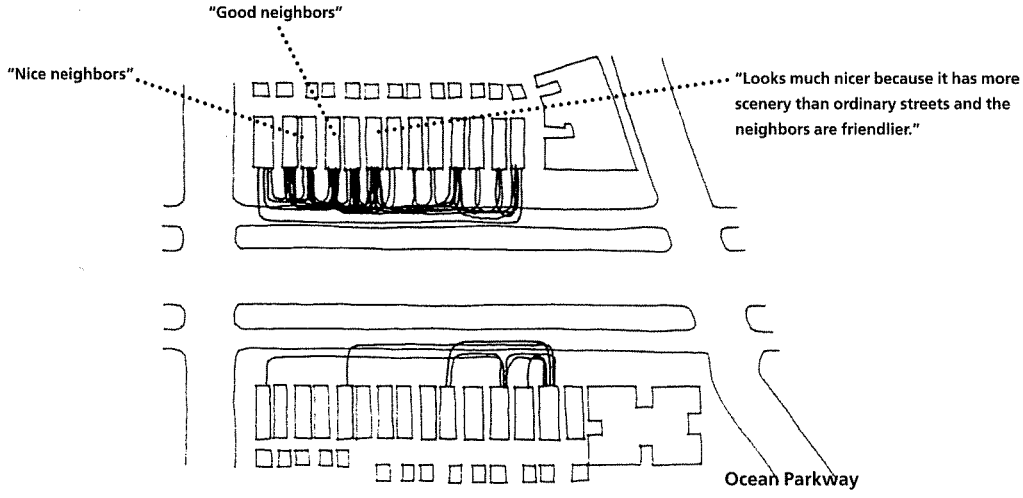
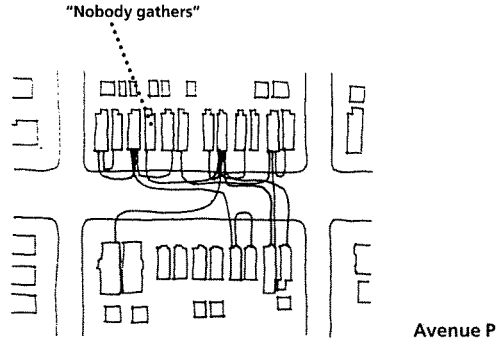
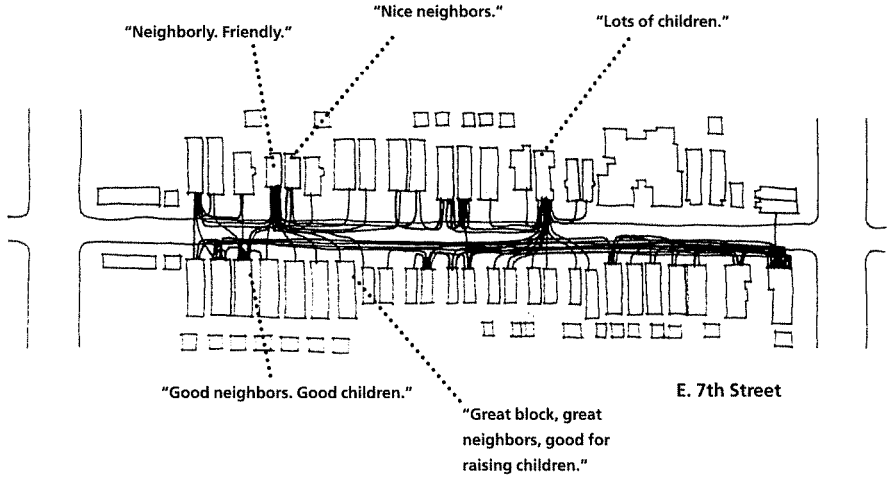

"Good neighbors"
"Nice neighbors"
"Looks much nicer because it has more scenery than ordinary streets and the neighbors are friendlier."
Ocean Parkway


"Nobody gathers"
Avenue P


"Nice neighbors."
"Neighborly. Friendly."
"Lots of children."
"Good neighbors. Good children."
"Great block, great neighbors, good for raising children."
E. 7th Street

Boulevard Livability Study

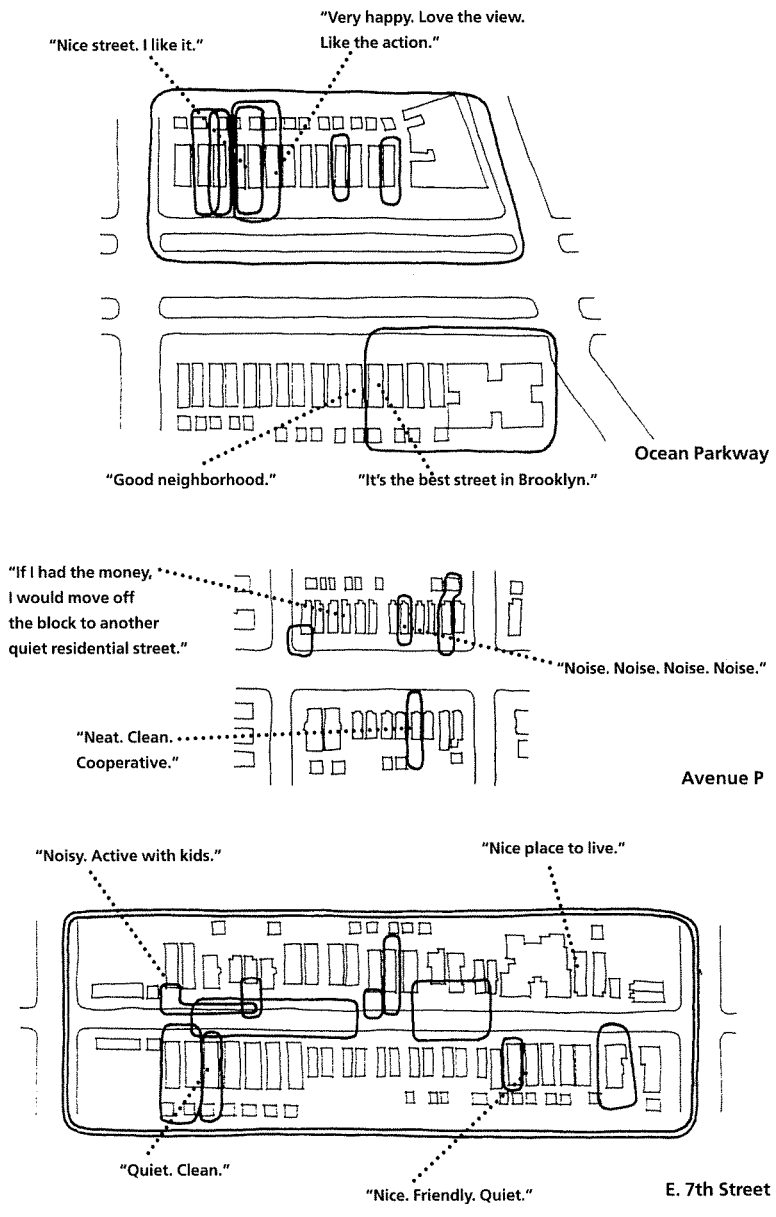
Boulevards are a street type that is being rediscovered. They can be delightful places that serve many functions, for traffic and pedestrians alike, and can be major elements in a city's structure. Recent research has demonstrated the safety of multiple-roadway boulevards, and elsewhere in this issue design guidelines for these unique streets are presented.[1]

But are multiple-roadway boulevards livable places? What is it like to live along one? Do they function well as residential streets? These are the questions we sought to address in a recent study, and the results are promising.

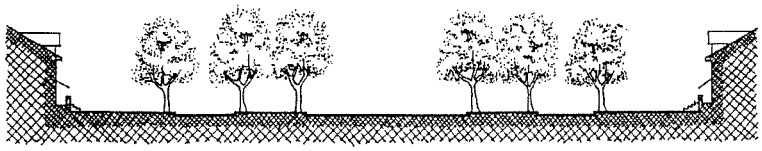
We examined three existing high-traffic residential boulevards — Ocean Parkway and Eastern Parkway in Brooklyn and the Esplanade in Chico, California. These streets were chosen because they have different densities (the Esplanade has single-family houses on it, Ocean Parkway has duplexes and fourplexes, and Eastern Parkway has row houses) and strong pedestrian realms along their edges. This is the feature earlier research showed makes boulevards function well as high-traffic yet pedestrian friendly streets. Each boulevard has narrow, one-way, single-lane access roads and closely planted trees on the medians.

In a manner similar to the well-known street livability study undertaken by Donald Appleyard in the 1970s, we designed a research project that compared each boulevard with two normally configured residential streets in the same neighborhood. These control streets, one carrying a medium amount of traffic and the other a light amount, were as similar as possible to the boulevard in terms of socio-economic characteristics and housing types.

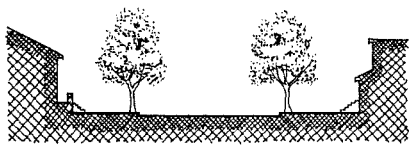
The main characteristics that differed within each group of streets were street width, traffic configuration and traffic volume. Boulevard right-of-ways were 165 feet (the Esplanade) and



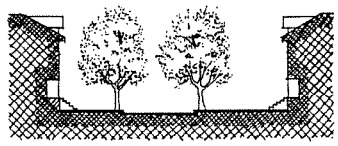
Opposite page: Lines indicate social interactions among families. Above: Bubbles indicate areas that residents consider to be their home territories. Graphics by Elizabeth Macdonald.



Ocean Parkway



Avenue P



E. 7th Street

Case Study Average Daily Traffic

	BOULEVARD	MEDIUM STREET	LIGHT STREET
ESPLANADE	24,000	14,500	80
OCEAN PKWY	42,000	13,500	1,100
EASTERN PKWY	44,000	4,000	1,500

210 feet (the Brooklyn boulevards), whereas the medium and light control streets ranged from 70 feet to 100 feet wide. The boulevards carried two to three lanes of traffic in each direction in the center lanes, whereas the medium streets carried one to two lanes in each direction and the light streets just one lane in each direction.

We collected environmental data such as traffic speed, street noise level and traffic volume through field observations. We also elicited residents' feelings about their street through structured questionnaires.

Appleyard's study showed that residents on high-traffic streets tend to have fewer social interactions then residents on low-traffic streets and tend to withdraw from the environment. It also showed that high-traffic streets tended to have lower levels of homeownership and families with children then low-traffic streets. The hypothesis used for our study was that a boulevard configuration mitigates these negative effects of traffic, making a high-traffic residential street more livable.

Using the same livability indicators that Appleyard used in his study, we found our modified hypothesis to be generally true. Most people living on the boulevards viewed their street very favorably and they were not generally overly bothered by traffic, even though conservative field measurements showed that the boulevards carry very large volumes of traffic. Residents on the boulevards had taken no more steps to block out traffic noise or nuisance then residents on the low-traffic streets, and they had just as many friends and acquaintances on their block, although their friends tended to be concentrated on their own side of the street, as could be expected.

For many livability indicators, the medium-traffic streets were perceived worse by residents then the boulevards. More residents on the two higher-volume medium traffic streets (the control streets for the Esplanade and Ocean Parkway) complained about traffic more often on their street than residents on the counterpart boulevards. More residents said they were more often bothered by traffic as they went about their daily activities.

These findings are supported by observed street noise levels. Noise levels at the curbs of the two higher-volume medium traffic streets were substantially greater then on the boulevards. On the Esplanade the curb noise level was above 65 decibels 45 percent of the time, while on its medium traffic control street it was above 65 decibels 65 percent of the time.[2] On Ocean Parkway and its medium-traffic street, noise exceeded 65 decibels 15 percent and 57 percent of the time. (This extreme difference can be explained in part by that fact that commercial vehicles are restricted from being driven on Ocean Parkway.)

People on the boulevards and low-traffic streets generally felt that their streets were neither "safe nor dangerous," or perhaps "somewhat safe," because of the traffic on them. Residents of the medium-traffic streets, however, generally felt their streets to be less safe, although these differences in perceptions were not found to be statistically significant.

Residents on the boulevards generally perceived the speed of traffic on their streets to be "about right" to "somewhat too fast," although some, especially on the Eastern Parkway, thought it was "much too fast." Significantly, residents along the Esplanade and Ocean Parkway – the

case studies whose medium-traffic control streets had higher volumes — considered the speed of traffic on their streets more favorably than residents on the medium traffic streets did. This is in spite of the fact that field observations showed traffic moving 5 to 10 m.p.h. faster in the center lanes of the Esplanade then on its medium-traffic control street, and 10 to 15 m.p.h faster in the center lanes of Ocean Parkway then on its medium-traffic control street.

Similar correlations held true when residents were asked how they felt about the amount of traffic on their street for a residential street. For all three case studies, residents on the medium traffic streets perceived the amount of traffic on their street to be heavier than residents of the boulevards did, even though the actual volumes on the boulevards were from 2.5 to 11 times greater.

From these findings, we can conclude a boulevard configuration makes residents more comfortable with high traffic volumes and faster speeds on their street than a normal street configuration does. The distance between residences and the fast traffic lanes in the middle of the street, combined with the layered landscaping of sidewalk and median trees, produces a psychological and physiological barrier necessary to create a sense of remoteness from traffic.

It is important to note that for all the case studies the volumes and speeds of traffic on the access roads of the boulevards, the roadways directly in front of peoples' houses, approximated those found on the light street. This seems important, and supports previous research that stressed the importance of narrow, slow-moving access roads on boulevards.

Finally, we found that boulevard residents were generally very enthusiastic about their street and seemed to value living on it. Most residents recognized that their street was special, with unique physical characteristics — "it has trees," "it has a bike path," "it is a boulevard." To open-ended survey questions, boulevard residents mentioned these amenities and special qualities much more often then they mentioned traffic. Conversely, on the medium traffic streets, residents mentioned traffic concerns more frequently than anything else.

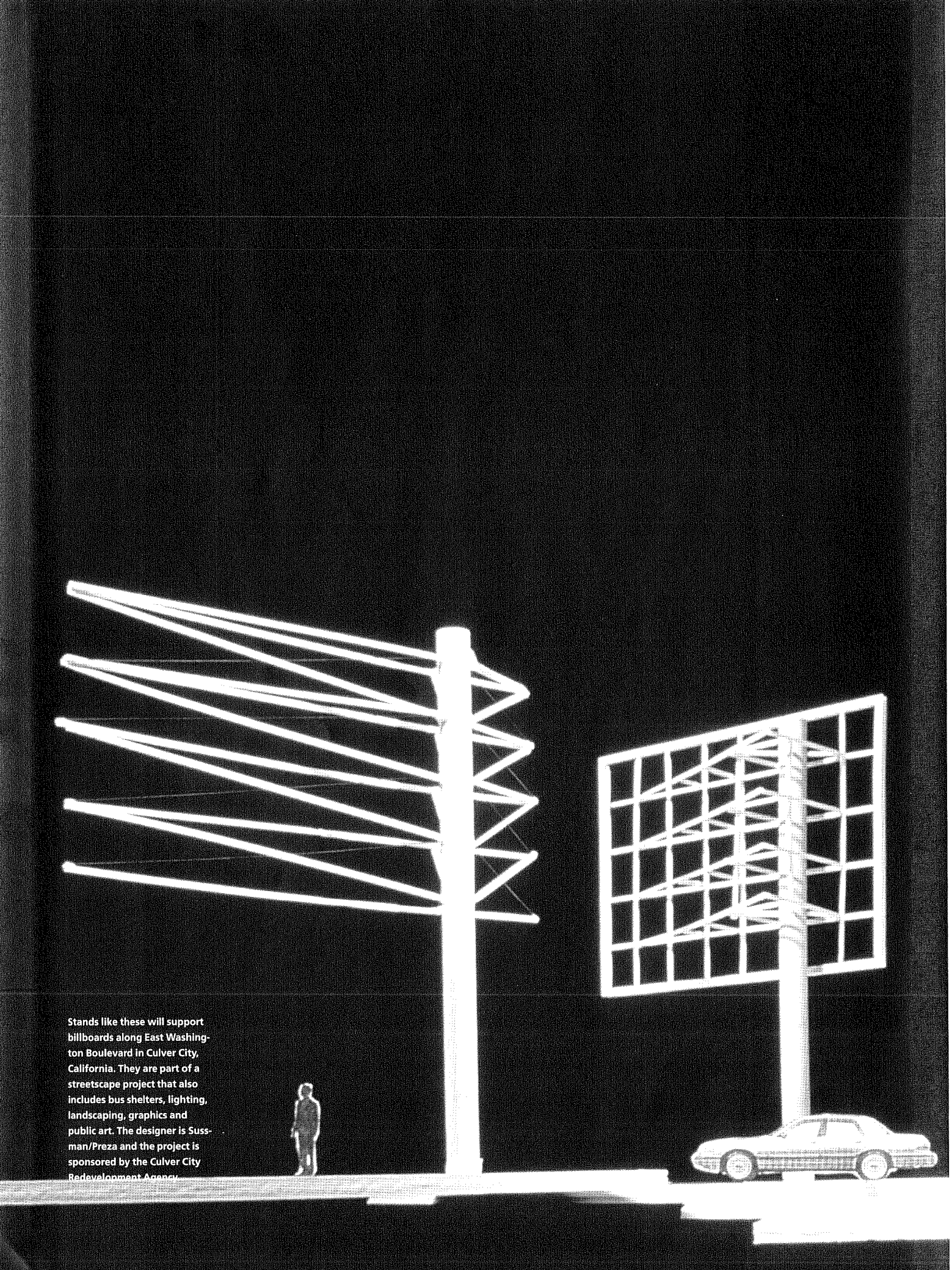
Although additional studies of air quality along boulevards should be undertaken (for example, modeling air-flow patterns along differently configured boulevards to test the role of trees in mitigating pollutant dispersal), this study points to the viability of multiple roadway boulevards as high traffic residential streets in cities. In the overall assessment, there was significant agreement among residents of boulevards that their streets are livable, pleasant and special, and this holds true across a range of residential densities.

Notes

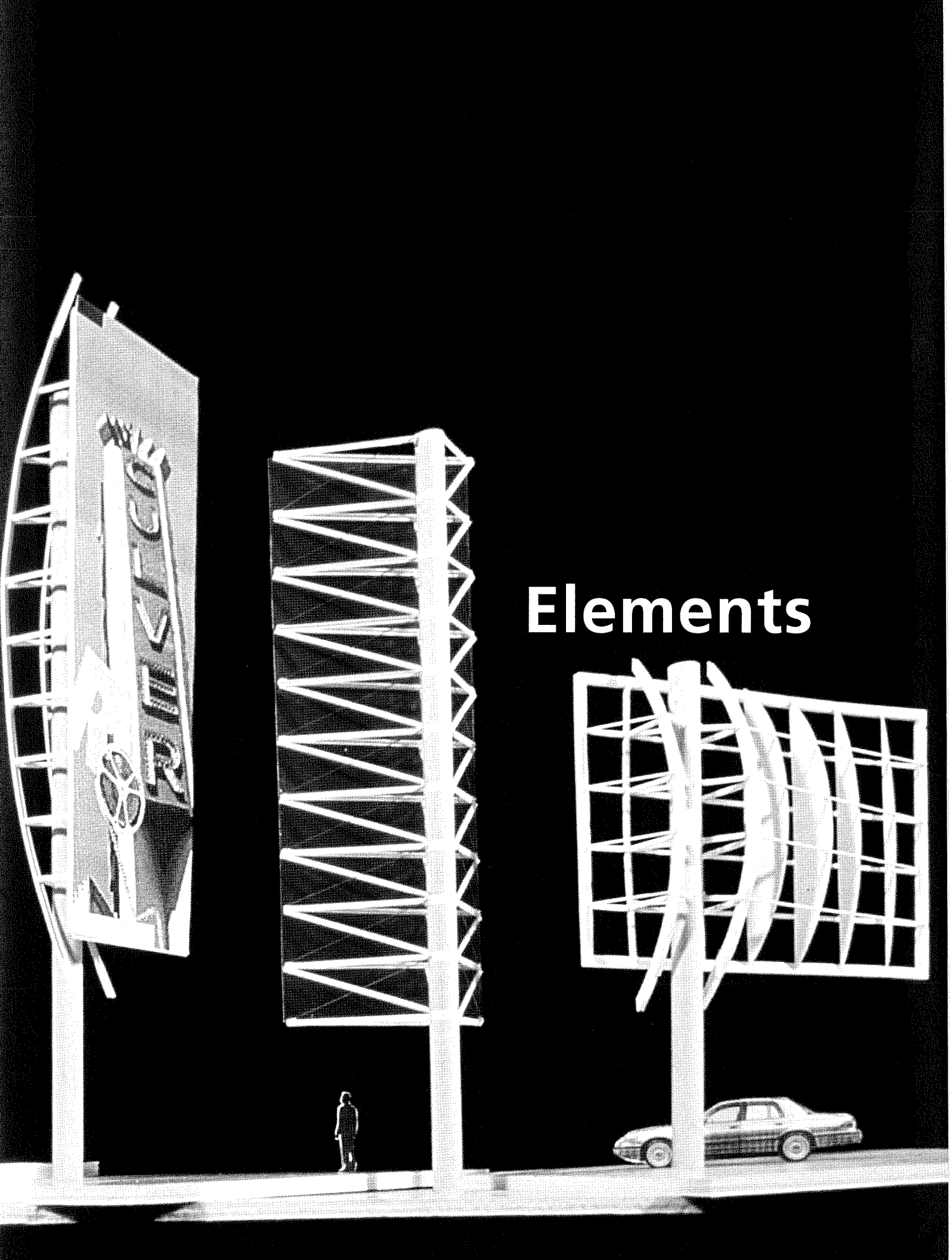
1. By "multiple-roadway boulevard," we mean a boulevard with a wide center roadway for fast-moving through traffic, narrow access roads along each side for slow-moving local traffic, and tree-lined medians that separate the through and local roads.
2. This decibel level is commonly accepted as the point above which noise is perceived as extremely bothersome.

The research for this article was funded by the Transportation Center at the University of California, Berkeley. The monograph by the same authors, *The Environmental Quality of Multiple Roadway Boulevards*, (IURD Monography 53) is available from the Institute of Urban and Regional Development, University of California, Berkeley (510) 642-4874.

Thomas Kronemeyer provided assistance with this research.



Stands like these will support billboards along East Washington Boulevard in Culver City, California. They are part of a streetscape project that also includes bus shelters, lighting, landscaping, graphics and public art. The designer is Sussman/Preza and the project is sponsored by the Culver City Redevelopment Agency.



Elements