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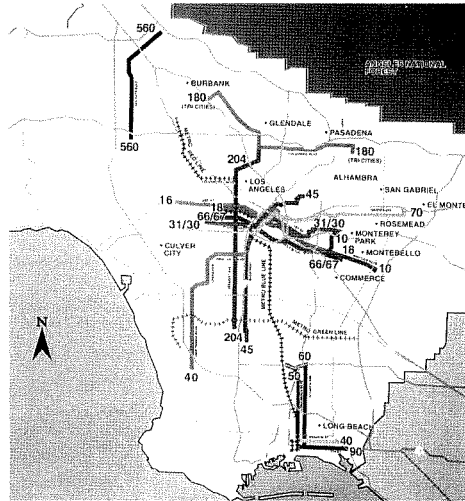


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From Bus Route to Urban Form: L.A.'s Electric Trolley Bus Plan

Todd W. Bressi



Above: Los Angeles' proposed 200-mile trolley-bus network. Below: Electric trolley busses require extensive investment in power cables, support wire, poles and electric substations. Photo by Todd W. Bressi.



In 1989, the little-known agency that monitors Los Angeles' air quality issued a set of rules that aimed to bring L.A.'s perpetually smoggy air into compliance with federal clean air requirements and promised to affect everything from bakeries to driving patterns to backyard barbecues. One of the most intriguing outcomes was a proposal to redesign some 200 miles of boulevards — a network of main streets stretching from the San Fernando Valley to Long Beach and from Beverly Hills to East L.A. — into friendly transit and pedestrian environments.

The proposal came about because the air-quality rules require the region's busses to emit no pollution, one third of them by 2000 and all of them by 2010. RTD, the regional bus agency (now merged into the Metropolitan Transit Authority or MTA), concluded that the only reliable and economical technology for the first phase was electric trolley busses, which had plied L.A. streets into the 1950s.

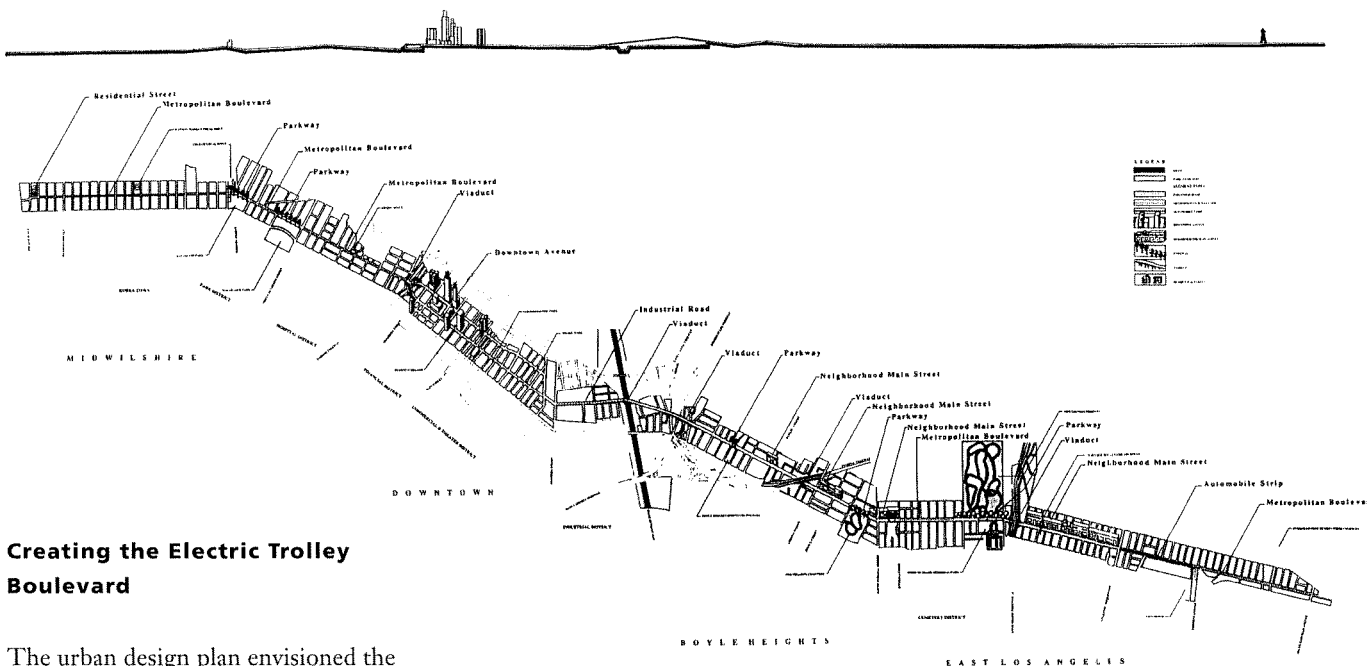
Electric trollies, which draw power from overhead electric cables suspended from poles and buildings, require extensive investment in power cables, support wire, poles and electric substations. This infrastructure would not only be expensive, costing several million dollars a mile, but also would have significant visual impact on the streets where trollies would run. From the outset, the

RTD realized it would have to pay special attention to the trolley's design if the project were to win support.

The design program evolved from what design consultant Doug Suisman of Public Works Associates called a "camouflage strategy" to a comprehensive streetscape project. "With this capital investment we could rethink the boulevard as an integrated transit environment, of which the bus, poles and wires would be components," he said.

The success of the trolley system, in fact, would rest on the success of the streets. "The bus rider, by definition, is also a pedestrian," noted Paul Diez, chief project designer for consultant ICF Kaiser Engineers. The urban design would "reconfirm the boulevard, the street and the sidewalk as indispensable urban settings on which the Electric Trolley Bus system will depend," the project's Urban Design Handbook stated. Similarly, the work of upgrading the streets would provide an opportunity for groups concerned about the project — public agencies and community groups alike — to help in planning it.

Ultimately, the urban design program was incorporated within the project's environmental impact study as part of the mitigation plan, making it inseparable from the rest of the project. Ten percent of the \$1 billion cost, or \$500,000 per mile, was allocated for urban design.



Creating the Electric Trolley Boulevard

The urban design plan envisioned the trolley project would result in no less than a new type of street, the “Electric Trolley Boulevard,” which would help reclaim Los Angeles’ public realm for pedestrians. Systemwide elements like poles, cables, bus stops, graphics, lighting and planting would establish a continuity of scale and visual character throughout the 200-mile network. They would unify the disparate elements on every street and give the trolley network a regional presence and coherence.

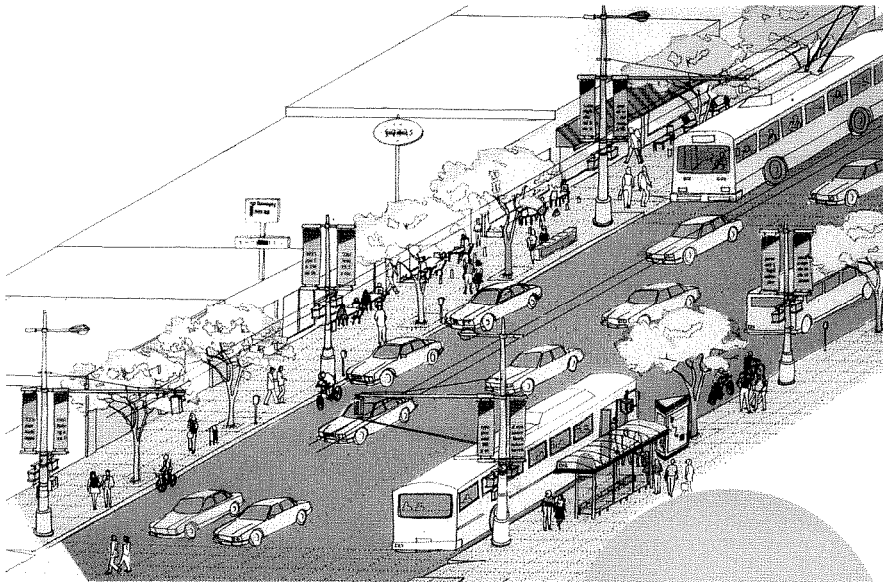
At the same time, the designers realized the streets that trollies would travel were anything but unified in their urban character, which tended to break into segments. The designers decided not to impose a unified infrastructure throughout the entire system or even along each route. Rather, the design would acknowledge the segmenting of the boulevards and routes, making each segment “more intensely what it was” and heightening the contrast between different sections, Suisman said.

The designers studied the trolley routes and concluded that most segments could be characterized as one of eight types — automobile drive, downtown avenue, industrial road,

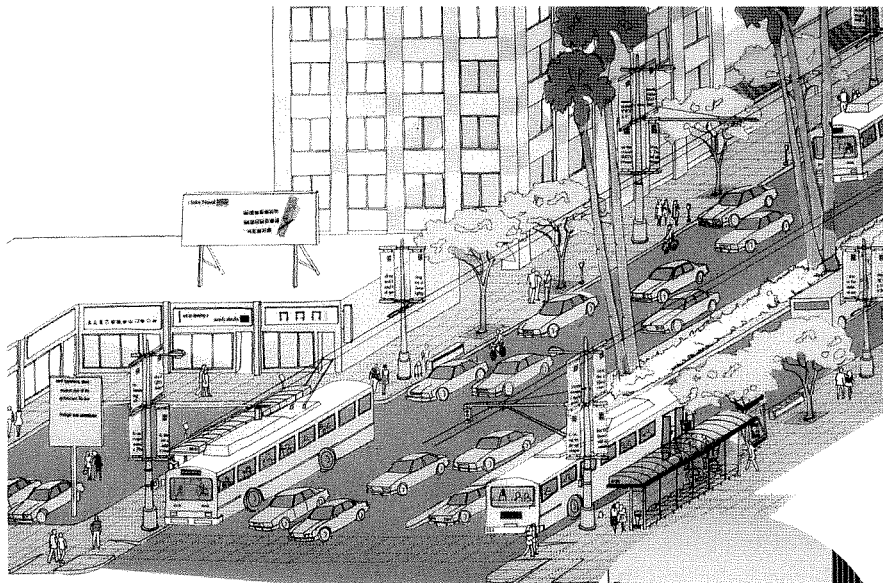
Each trolley bus route was divided into segments based on their general type, for example, metropolitan boulevard, parkway or neighborhood street. Specific urban design guidelines were established for each type. From *ETB Urban Design Guidelines*.

metropolitan boulevard, neighborhood main street, parkway, residential street, or viaduct. For each type the team noted possible variations of the systemwide elements and suggested enhancements that would address the character of local communities. “Some aspects of the system had an overall identity, like signage. But human-scale elements — luminaires, poles, colors, paving — would be more neighborhood related,” Diez explained.

“The Metropolitan Boulevard was the most pervasive type, but also most elusive,” Suisman said. “It is the classic L.A. boulevard, a hybrid between a commercial strip and an urban avenue, an eclectic mix of old and new, high and low, streetwall and setback. It was never going to be dominantly pedestrian, but the trick was to develop a better



Neighborhood Main Street. Typical existing segment (inset) and illustrative example of street with trolley-bus system in place.



Metropolitan Boulevard. Typical existing segment (inset) and illustrative example of street with trolley-bus system in place.

balance between through traffic and pedestrian environment.”

The guidelines did this, for example, by recommending that street trees be planted along sidewalks (following existing species and spacing patterns, where possible) and that palm trees (better appreciated from moving cars) be relegated to medians. Also, they recommended that parking or turning lanes be removed to create additional pedestrian or planting space.

The key component of the trolley infrastructure was the “flexipole,” which could accommodate not only support wires but also street lights, signals, pedestrian lights and banners. A palette of pole bases, pedestrian lights, banner lights, street lights, brackets and caps were offered, and communities could further customize poles by adding planters, street signs and banners. The design would be consistent through each segment, and the scale would be consistent throughout the system. The designers were inspired by the poles used on the Vancouver, B.C., trolley system: “By the time you got done with banner, color and pedestrian light, the pole appeared to be there to give character and identity to a community, and only incidentally to hold up the trolley wire,” Diez said.

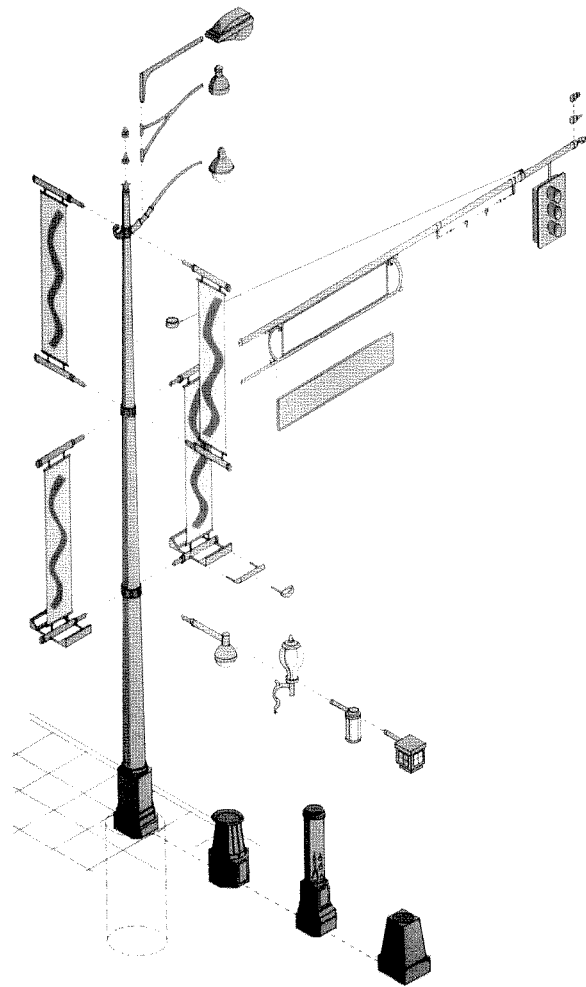
As the project progressed, it took on even broader implications, Suisman noted. The trolleys would run on fixed routes, like streetcars, providing an opportunity for land-use planning to be coordinated with transit routes. Discussions began about incorporating the bus corridors into the city’s new general plan. “There is a significant increase in pedestrian traffic along the Blue Line (a light rail route connecting downtown to Long Beach), and more small businesses are opening,” noted one planner. “Anytime you go in and make a solid, firm commitment to a given route, its something you can take to the bank.”

Stopped in its Tracks

The trolley project always had its critics, particularly those within the MTA who felt the money should be spent on operating costs. Their hand was strengthened as the recession hit California and depressed the MTA's funding, which depends on sales tax revenue. Last December the MTA board, facing a shortfall of more than \$100 million and believing less expensive fuel cell technology would be available soon, cancelled the trolley project. At the time, detailed design was beginning on routes in Long Beach and downtown L.A.

Still, trolley backers think the project helped open some eyes. "Some people are used to thinking of a bureaucracy as a 100 pound canary that can sing anywhere it wants," one MTA insider said. Others are becoming more sensitive to the fact that in our area, where public is not the normal way of getting around, we have to make things pleasant safe and desirable to attract people to ride public transit."

"The point of any kind of large public works project isn't just to move people or hold water. It's to improve the quality of life," Diez concluded. "More and more agencies are starting to think in those terms. More and more agencies are realizing that they just can't put a freeway through the heart of the city anymore."



Conceptual diagram of flexipole and examples of how poles could be configured on various street segments. From *ETB Urban Design Handbook* and *ETB Urban Design Guidelines*. Graphics courtesy Public Works Associates and ICF Kaiser Engineers.

