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Take the Parkway to the Freeway to the Automated Roadway

The past and future of freeway landscapes

California's freeways—its state highways, urban expressways, and interstates—cumulatively stretch 15,104 miles, end to end. Counting each lane separately, California has 51,326 drivable miles of freeway. Using the standard 12-foot width the state's Department of Transportation, Caltrans, uses for roadbuilding, California's freeway system covers roughly 116 square miles. If California's entire freeway system were stretched out along its 840-mile coastline, it would be sixty-one lanes wide.

Freeways, though, are not just their lanes. They are medians, overpasses, off-ramps, soundwalls, shoulders, berms, plantings, and peripheral spaces, together combining into a superstructure of interrelated elements spiderwebbed across the state. Freeways are infrastructure, architecture, and landscape all mixed together, and they make up a significant part of our built world.

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Despite their massive physical presence and impact on the land, we tend to take freeways for granted if we don't outright despise them. This is understandable. Freeways are so much a part our day-to-day experiences of California that they almost fade into the background. At the same time, we know that freeways have played a powerful and often heinous role in shaping the built environment and the way we live our lives. Although California has long been associated with the freedom of a car-oriented lifestyle in a car-oriented place, the downsides are plentifully evident when we stop to consider them. From traffic congestion and sprawl to environmental degradation and displacement, the list is long. And yet, it's precisely this influence that makes freeways worth looking at and thinking about more critically.

While many now hope for removals and the gradual undoing of the freeway's unpopular effects on urbanism, the structure and landscape of the freeway—and their imprints on the land—will likely be with us for many years. Perhaps our freeway structures will one day house the shanty towns of a state ravaged by drought and sea level rise. Their underpasses are already sheltering increasing numbers of homeless men and women. Or perhaps they'll be highly efficient speedways for autonomous cars, traveling at hundreds of miles per hour, mere inches apart. Maybe they'll be adapted to do more for us than just provide a direct route from here to there. By understanding how freeways evolved—and what opportunities were missed along the way—we might find ways to reengineer our freeways for the future.

Italy's Autostrade, built beginning in the mid-1920s, was the world's first system of fast car-only roads. In the early 1930s, Germany began building its Autobahn, a countrywide network of dedicated motorways between major cities. Inspired by these systems, officials from the US Bureau of Public Roads drafted a masterplan in the 1930s for a national system of interregional highways, and our interstate highway system was born. In the United States, a "coast-to-coast rock highway" linking New York City to San Francisco through fourteen states was planned as early as 1913, though it took twenty-five years to fully build and pave. But while the international highway building project may have its roots elsewhere, it truly flourished in Los Angeles. The conditions under which LA's highways developed and their physical impact would come to typify the emerging relationship between car and city in the United States and around the world as planners and engineers borrowed the most successful elements of the burgeoning system.

For the most part, these early roads were purposefully kept to the periphery of cities. A vast superhighway "Futurama" designed by Norman Bel Geddes was a highlight of the 1939 New York World's Fair. But Bel Geddes was nonetheless concerned about how new roadways would be implanted in the landscape. In his 1941 book *Magic Motorways*, Bel Geddes argued that a "great motorway has no business cutting a wide swath right through a town or city and destroying values there: its place is in the country where there is ample room for it and where its landscaping is designed to harmonize with the land around it. Its presence will not, like that of a railroad, destroy the beauty of the land. It will help maintain it."

In Los Angeles, that's how things started out. The Arroyo Seco Parkway between Pasadena and downtown opened in 1940, the first in a rapidly growing network of high-speed roadways. Before freeways became the utilitarian behemoths of the post-war years that we're most familiar with, they first embraced the concept of creating a harmonious connection with the landscape. "As a 'parkway,' the Arroyo Seco was more than a route; it was also a place to appreciate sublime nature from the seat of a car moving through the city at forty-five miles per hour," writes UCLA professor Eric Avila in the exhibition catalogue *Overdrive: LA Constructs the Future, 1940–1990*. "A masterful orchestration of trees, shrubs, grass, arched bridges, and winding pavement, the parkway was the architectural linchpin between the garden suburbs and cemeteries of the nineteenth century and the modern highway of the interstate era."

With medians, controlled access, and bridges for intersecting roads, early parkways like the Arroyo Seco were outfitted or later updated with many of the elements that would become standard on the urban expressways, freeways, and interstates that followed. The transition from parkway to freeway was actually quite fast in LA. Thanks to the 1933 National Industrial Recovery Act, funding for road building was shifted from the local level to the federal level, and New Deal programs made significant amounts of that funding easily available. Los Angeles took advantage of these funds to build the Arroyo Seco and sections of what would become the Hollywood Freeway, both of which retain some elements of the sweeping, scenic paths they originally cut. But almost as quickly as LA began building its scenic

parkways, the era of scenic parkways was replaced by a more top-down, efficiency-oriented approach to roadbuilding.

"The transition in design orientation from boulevard to parkway to expressway to freeway accompanied the transition in planning and design responsibility from cities to county planning commissions to state highway departments," writes David W. Jones in the 2008 book *Mass Motorization + Mass Transit: An American History and Policy Analysis.*

The onset of World War II brought most freeway building to a halt. But once the war was over, Los Angeles was primed to unleash a massive wave of freeway projects. New Deal money had been used to buy up rights of way throughout the city, often displacing so-called "blighted" neighborhoods and poor communities of color. Two statewide gas tax increases in the late forties and early fifties further built up a pool of money for road projects. Between 1950 and 1955, the total operating mileage of freeways in the Los Angeles area increased by 450 percent, according to David Brodsley's seminal work *L.A. Freeway: An Appreciative Essay.* By the time funding for the interstate highway system was approved by President Dwight D. Eisenhower in 1956, nearly 100 miles of freeway were being built annually across California, according to UCLA urban planning professor Brian D. Taylor.[1] Statewide freeway plans adopted in 1959 aimed to put every part of Los Angeles within four miles of a freeway, which was just part of a system covering more than 12,000 miles across the state. Though funding would run out long before that system could be fully realized, much of it was built. Construction peaked in California in the 1960s, when upwards of 350 new highway miles were built in a single year's time. As the postwar freeway building boom peaked, the design aesthetics of the parkway era and its harmonious landscape described by Norman Bel Geddes were largely abandoned. Instead, the freeway became its own landscape—the concrete ribbon, the gash, the neighborhood barrier.

"When the Eisenhower period came in and the roads system for the whole country started to go, none of the standards of providing pleasant environments, limiting the amount of shopping on the periphery, none of those things applied," says Pritzker Prize–winning architect Kevin Roche. "It was really just thought of purely as engineering. How do you get from here to there, with the minimum of

bridges and hills and things like that, so you can just bang your way through it? The question of beauty or handsome environment I don't think came up very much."

Not that beauty wasn't a concern. Roche, for instance, was part of a team of architects, landscape architects, urban planners, and engineers who developed a detailed report for the Federal Highway Administration between 1965 and 1968 calling for "a high level of visual quality in every proposed freeway."[2] "The Freeway in the City: Principles of Planning and Design" offered both general and specific guidance on how freeway and interstate building could be less destructive to cities and the landscape, suggesting that more attention should be paid to how freeways approach and cross through cities, how they can be utilized for more than just mobility, and how to design individual physical elements of freeways such as overpasses and support columns to be more attractive. "Urban freeways should contribute to the beauty of the regions through which they pass, from the standpoint of both the users and the viewers of the facility," the report argues. Roche and his coauthors recognized that many freeway projects would be built regardless of public outcry. If freeways are inevitable, their report seems to suggest, they should at least be better designed.

Landscape architect Lawrence Halprin was another coauthor of the Highway Administration report, as well as his own book about freeways. He'd been trying to integrate these ideals into freeway planning throughout the 1950s and 1960s, but with little success. In his design for the Panhandle Freeway in San Francisco, Halprin tried to create a pastoral, park-like setting, with tunneled and stacked roadways that attempted to compensate for the imposition of the freeway by creating a new landscape along its path. His drawings for the project show recessed roads and large buffers of green space between homes and the freeway, and tunnels that bury the road beneath sloping topography. Even so, the idea of building a freeway that sliced through Golden Gate Park was too destructive for San Franciscans and the project was scrapped, a victim of one of the signal "freeway revolts" that arose in cities across the country successfully demanding that projects be canceled or rerouted around neighborhoods and parks.

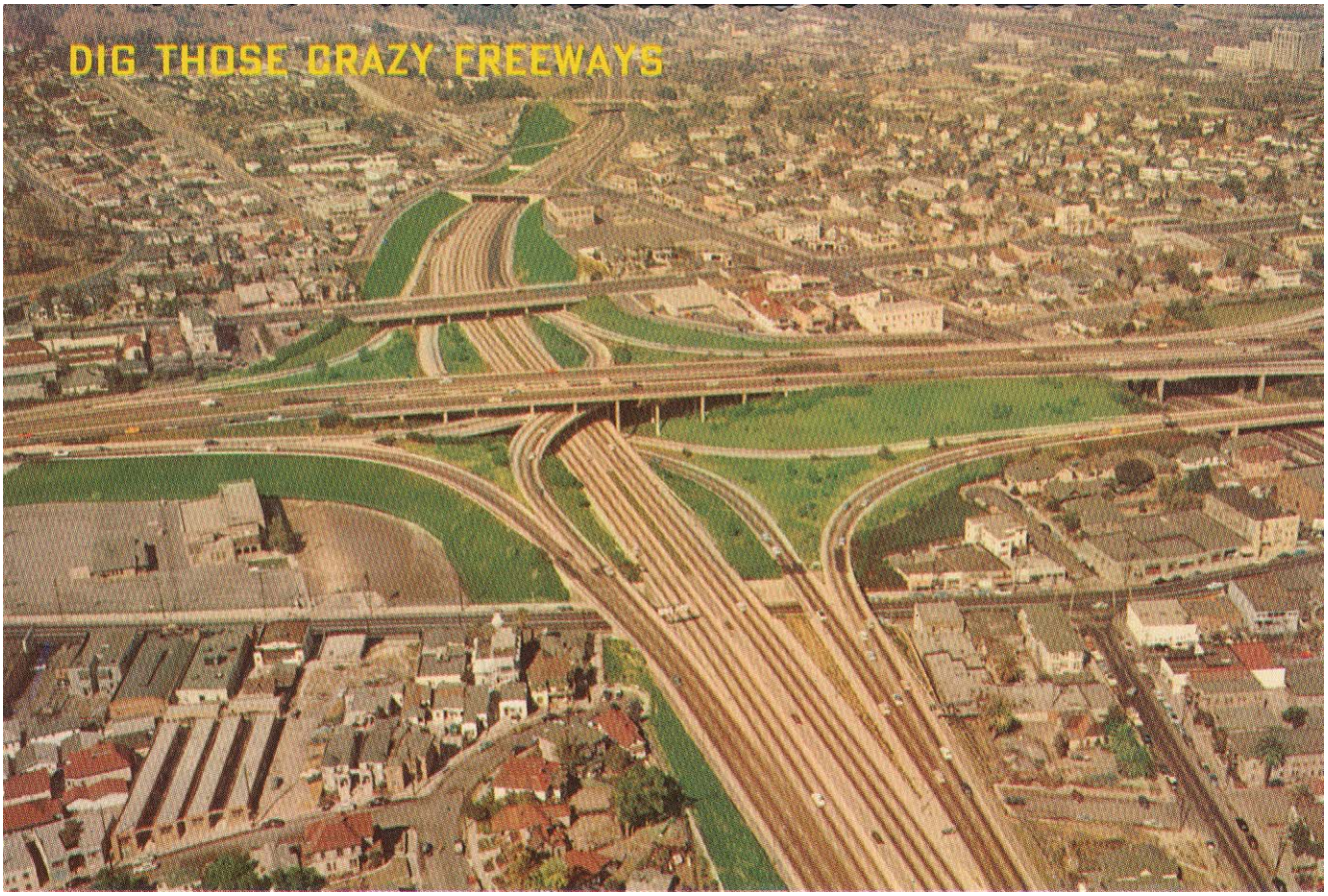
Roche says the report he and Halprin coauthored might have had more of an impact if it had been better distributed. But he also knows that designing the landscape of freeways was a low priority back at the height of the interstate era. "I wouldn't want to blame engineers and say they were insensitive to these problems, but it just wasn't the number one concern," Roche says. "The number one concern was to get from here to there ASAP. That was the charge and to do it at minimal cost and as fast as possible. So all this other stuff was regarded as fiddling around."

Which isn't to say that Roche and his coauthors gave up on the freeway. Halprin, among other influential landscape architects and planners such as Ian McHarg and Kevin Lynch, tried to create a freeway "that's as alive as it is infrastructural," says Margot Lystra, a doctoral candidate at Cornell University whose dissertation focuses on the design of urban American freeways. "These were projects that were just trying to explain that freeways were not just freeways but were environments," Lystra says. In the post-war freeway era, "neither planners nor landscape architects nor designers across the board were really included in that conversation. It was much more turned over to highway engineers."

The result had its own kind of beauty. It's hard to dismiss the grandeur of the sweeping overpasses of a freeway interchange. Reyner Banham, in his 1971 book *Los Angeles: The Architecture of Four Ecologies*, called the intersection of Interstates 10 and 405 in West LA "a work of art, both as a pattern on the map, as a monument against the sky, and as a kinetic experience as one sweeps through it." The aesthetics of freeway engineering—exemplified in the famous "Four-Level" interchange of the 101 and the 110 near downtown LA, or more recently in the extravagantly swooping 110–105 interchange to the south—has its own fantastic allure.

"Some of the projects in the sixties are instances of designers trying to flip the script on the freeway story and say these are not just structures," Lystra says. "These exist in neighborhoods, they go through landscapes, they interact with living beings, living beings interact with them. They're not just these mechanical infrastructures that serve us in this very utilitarian way."

Today, neither "pastoral" nor "speed" is the buzzword of California's freeway builders. "The major concern here at the department is safety," says Patty Watanabe, a landscape architect in the Caltrans District 7 office in Los Angeles. She and her colleagues are in charge of all the nonstructural aesthetics you'll see on the freeway, from the pattern of cinderblocks in a soundwall and El Camino Real bells, to rest stops and the shrubs planted in the cloverleaves of an interchange. "Anything we put in there, we have to look at it



from the safety viewpoint," Watanabe says. "Not just the public but our worker safety, too."

Plants have to be easy to maintain, and materials have to be quick to repair or paint. The gray of recycled paint is the go-to for cheap graffiti abatement. Wall-hugging vines require less pruning than big bushy shrubs. Trees have to be set back at least thirty feet, when space allows, and their trunk diameters are usually limited to reduce deadly collisions. Any planting or design or space has to be able to put up with endless noise, wind, dust, heavy metal contaminants, oily water, and all manner of debris and garbage. The freeway landscape is designed to endure a lot of ugliness.

"We're owner-operator. So whatever we build in our right of way, we have to maintain and operate," Watanabe says. "You're going to see a lot of the same things, because that's what's in stock in the maintenance yards. And if you have to get something different, then it's more costly. We're trying to be good stewards of the public funds. So we're under constraints and we're trying to be inventive and creative within our constraints."

Watanabe sums up the freeway aesthetic: "Most of our palette is usually concrete."

Freeways today are essentially a massive maintenance project. The era of freeway building is largely over, and state departments of transportation across the country are now left to do what they can to maintain the safety and functionality of freeways for as long as possible. The pavement of the roadway is designed to last between twenty and forty years.[3] Bridges and overpasses have design lives of between fifty and seventy-five years, depending on use and materials.[4] Short of a devastating earthquake or flash flood, most of these structures can be maintained and retrofitted to last much longer. And so, despite some successful and sensible campaigns to tear down inner city freeways in places such as San Francisco, New Haven, and Vancouver, most of our freeways and interstates will be with us for the long, foreseeable future.

But that doesn't mean they'll play the same role or even maintain the same appearance. The freeways of the future may simply be the sterile territory of autonomous cars and mass transit tubes zipping about in perfect synchrony. When

drivers no longer have to pay attention to the roads, the roads no longer have to be designed for drivers. Speeds may climb to a point where roadside trees are but a blur and the zig-zag cinderblock patterns of sound walls are incomprehensible. Personalized billboard advertisements may be more efficiently and profitably displayed in the car's display panel than on the roadside. With thick packets of autonomous cars filling the roadway, augmented reality windows may become a better way to see where the car is in relation to the city instead of what is actually on the other side of the glass.

A 2014 report from the New York University Rudin Center for Transportation Policy and Management offers a less orderly prediction. Authored by smart city expert Dr. Anthony Townsend, "Re-Programming Mobility" outlines four future scenarios for how transportation will be transformed by digital technology in American cities by 2030.[5] The report's Los Angeles scenario predicts a chaotic rollout of disparate autonomous car technologies "flooding the streets of southern California with a heterogeneous mishmash of assistive and autonomous vehicles that don't interoperate well—the safety benefits of self-driving cars are realized, but not the congestion-reducing ones." This gridlock turns freeways into "a 16–18 hour stretch of constant stop-and-go traffic." The freeway landscape becomes almost completely inconsequential, as car users simply tune out their hellish commutes by watching TV, working at in-car desks, or sleeping.

Indeed, there may not be much to see out of the windshield. The freeway may become even more banal than it is today, with its surfaces and structures designed to optimize autonomous operation and reduce the glitch potential of the varying scanning technologies currently favored by autonomous carmakers. The freeway landscape, big as ever and maybe bigger, may simply become a blank space dedicated fully to transportation and completely divorced from any aesthetic concerns.

Pragmatically speaking, the fully automated freeway is likely decades away. In the meantime, and perhaps for a long time, the freeways we have will undergo a more piecemeal evolution. "We're not going to build more freeways but the freeways we have will be fully utilized," says John Kaliski, an architect and urban designer in LA whose firm is currently working on two park projects that could be built on top of stretches of freeways running through dense urban neighborhoods. These freeway cap parks will do little for the drivers below, but could be a way for neighborhoods torn in two by the giant roadways to stitch themselves back together.

Freeways, Kaliski suggests, will be called on to do more than just move traffic in the future. The space above or below them will be reused or redeveloped. The water they collect will be rerouted into retention basins. They'll generate energy. They'll provide space for ecosystems to emerge in their margins. In a twist on the freeway revolts of the post-war years, people today and in the near future will demand that the freeway landscape provide more to cities, people, and the environment. "If you look at all these natural systems, freeways are going to have to become more accountable to them in a more rigorous way," Kaliski says.

This fits into the ethos of landscape urbanism, a reframing of landscape architecture to engage the landscape at a metropolitan scale. "Highways are public space writ large, in the metropolitan reach of their network as well as their sheer size," writes the architect and professor Jacqueline Tatom in *The Landscape Urbanism Reader*. "They are part structure and part earthwork, occupying a formal position between architecture and landscape."

If freeways, in their earliest forms, were about creating a connection to nature and the landscape, perhaps the freeways of the future will redraw that connection. "The structure of the freeway is so robust that it could almost take on anything," says Ying-Yu Hung, a principal at the landscape architecture, planning and urban design firm SWA. "The question is do we want to dismantle it altogether, or do we want to do some adaptive reuse and make it into something else?"

Even if the rise of autonomous cars and the ever-growing need for fast links within and between metropolitan economies means that freeways will always be with us, perhaps some facets of the first freeways, the harmonious parkways, like the Arroyo Seco, can be revived. Even if our freeways are here to stay, there's no reason they have to keep playing the same role they've played since the 1950s. We can learn from the brutal mistakes of the past and find new ways for our freeway structures to serve us, our cities, and our environment. Maybe we can even redesign and reuse our freeways in ways that offset and counteract the damage they've previously done. California's freeway landscape is ours to redefine. **B**

Notes

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