquifers rather than being directed into the concrete flood control channel and carried out to the ocean at Long Beach. Water diversions will deprive the river of water to the extent that its minimum flows may reach zero. A recent study conducted by UCLA environmental policy experts concluded that ". . . a seasonal water management strategy might provide the best compromise" between recreational use and water conservation (Netburn, 2018). The specter of a seasonal river would problematize the 2007 Master Plan's renderings of green parks lining the river where people engage in boating, fishing, and other iconic riverfront activities.

Cartographic images are never simply statements of factual information whether produced by citizen advocates or engineers. Urban and cartographic space are linked as ever-evolving visual technologies offer the chance to creatively shape urban experience. This requires critical attention to the making and meaning of both public and private urban spaces (Cosgrove, 2008, p. 182). An important tool in the debate over the essence of the Los Angeles River has been the rhetorical use of visualizations of the river and of proposals for river revitalization. The 1930 proposal for a series of parks and scenic parkways (Olmsted-Bartholomew, 1930) is still cited as a model for integrating parks and open space into the region. Davis (1998) has speculated that implementation of the plan (suppressed at the time by business interests) could have resulted in a more just social and environmental public and private land use configuration.

Because the plan includes natural vistas along tree-lined parkways designed to block motorists' view of the city, the Olmsted-Bartholomew plan appears to envision a city in which humans can co-exist with the natural world. The plan's focus, however, is anthropocentric and the natural world is designed to provide relief from the built environment.

In this research, I developed and applied an Infrastructure Typology that categorizes concepts of the Los Angeles River as centripetal, centrifugal, or as a linear park, roughly chronologically throughout phases of channelization and proposed revitalization. The United States Army Corps of Engineers and the Los Angeles County Flood Control District maps describe a centripetal river by defining flooding as a problem that could be solved by concretizing the river and directing water throughout the watershed directly into the concrete channel and out to the ocean. Environmentalists and river advocates promoted a centripetal river that transcended a bank-to-bank approach to revitalization and defined the river as the entire watershed. Finally, input from all parties including citizens, scientists, and governmental entities resulted in the 2007 Los Angeles River Revitalization Master Plan from which the Army Corps of Engineers ARBOR project was selected for ecosystem restoration.

A line drawing (Figure 30) by Los Angeles River activist and artist, Joe Linton appears at the beginning of the Corps' Ecosystem Study (2015). Linton made artwork and maps for Friends of the Los Angeles River to promote river walks and cleanups locations. This line drawing comprises four panels showing a progressively industrialized river. The industrialized appearance of the river is popularly attributed to channelization by the Corps which has had control over it since 1941.

Friends of the Los Angeles River took the lead in a lawsuit against the Corps and the Los Angeles County Drainage Area's plan to continue a technological infrastructural approach to

flood control by building higher walls along the lower portion of the river in the 1990s. Although they lost the lawsuit, advocates benefitted from the attention they directed toward alternative approaches to flood control. The Corps' use of Linton's illustration situates its restoration project as the culmination of expertise and advocacy debates and, ultimately, presents it as the product of a consensus. The Corps continues to have authority over the river; its shift in the ARBOR project toward an ecological approach has followed years of advocacy by environmentalists promoting a watershed-wide solution. The ARBOR project represents a deepening of the Corps' authority as it incorporates visual representations used by advocates arguing for watershed health, and landscape architects arguing for producing a socio-natural river.

Although advocates have long called for watershed management as the key component to revitalization plans, they have not sabotaged projects because they lack a watershed approach (Gold, interview, 2016). The 2007 Los Angeles Revitalization Master Plan doesn't deal with water quality but ecosystem benefits such as open space and urban revitalization will benefit the sustainability of gray and green urban nature in the built environment.

Finally, new visualizations of the river will need to disassemble the recent renderings of idealized socio-natures. Maps and visualizations of a dry-season river alongside maps and visualizations of a storm-season river may produce a new concept of the river. Another conceptualization is suggested in the Corps' Ecosystem Restoration report: a map of the liquefaction potential in lowland areas along the River and its tributaries (Figure 33) produces a seismic-groundwater river. The liquefaction zone mapped in the report presents another possible justification for building back from the river channel. In fact, it re-conceptualizes the river as one that is already always transgressing its concrete channel.

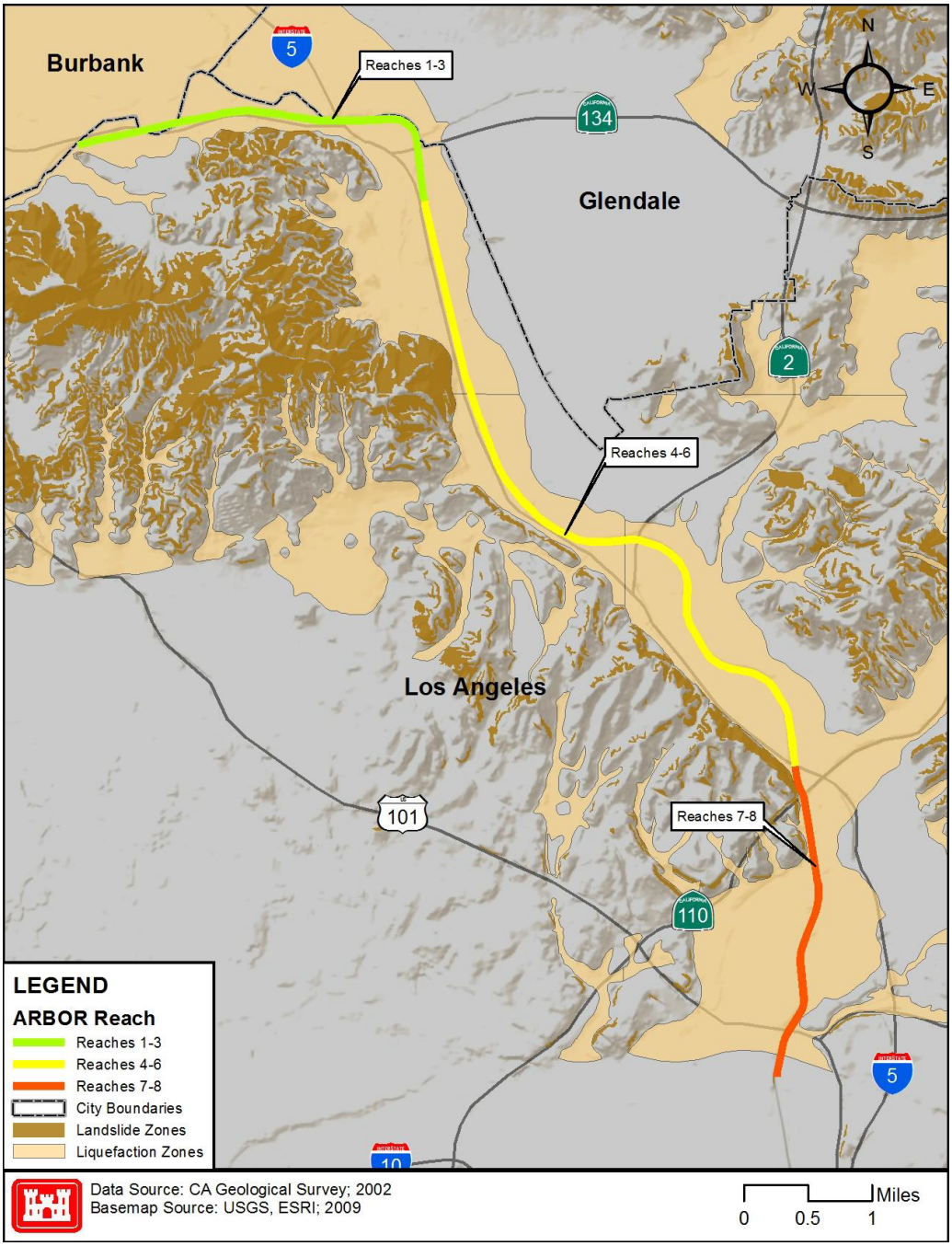


Figure 33: Landslide and Liquefaction Zones (Figure 3-4, Los Angeles Ecosystem Restoration, 2015)

References

Cosgrove, D. (2008). *Geography and vision: seeing, imagining and representing the world.* IB Tauris.

Davis, M. (1998). *Ecology of fear: Los Angeles and the imagination of disaster*. Vintage Books, Random House, Inc.

Gold, Mark. (2016). Interview with author. University of California, Los Angeles. 1/22/2016.

Los Angeles River Ecosystem Restoration Project. (2016). United States Army Corps of Engineers, Los Angeles District, June 29, 2016. Accessed at http://www.spl.usace.army.mil/Missions/Civil-Works/Projects-Studies/Los-Angeles-River-Ecosystem-Restoration/

Netburn, D. (2018, April 12). What role should the L.A. River play in a future Los Angeles? *Los Angeles Times*.

Olmsted Brothers, and Bartholomew and Associates. (1930). *Parks, Playgrounds, and Beaches for the Los Angeles Region.*