Another Look at Boulevards

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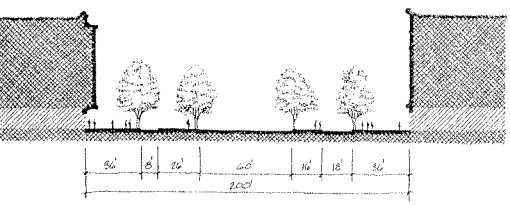


Above and below: A classic boulevard, Paseo de Gràcia, Barcelona's premier shopping street.

(Illustrations by authors)

This article is excerpted from a monograph by the same authors: Boulevards: A Study of Safety, Behavior, and Usefulness *(IURD Working Paper 625). It is available from the Institute of Urban and Regional Development, University of California, Berkeley (510) 642-4874.*

Boulevards, we believe, should be reconsidered — classic, multifunctional boulevards, with side access roads and strong lines of trees in medians.

These days, planners and designers accept the idea that streets should serve one primary traffic function — such as local traffic, collector traffic, through traffic, or fast, long-distance traffic. With persuasion (which is readily accepted) from engineering and public works professionals, we often design for these single purposes.

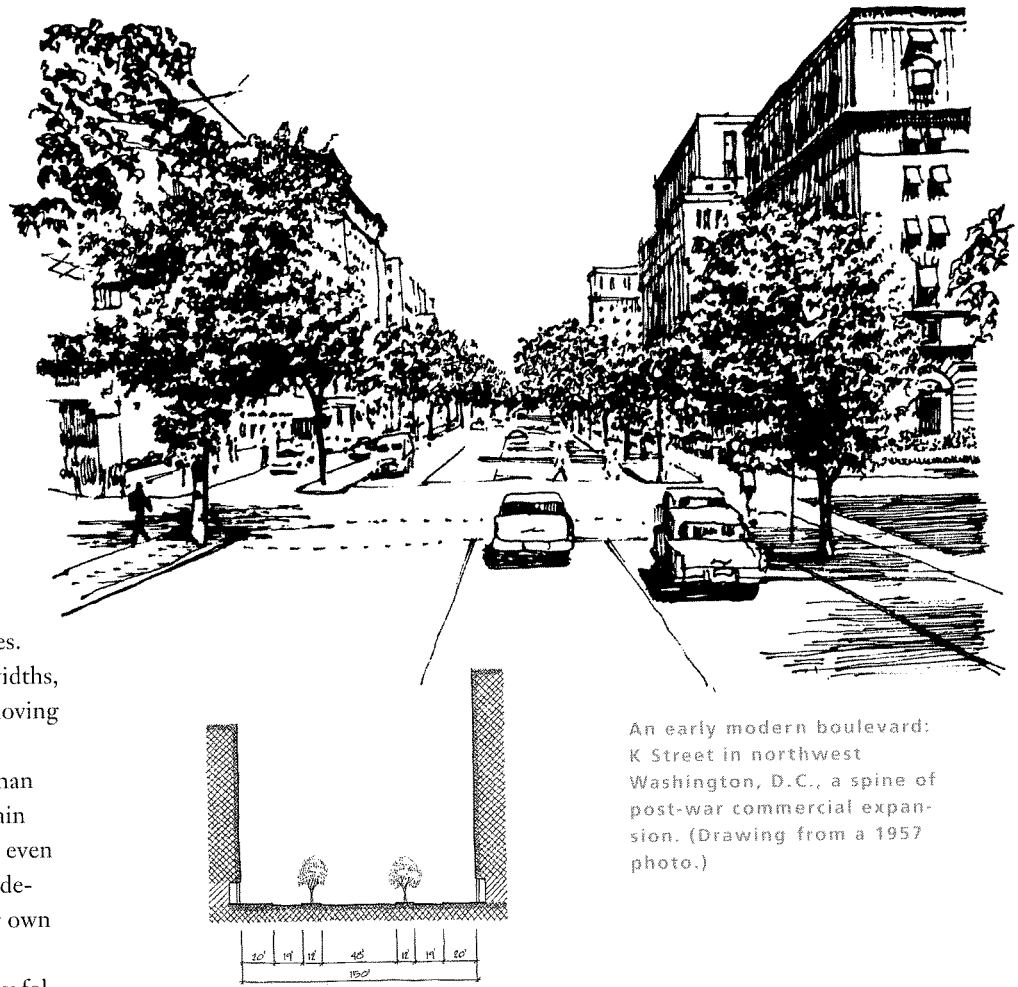
But life and what happens on our streets is not so simple, nor should it be. Boulevards often represent excellent transportation and design solutions to complex urban movement and land-use issues.

During the 1980s in Los Angeles, participating in the design of a major new development through which a high-volume arterial road passed, we proposed side access roads to serve the adjoining commercial and residential properties and to slow and calm local traffic, basically a boulevard configuration. However, we discovered that lane width standards for the new access roads were so wide as to take away the local quality desired, and we were advised that intersections along such streets would be exceedingly dangerous. Solving the problems would take so much space under operative standards and norms that the idea died.

During field research for the book *Great Streets*, considerable time was spent on a variety of boulevards, especially observing intersections and the nature of motorist and pedestrian movements there. These streets did not appear to be particularly dangerous; people simply adapted to what was there and did so safely. Perhaps most importantly, these streets were delightful places to be. Pedestrians, local motorists and those passing through quickly seemed to get along together.

A Brief History of the Boulevard

The classic boulevard is characterized by a central roadway of at least four lanes for fast through traffic and two access lanes on each side, which are separated from the central roadway by



An early modern boulevard: K Street in northwest Washington, D.C., a spine of post-war commercial expansion. (Drawing from a 1957 photo.)

medians that contain lines of trees. The medians can be of various widths, as are the side access roads for moving vehicles and (usually) parking. Medians may be nothing more than planting strips or they may contain walks, benches, transit stops and even horse trails or bike paths. The sidewalks may or may not have their own lines of trees.

The boulevards we know today follow models developed in France during the mid-nineteenth century when they were inserted into the existing medieval street patterns or laid out as part of city expansions. In addition to the objectives of beautifying the city and of asserting the public role of city building, these boulevards were designed to move people and goods through the city, improve communications, add sanitation lines and other infrastructure systems, and open up crowded neighborhoods where social unrest was fermenting. They also gave structure and comprehension to the whole city, often as large monumental ways that linked important destinations.

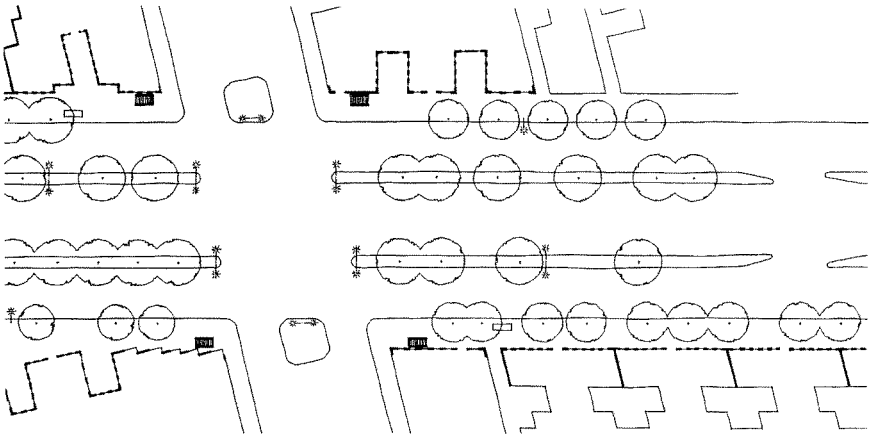
Boulevards were imported to the U.S. as a part of the park movement and City Beautiful movement. Coinciding with the rapid expansion of cities, they were more often associated with new development than with streets cut through old quarters. Often built before the buildings that were to line them, they were intended to give a sense of good things to come.

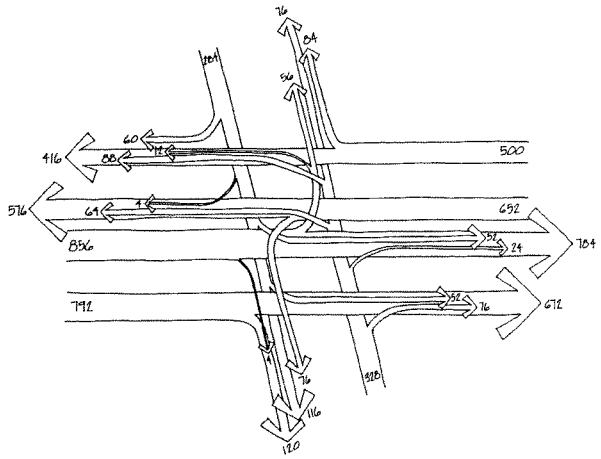
In the twentieth century, the emerging field of transportation planning embraced the notion of the functional classification of streets. This approach sought to resolve the potential conflict inherent in the dual roles of urban streets as thoroughfares and access providers by specializing them according to the movement functions they were intended to serve. For the most part, only local streets were to provide access to adjacent property, while "collector" streets, "arterials," "expressways" and ultimately "freeways" were characterized with increasing restrictions to access. Each road type was associated by lane-width standards, curvatures, superelevations, intersection geometries and spacing.

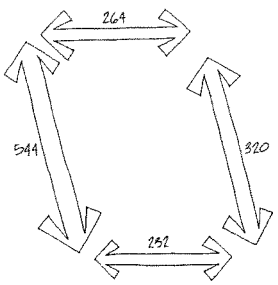
In this context, boulevards of the type we are studying are problematic. They do not fit easily into any one functional classification category. Analogous to mixed land uses — a victim of the preferences and standards of city planners and developers since World War II — the boulevard is a mixed-use public way that is multifunctional by nature and was therefore discarded.

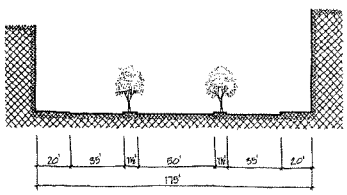
Boulevards have also fallen prey to changing standards of road building. Over the years, there has been a tendency to widen lane widths, for example, from eight or nine feet to twelve or thirteen feet. Median widths have also increased, left- and right-turning lanes have become standard, and turning radii at intersections have become larger. Parking lanes have become wider. Acceptable tree-spacing norms have become much greater, especially required distances from intersections.

The reasoning for these changing standards always includes a major safety component. Safety considerations are often based on geometric and physical









The Grand Concourse, a prewar residential boulevard in the Bronx.

(Top) Plan of intersection at 167th Street.

(Center) Vehicular and pedestrian volumes at the Grand Concourse and 167th Street, measured at peak hours on a weekday afternoon.

(Bottom) Section.

assumptions and applied logic, not necessarily on observation of real behavior on streets. On boulevards, these considerations are especially focused on intersections. The sheer number of possible conflicting movements — weaves from side access roads to the central lanes and, vice versa, possible right turns from central lanes across straight moving traffic on the access roads — suggest logically that boulevards must not be as safe as other streets. Our research suggests otherwise.

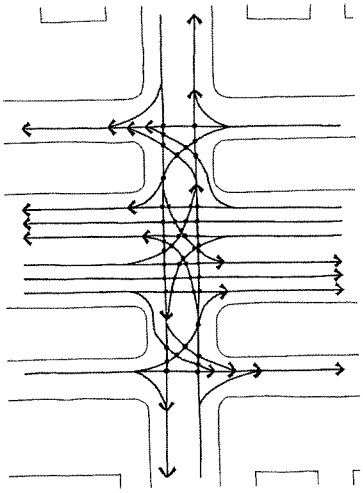
The focus of this study of boulevards has been on countable data, such as accidents and traffic volumes, on physical measurements of boulevards and their immediate environments, particularly at intersections, and on visually monitoring behavior on boulevards in person and through the use of time-lapse and video photography.

So-called "hard" data, we have found, is seldom as hard as we might wish. Accident data is counted differently from city to city and country to country. Different phenomena are counted, precise locations of accidents may or may not be given, and accidents at intersections may be "credited" to one street, thereby raising its accident rate, when perhaps they should be counted for the other street.

Traffic volume data may also be less reliable than desired. At times, the volumes are not based on actual counts, but on samples and partial data that is then assigned and expanded via traffic modelling. Nor is in-the-field monitoring of behavior without its limitations; one always wonders if anything critical is being overlooked.

These caveats notwithstanding, what we found is that boulevards, in general, are no less safe than other major traffic carriers. To be sure, all boulevards cannot be said to be safe. But that is true of other streets as well.

The research not only permits a conclusion as to the general safety of boulevards but also leads to observations (the reader may call these hypotheses) about boulevard design and the relationship between design and behavior on them.



Conflict point diagram of the intersection of Ocean Parkway and Ditmas Avenue, Brooklyn, illustrates the numerous traffic movements possible at boulevard intersections.

Why Boulevards Work

First, a general observation regarding behavior on boulevards: people follow the rules. Motorists do not generally go through red lights, they do not generally make right turns from central lanes of a boulevard if that is clearly prohibited, they use mid-block breaks in medians (if provided) to move between the central lanes and the access lanes, they obey left-turn prohibitions and they park where they are supposed to park. Pedestrians generally pay attention to lights, cross with them and, for the most part, are very mindful of vehicles.

But motorists and pedestrians will take advantage of opportunities that may be against the rules, if doing so is perceived as safe. This observation is most dramatically exhibited by the large number of pedestrians who regularly cross access roads against a traffic light to get to the median, using it as a haven, before crossing the fast-moving central lanes when they are supposed to. Pedestrians also regularly walk on narrow access lanes, even mothers with small children.

Motorists will back out of slow-moving or stopped access lanes into intersections if they perceive that will get them moving again without accident. Some motorists move from central lanes to access lanes, or from access lanes to central lanes, at intersections where this is prohibited. U-turns are not uncommon whether or not they go against the rules.

It is notable that, generally, people pause before taking advantage of opportunities that may be against the rules. Observed behavior suggests that people see a chance to achieve an objective, understand that the action might not be according to the rules, make an assessment as to whether or not they can do what they want safely and without getting caught, and then do it if the answers are positive.

Traffic Volumes and Accidents, Selected Boulevards

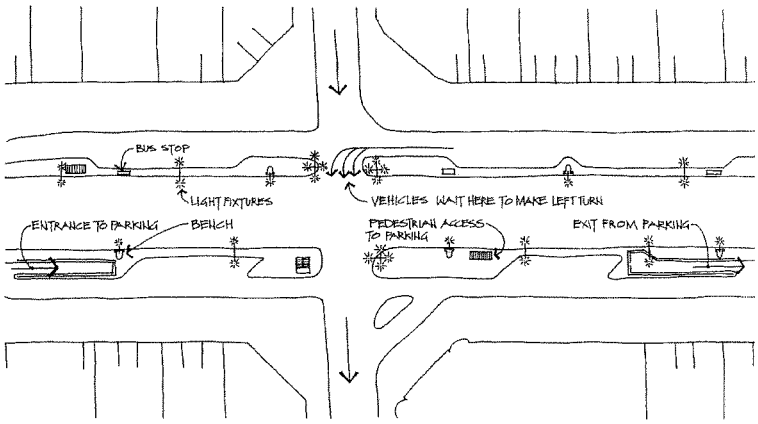
	VOLUME	ACCIDENTS	ACCIDENT RATE	PEDESTRIAN ACCIDENTS	PEDESTRIAN ACCIDENT RATE
Grand Concourse	**57.950**	**20.94**	**0.36**	**4.88**	**0.06**
Queens Blvd.	**37.654**	**14.25**	**0.63**	**2.08**	**0.09**
Eastern Parkway	**61.000**	**42.38**	**0.69**	**3.65**	**0.06**
Ocean Parkway	**74.000**	**27.30**	**0.37**	**1.20**	**0.02**

"Volume" expressed in terms of Average Daily Trips/1000. "Accidents" and "Pedestrian Accidents" expressed in terms of yearly mean per intersection. "Accident Rate" and "Pedestrian Accident Rate" expressed as ratio of Accidents/Volume and Pedestrian Accidents/Volume.

People on boulevards adapt their behavior to situations; but when choices are many and complex, people move with more caution. The intersections of boulevards seem problematic on traffic flow diagrams that show all the possible conflict points. But the travel world does not necessarily work as foreseen in those diagrams, particularly on the best-designed boulevards.

On Avenue Marceau in Paris, there are some truly complicated intersections, not so much with access streets but with cross streets. At one point, four streets intersect Avenue Marceau, which has access streets on both sides. The number of possible movements is staggering, and it seems that all of those are executed. Over two hours of observation reveals that drivers become aware of the complexity of the place they are entering and act with caution. Accident data at this intersection reveals that none of the intersections have more than ten accidents a year.

Boulevards with wide traffic lanes and long blocks are associated with higher vehicular speeds and more mid-block crossings by pedestrians. Queens Boulevard and the Grand Concourse are considered among the most unsafe streets in New York for pedestrians. Both have similar physical design characteristics that might account for this status: they have two access lanes for fast traffic



Plan of Paseo de Gràcia, showing the many functions of the median.

that are wider than any other of the boulevards we studied. Traffic volumes on these lanes approach those on the central lanes and traffic speed is equal to or rivals that in the central lanes.

These boulevards also have greater distances between intersections than other boulevards, or greater distances between designed crossings. Given these physical conditions more people, apparently, choose to jaywalk rather than to walk to distant intersections and double back to their destinations across a wide street.

In general, street trees are less of a visual barrier than other objects placed at street intersections, and less of a barrier than parked or stopped vehicles, whose existence is inevitable. Simply put, it is considerably easier to see around a tree trunk, even around a wide one, than it is to see around a parked or stopped car, a transformer box on a light pole, or a battery of newspaper vending machines lined up along the curbs at intersections. Neither accident data nor observation carried out as part of this study permit a positive correlation between safety and trees, their spacing, or their nearness to intersections.

To work well, a boulevard must establish an extended pedestrian realm. If the access roads of a boulevard are separated strongly from the center roadway and are narrow, and if the medians have closely spaced trees and perhaps benches, have a different paving and a level change, and if there are transit stops or other functions that draw people to the median, then pedestrian and motorist behavior suggests that people consider the whole space from buildings to the central lanes — the sidewalks, the access roads, the medians — as a pedestrian realm, or at least an area in which they are equal with vehicles.

On boulevards where this pedestrian-paced quality exists, it is common to see autos and pedestrians sharing the access roads. Vehicles move slowly and quietly behind pedestrians who are walking on the street, or a mother may feel safe enough to stroll down the access street with an infant in a stroller.

Boulevards can work well as major commercial streets, residential parkways, or mixed residential and commercial streets. The boulevard form also allows the street to change as the context of the city changes around it. There seems to be no reason, based on reviews of the case studies, why a boulevard cannot work as well for a residential, commercial or mixed-use environment.

Conclusions

In situations where both through and local traffic are heavy, each with different needs and conflicting with the other, boulevards seem to be most appropriate as solutions to the needs of both. They balance the different and conflicting uses, and do so in an elegant way.

When a major urban street passes through an area of sufficient residential density, or of intense commercial activity (either of which may include public transit service and stops), or a mix of the two, areas through which pedestrian activity may be significant and in which vehicular access to adjacent properties is relatively constant, safety problems potentially exist in the conflict between those activities and through traffic. Boulevards, because they separate through traffic from local traffic, and because they can accommodate public transit as well as private vehicles and pedestrians in appropriate subrealms of the same public right of way, can resolve the inherent conflicts on such corridors.

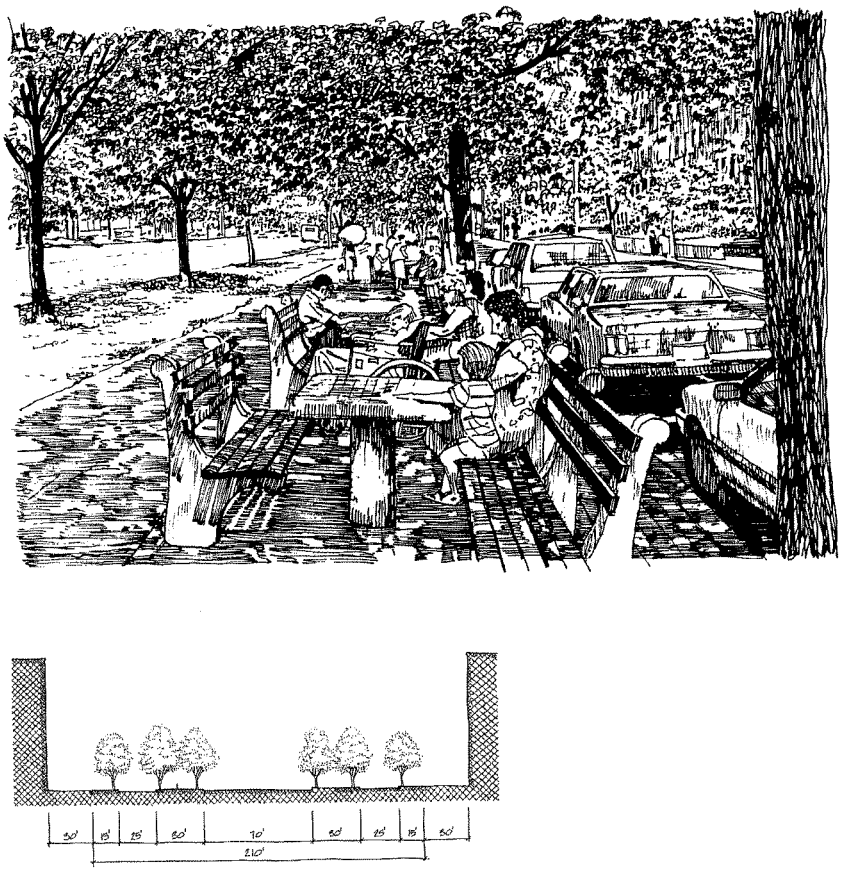
But, to be effective and safe, boulevards must be designed appropriately. The data and observations of this research suggest very strongly that "appropriately" means that a pedestrian realm must be established along the side access roads, and that, within this context, relatively narrower vehicular cartways are essential.

To be sure, the research we carried out and the data we collected from existing sources as a part of this study cannot be said to prove, unequivocally, our hypotheses — particularly those about safety — but they come close

enough. The combination of quantitative data and physical observation makes the argument for well-designed boulevards compelling.

Boulevard safety, as with other streets, depends on many factors, not the least of which is design. Essentially, bigger may not be better, especially in relation to the side access roads. Wide lanes, fast traffic, absence of parking, widely spaced intersections, easy turns and widely spaced trees — standards and norms most associated with contemporary roadway design — may be counterproductive on boulevards.

Good boulevard design lies in understanding and accepting the notion of multifunctional streets, rather than single-purpose streets, and then in designing them accordingly. The side access roads are for local traffic, slow-moving traffic, pedestrians, for access to public transit, access to abutting properties, parking and maybe for various recreation and cycling. Complex, even crowded designs seem to work best. Tightness of dimensions characterize the best boulevard access roads.



A Frederick Law Olmsted boulevard: Ocean Parkway, Brooklyn. Boulevards work best when they establish an extended pedestrian realm.

Future Opportunities

Just as planners and designers increasingly look upon mixed-use areas as both convenient and healthy, so, it seems, they should explore the possibilities of multifunctional streets such as boulevards.

Only in newly developing areas, largely peripheral to existing metropolitan development, may we expect new roads at a significant scale, and these are not likely to be new freeways. We may expect increasing efforts at better arrangement and management of the existing framework of roadways, consistent with a higher priority of attention and funding given to public transit, to higher densities, and to revitalization policies and programs in inner-city areas and older suburbs.

Within central cities and older suburbs, there are two notable situations where boulevards can provide solutions to movement and land use problems: the redesign of existing boulevards that for one reason or another do not function well presently, and the redesign of major roadways, usually arterials that either need to be or can be reconfigured. A significant finding of this study is that a right-of-way of 125 feet, or slightly less, is all that is required.

Urbanites have been delighted with boulevards, with the prospect of strolling along tree-lined streets in dappled light, meeting friends, shopping, stopping at a bench or a cafe, protected from fast-moving traffic in the center by parked cars along a side access road and by rows of closely spaced trees. The best of them that remain offer all of these experiences still. Boulevards deserve a second look!