The intellectual promise of landscape urbanism to integrate the conceptual fields of landscape architecture, civil engineering, and architecture for the design of the public realm places urban highways squarely within its purview. The realization of limited-access divided highways in the second half of the twentieth century points to many of landscape urbanism's ambitions, notably to strategically engage the urban landscape at a metropolitan scale within the constraints of the prevailing political economy, and to consider environmental and infrastructural systems as primary ordering devices. Highways are public space writ large, in the metropolitan reach of their network as well as their sheer size. They are part structure and part earthwork, occupying a formal position between architecture and landscape. They are conceived as abstract technological artifacts, yet local topographical and hydrological conditions—not to mention local political circumstances—must be accommodated to realize them. As cultural artifacts, finally, they concentrate public resources on a scale that begs a broader definition of the public good that would ensure their diversion for the creation of public space.

The design of urban highways today suggests a transportation "downstairs" of concrete and asphalt, ceded to state agencies and civil engineers, that contrasts markedly with the design of a public space "upstairs" of plazas and streets, the territory of planners and designers. Used by all, the former are nonetheless invisible in public discussions of what makes a "good" city, except in utilitarian terms. While romantic celebration of the rural or wilderness highway prevails in the general public and in the media, urban highways receive harsh treatment. Massive in scale and reductive in scope, they disrupt the physical and social fabric of the neighborhoods they traverse. Their rehabilitation in the eyes of the public and of design professionals, as well as their positioning within the emerging discourse surrounding landscape urbanism, requires that designers and engineers shift the frame of reference for their design from utility to amenity, from infrastructure to urbanism. Building urban highways to provide efficient automobile circulation in cities might then be considered an urbanistic opportunity rather than a planning liability. For this to happen, the design of highways needs to be theorized and situated historically within professional design practice.

A review of canonical urban roadway system designs is the first step in providing the opportunity to reframe familiar narratives. Vehicular circulation in cities has not always received bad press or so little design consideration, nor has it always been considered in purely utilitarian terms. Indeed, the efficient circulation...
of goods and people as an essential "function" of modern life and modern cities has been a central preoccupation of most theories of urbanism in the last two hundred years. The creation of boulevard systems, parkways, and highways as distinct elements of the urban fabric has been integral to many proposals to make or remake the city in the modern era. Baron Haussman was, in the mid-nineteenth century, the first to formulate a metropolitan-scale response to this function and to recognize the opportunity it provided to "modernize" Paris. The boulevard system was the master element of an urban renovation that included the provision of water, sewers, parks, and housing, as well as cultural and administrative facilities. Frederick Law Olmsted's vision of the Emerald Necklace for Boston and his realization of the Fenway and Jamaicaway offer American counterparts to Haussman's efforts in Paris. For Olmsted, "circulation and respiration" in the nineteenth-century city could be achieved by the realization of parks, parkways, housing, and recreational venues. These were to be realized in conjunction with massive infrastructural works to manage waste and stormwater needs and to control the ecology of natural systems. These projects are remarkable because they suggest a modern urbanism that conceives of efficient circulation not as an independent system within the city but as the defining intervention of an overall project to provide the residential and public spaces necessary for everyday urban life as well as modern sanitation systems.

The advent of the automobile in the early twentieth century spurred many urbanism proposals defined by the requirements of high speed circulation. Le Corbusier's Ville Radieuse and Norman Bel Geddes's Magic Motorways come to mind, as do Frank Lloyd Wright's Broadacre City and Ludwig Hilberseimer's New Regional Pattern. These visions, however, required a tabula rasa or green fields for their full expression. In contrast, the limited-access parkway systems developed in the New York City region during this era, including the work of Robert Moses, are remarkable because they are conceived as complements to the existing city. Realizations such as the Henry Hudson Parkway take advantage of an extraordinary site to integrate residential development, recreational facilities, parks, and monuments while accommodating high-speed and local traffic and public transportation.

In the second half of the twentieth century, the potential of roadway design to enhance the continuing urbanization of existing cities is well served by the theoretical work of Christopher Tunnard in his 1963 book *Man-made America: Chaos or Control?*, with its thorough discussion of the technical, visual, and spatial challenges of modern highway design. Lawrence Halprin's *Freeways*, written for the Federal Highway Authority in 1966, remains however the only work to take on the design of highways in cities as a distinct form of urbanism. Halprin diagrams alternative freeway sections for American cities, as well providing a historic overview of roadway precedents. The result is a de facto theorization of the formal and functional evolution of urban roads from boulevard to parkway to limited-access parkway to limited-access divided highway. He establishes a historical continuity in the provision of efficient circulation in the modern era while enthusiastically championing the role of these roadways as public spaces in the contemporary city.

Since these two publications, however, the progressive and optimistic inclination of roadway planning has subsided within the engineering and design professions. The sheer magnitude of urban highway construction programs after World War II has shifted the design focus from urbanism to traffic management. In much of North America, Departments of Transportation (DOTs) or their equivalent have established professional hegemony and autonomy, in great part by legislating an independent federal highway trust. Projects are dictated by political and economic ambitions at the state and federal level, and rarely emerge from local planning or citizen demand. The codification of norms of security and efficiency into rigid bureaucratic guidelines has further alienated the civil engineers who design the highways in their interactions with planners, design professionals, and the general public. The functional result today is an uneasy standoff between transportation engineers and designers and planners, and between DOTs and the public, with politicians shifting allegiances according to election timetables. The formal result is an increasingly pervasive yet narrowly defined network of urban highways. They split and marginalize neighborhoods, their physical bulk continues to expand in response to rising automobile use, and they produce an increasingly distressing sensory assault on everyday life.

Critics within the design professions as well as the media have demonized cars and the highways that serve them as the primary culprits in a perceived urban malaise and impending ecological disaster. Anti-sprawl proposals for smart growth, transit-oriented development (TOD), and the design of pedestrian-friendly public spaces have drawn attention away from the design of the highway itself, championing instead the use of traditional urban forms such as street grids and boulevards. Allan Jacobs's documentation, *Great Streets*, fuels the prevailing narrative of lost urbanity that permeates public discourse by proposing these historic urban forms as models to solve contemporary needs for circulation and public space. His more recent *The Boulevard Book* provides nonetheless one of the only comprehensive reviews and documentations of multiway boulevards as alternative roadway systems for contemporary circulation, systematically debunking the arguments of civil engineers and highway designers who reject this form of roadway design. Were it not for its equally nostalgic cast, this book would begin to restore the theoretical continuity in the design of circulation systems that Halprin established when he posited boulevards and parkways not as models to copy but as precursors to the limited-access divided highways of the postwar era. For Halprin, the considered design of these new highways was integral to the creation of a vital and urbane contemporary urbanism, and the precursors provided valuable examples of design innovation.
One recent example of an urban highway, the Barcelona Cinturón, suggests the possibility of picking up the historical narrative where Halprin left off and rediscovering a theoretical continuity in the conception of urban roadways as public space. The Cinturón is a beltway around Cerda’s nineteenth-century city that was conceived in the 1980s by the socialist administration that had been elected in the wake of Francisco Franco’s death. It was conceived to eliminate the juggernaut of automobile traffic through the central city by diverting circulation from the center. From the outset, the mayoral administration created the powerful Office of Urban Projects (IMPUSA) to carry out the modernization of Barcelona. Politicians, planners, and designers viewed the Cinturón as an opportunity to “complete” the city. It was considered an integral part of a strategic planning initiative that included parks, cultural institutions, and housing, as well as the recreation and sports facilities of the 1992 Olympics. The urbanistic bias of the Cinturón distinguishes it from most highway projects built today, and its design provides insights into how urban highways can enhance the experience of today’s cities.

A CRITICAL RECONSIDERATION OF THE PARISIAN boulevards, the Boston parkways, New York’s Henry Hudson Parkway, and the Barcelona Cinturón yields a set of possibilities for urban highway design and confirms the theoretical robustness of the topic, exemplifying its relevance for recent discussions of landscape urbanism. While the first two realizations are not highways in the contemporary sense, as they do not have limited access and are only partly divided, they are important to this discussion because they represent early attempts to redirect and concentrate higher-speed traffic in the city on specially designed roadways.

A common characteristic of these four endeavors is that they are inscribed in a complex program of urban renovation. It is formulated within a broad public mandate to redress degraded sanitary conditions and to improve the quality of life for urban dwellers according to modern criteria of efficiency and performance. These realizations are conceived on a metropolitan scale in support of a heterogeneous program of improvements that includes the provision of efficient public and private transportation and the upgrading of essential utilities. It also includes the creation of public spaces for leisure and recreation, the building of cultural facilities, and finally, the upgrading and augmentation of the residential and commercial building stock. While these programmatic elements are common to all comprehensive urban plans, what is exceptional in these instances is that they are addressed under the aegis of a roadway project, and are generally accommodated within the limits of the roadway right of way itself. They constitute, programatically and morphologically, a complete urbanism that produces new landscapes that are a hybrid of natural and man-made systems. Moreover, this urbanism does not conform to a predetermined formal geometry, despite its realization as a system, but instead emerges from a site-specific diagramming that conforms and deforms according to existing topographical and land-use conditions as well as real property opportunities.

THE BOULEVARDS OF PARIS
In Les Proménades de Paris (1867–73), Adolphe Alphand documents his work as designer of the Haussmanian landscape at all scales. In his general plan of the city, he includes the suburban communities outside the Barrières des Fermiers Généraux as well as the Bois de Boulogne and the Bois de Vincennes. Clearly Baron Haussman’s vision extended beyond the limits of the mid-nineteenth century city, signaling a new “metropolitan” understanding of urban development. Moreover, Alphand draws the new network of boulevards, parks, places, and monuments as if they were etched into the solid figure of the city, reinforcing the conception of the boulevards as a comprehensive system that is autonomous yet at the same time embedded in the fabric of the city. The new interventions were strategically located to take advantage of existing monuments and amenities, topographical conditions, and real estate opportunities. Haussman also retained customary economic centers such as the neighborhood street markets. The plan reveals a programmatic richness that is enhanced by a careful exploitation of the existing city.

This richness is confirmed in the sectional representations of the proposed boulevards, which include not only the representation of their profile but the landscaping, the street furniture, the building edge, and the utilities below the surface that were built concurrently. The boulevards are conceived three-dimensionally as public places for pedestrian as well as vehicular and utilitarian uses, for leisure as well as for commerce. The apartment buildings that lined the boulevards, and the monuments that crowned them, were also conceived as part of the circulation system. Their architecture is integral to the experience of the system and to its urbanistic “fit” into the fabric of the historic city; they provide a morphological cohesion that allows old and new urbanization as well as old and new social rituals to coexist. The boulevard Sebastopol, for example, cut through historic neighborhoods to link the new Gare de l’Est with the heart of the city while accommodating the new residential apartment blocks of the emerging bourgeoisie and the department stores that served it. The rue St. Denis and the rue St. Martin, however, were preserved intact on either side, and with them the markets, small shops, and dwellings that had lined these streets for centuries (SEe FIG. II).

The preservation of the continuity of the built fabric and the programmatic heterogeneity of the boulevards make possible a fluid and diverse experience of the city. The flaneur strolling about town, the vendette on her lunch break, and the bourgeoisie about her shopping could move seamlessly between the rituals of the new society and those of traditional custom, from nineteenth-century to
pre-industrial Paris. This is still the case today, as the different morphologies continue to support different uses and rituals. The programmatic breadth of this new urban form, in plan and section, supports the social breadth of experience [FIG. 3].

**BOSTON'S EMERALD NECKLACE**

The Emerald Necklace of Frederick Law Olmsted and his partner Charles Eliot also has utilitarian roots and results from a rich programmatic vision for urban infrastructure. The Fenway, the first of the "jewels" of the Necklace, was created to manage the tidal reflux of the Charles River into the Muddy River in Boston's Back Bay, in order to eliminate the accompanying stormwater and sewer overflows. The topographical and hydrological reconfiguration of what had become a wasted swamp provided the opportunity to create parks and parkways that served circulation and recreational needs. As in Paris, the spatial cohesiveness of the system results from a mise en relation of diverse urban and natural elements that is both deliberate and opportunistic. The Necklace's configuration is determined by site conditions—the alignment of the river and whatever land reserves could be assembled in public hands—rather than by a preconceived rationalizing geometry, as is generally the case in classical or modernist visions of the city.

In plan view, the Necklace is shown both as an independent realization within the city and as part of a regional system of parks, parkways, and land reservation [FIG. 3]. Like the Parisian boulevards, the system is both local and metropolitan in its impact, both particular and comprehensive in its scope. The Fenway and Jamaicaway created a new urban front that increased the value of real estate along their length and spurred the building of apartment blocks and cultural institutions, often conforming to the curved alignment of the arborways. Multiple lanes of circulation that originally separated carriages from horseback riders narrow or widen according to available land, shaping the form of the retention basins within the gardens and parks. The natural landscape varies in character, from community garden to public garden to recreational and sports venues. Here too, a sectional representation best captures the multicoordinate richness of the intervention. Above and below ground, raised or depressed, on

the surface and to either side, different uses are accommodated within the constructed landscape of the roadways and its edge [FIG. 4].

The result is a work that serves the public good, not only through the provision of needed infrastructure but also through the provision of public place. Commuters or city-dwellers about their business on the parkways, individuals in contemplation on a park bench, or with family or colleagues at a softball game in the parks, or even lost in a crowd on the fairgrounds—all find their space within the right-of-way of the Necklace. While the bucolic nature of Olmsted's aesthetic contrasts with the classical formalism of the boulevards, both realizations are highly constructed urban landscapes in which nature and infrastructure are put to the service of making places for people to be.

**NEW YORK'S HENRY HUDSON PARKWAY**

In the General Plan of the Park System for New York and its Environs created by the Regional Plan Association in 1938, the Henry Hudson Parkway appears as a small link in a vast network of parkways and parks, boulevards and highways. It is inscribed in a metropolitan conception of the city that melds landscape, infrastructure, and urbanization. As in Paris and Boston, the metropolitan diagram is formalized as a system but remains informal in its expression as a dendritic network resulting from the judicious exploitation of natural features and topographies, as well as opportunistic acquisitions of undeveloped and often marginal land.

The New York parkways marked the evolution in roadway design from multilane, multiuse full-access roadways to limited-access and divided roadways for vehicular traffic only. By the time Robert Moses completed the Henry Hudson Parkway in 1937, most of the parkways had evolved from leisurely driving roads to major commuter routes. However, the multiple agendas of the original Westchester parkways to upgrade transportation, to sanitize creeks and rivers, and to create parks and cultural and recreational amenities while improving residential development, continued to inform the early proposals of Moses's tenure.

The multivalent quality of the metropolitan system is reproduced within the right-of-way of the Henry Hudson Parkway ensemble itself: it incorporates
Olmsted's original Riverside Drive, which creates a residential edge of grand houses and apartment buildings, and the park includes memorials and monuments such as Grant's Tomb and the Cloisters, which rise above the forested slope [FIG. 5]. Moses expanded the park to cover railroad lines converted to commuter traffic and reconfigured the water's edge to include a limited-access divided highway linking Manhattan to the northern suburbs and a public marina. The striking topography facilitated and inspired the rich association of parkways, railroads, recreation areas, cultural institutions, playgrounds, and residences within a section that reached from the bluff to the water's edge. The recreational areas are equally accessible from above and below through a system of trails and overpasses, providing access and views to the mythic Hudson from multiple vantage points.14

Driver and pedestrian, commuter and neighborhood resident, all build a cultural identity as city-dwellers through this quotidian intimation of the sublime. The juxtaposition of the experience of tranquility and speed in this landscape produces a kind of exhilaration for driver and stroller, a contemporary "rush" that is one of the attractions of urban life [FIG. 6]. This experience has been recognized and poeticized in literature and in film, and vulgarized in umpteen car chase scenes. The highway experience is generally presented as having displaced "street" life, but when accommodated within a larger urbanistic agenda, it can be considered an addition to the range of experiences available to city-dwellers.15

BARCELONA’S CINTURÓN
The IMPUSA's plan of Barcelona identifies the realization undertaken in the 1980s and 1990s to improve the quality of life in one of Europe's densest cities. Their Plan d'Urbanismo complements the strategic economic plan formulated to position the city as a European player with global economic reach. The Cinturón is one element within a comprehensive and metropolitan-scale proposal to improve public and private transportation and to provide greatly needed public amenities. This proposal includes intimate neighborhood parks and plazas, the reconfiguration and redesign of major avenues and larger parks throughout the city, the integration of new subway lines, as well as the beltway. It also includes recreational, residential, cultural, and sports facilities, many built for the 1992 Olympics.16

The Cinturón complements both the inner-city network of renovated avenues and the citywide system of parks and plazas. It is located opportunistically to take advantage of marginal sites that remained undeveloped because of difficult topographic conditions along the waterfront and at the base of the
Tibidabo and Montjuic hills. As in Alphand’s plan of Paris, parks, space, circulation, and urban projects are conceived as autonomous systems that are nonetheless physically and culturally integrated to the fabric of the historic city.

As in the earlier projects, the programmatic richness of the metropolitan diagram is reproduced within the right of way of the Cinturón itself. It is in many ways a traditional multiway boulevard that has been folded in on itself. The central four-lane throughway is depressed, while contre-allées, or access roads, remain at the surface to distribute entering and exiting vehicles at speeds slow enough to constitute a viable streetfront for the residential and commercial buildings along its length. Leftover land from highway construction was subdivided into parcels for new housing or public facilities, creating a thick urban edge, much like the soldering effect of the Haussmanian apartment buildings. In some locations the access road is cantilevered over the depressed section, further reducing the width and noise and facilitating ventilation. The sectional complexity is compounded by pedestrian bridges treated as promenades, decks treated as plazas or recreational facilities, and signage and lighting designed to accommodate the continuous curve of the roadway. The interchanges are treated as hyper turning circles, creating large enough central spaces to accommodate programs such as intermodal stations, parking, parks, and recreational facilities [FIG. 7].

Careful attention is given to the quality of the materials so that the Cinturón takes on a distinctive formal identity. Palm trees are planted along the depressed median, clearly marking the separation and reducing the glare of oncoming traffic. This accentuates the effect of speed and emphasizes the cinematographic quality of continual highway movement. Only the tops of the palms are visible from the surface roads, adding a humorous touch that signals the presence of the highway below to pedestrians and drivers on the surface. The designers acknowledge that the city can be experienced at multiple speeds: as a driver on business, or a stroller at leisure.

All along the Cinturón, the scaling up and programming of interchanges to include parks and recreation, the selective decking to create plazas and facilities, and the judicious use of grade shifts and separations allow novel adjacencies to exist between pedestrian and driver, generating for both an experiential identity forged in the comings and goings of everyday life. The Moll de la Fusta, where the highway aligns with the waterfront, remarkably illustrates the variety of public spaces that can be achieved through the articulation of such complex sections [FIGS. 8, 9]. Local circulation, public transportation, pedestrian strolling, and high-speed traffic are accommodated by the sectional integration of a classic boulevard, a raised promenade deck above parking, a depressed and partly decked throughway, and a waterfront esplanade. Here as elsewhere along the beltway, the driver never loses his sense of place in the city, and remains in touch with the sky and the seasons as he or she experiences the thrill of speeding against the backdrop of the city, or the frustration of being blocked in traffic. The pedestrian slips back and forth across the highway, taking advantage of the amenities it provides with friends and family, or perhaps alone, strolling across a bridge and gazing down, slightly mesmerized by the hum of traffic below the palm trees.¹⁷

The discussion of these four seminal realizations reveals that the mobilization of public and private resources, political will, bureaucratic structure,
and professional vision for modernization, justified variably for "scientific" reasons of sanitation and efficient circulation, or for boosterism in the form of civic identity, can provide the opportunity for a new manifestation of the public realm. In these examples, the introduction of new road morphologies in the historic city constitutes a complete urbanism that allows for the full expression of everyday urban life. Such an urbanism transforms the city in radical ways and provides it with a new formal and experiential identity. However, new forms and new ways of life do not replace so much as supplement existing forms and rituals, augmenting the range of experiences available to the city's inhabitants. The programmatic richness and metropolitan ambition of these realizations assure that the needs that are met and the experiences that are made possible are commensurate with the multiple expressions of individual identity in modern life, in solitude or lost in a crowd. The inclusion of multiple programs within the right way of the intervention itself through a careful design of the section ensures that the pedestrian and the automobile driver receive equal consideration while maximizing the use of public resources. In addition, it reestablishes a morphological continuity of the urban fabric that rapidly overcomes the social and physical disruptions of the often violent construction effort.

These exceptional realizations were all undertaken in dense, well-established historic cities. They nonetheless remain relevant for the far less dense, more dispersed development of contemporary fringes, or indeed the new twentieth-century American cities in which traditional "urban" rituals are not established. These projects provide a set of assumptions for the realization of a contemporary highway urbanism that would include today's suburban expansion. Such assumptions do not constitute principles or guidelines but rather the foundation for shifting the frame of reference for the design of urban highways, from utility to urbanism, from liability to opportunity.

The discussion of these realizations is a reminder that such an urbanism moves earth on a massive scale. New structures and venues for urban life are achieved through a radical transformation of topography and morphology of large sections of the city. A remarkable bureaucratic and technocratic integration and mobilization of public and private resources is required to sustain this landscape construction, and strong creative personalities battle to maintain the urban integrity of the vision. These personalities establish the theoretical premises of the work but also its operational foundation. It remains to be seen whether these scenarios, as in Paris, Boston, New York, and Barcelona, can be reproduced and whether urban highways of this caliber can be realized without them in the political economy of the United States today. Clearly the theorization of such an intervention and the diffusion of that theory are essential steps in achieving a cultural consensus around this opportunity. The design of urban highways can then truly be conceived as the design of the public realm.

Notes
5. This theoretical void has not been compensated by "pop" or postmodern recuperation of the commercial strips in art or architecture, such as Robert Venturi and Denise Scott-Brown's Learning from Las Vegas (Cambridge, Mass.: MIT Press, 1977), which addresses a different scale and the more incremental nature of strip development. Recent works of


8. Alfons Soldevilla, architect responsible for the signage, pedestrian bridges, and several public space projects along the Cinturón, interview with the author, 30 November 2000.


