Title

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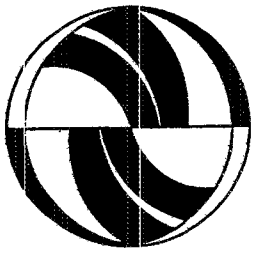
Publication Date

1993



Retrofit of Urban Corridors: Land Use Policies and Design Guidelines for Transit-Friendly Environments

Anastasia Loukaitou-Sideris

Working Paper
UCTC No. 180

The University of California
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Retrofit of Urban Corridors: Land Use Policies and Design Guidelines for Transit-Friendly Environments

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This research has been supported by grants from the California Department of Transportation (distributed by the U.C. Berkeley, Transportation Center) and from the U.C.L A. Academic Senate.

RETROFIT OF URBAN CORRIDORS: LAND USE POLICIES AND DESIGN GUIDELINES FOR TRANSIT-FRIENDLY ENVIRONMENTS

Abstract

The focus of this research is the urban commercial corridor and the relationship between vehicle transportation routes and surrounding land use and development patterns. Due to their arbitrary and haphazard development, underutilization, and poor connections to the surrounding residential neighborhoods commercial corridors often represent transit unfriendly environments. It is, however, hypothesized that retrofit, reinvestment and intensification could enhance the transit potential of corridors. The study examines three case study corridors in Los Angeles and investigates land use and policy frameworks, zoning regulations, and design guidelines that can better support existing or future transit.

Introduction

Urban commercial corridors include many of the major roadways that pass through urban areas. They range from the ubiquitous commercial strip areas to newer arterials which are lined with a mixture of retail establishments, office buildings, automobile dealerships, parking lots, some occasional residential buildings, and often vacant space. Commercial arterial strips are products of our automobile-oriented society, and can be found in every American city. They cut across different urban sections, serving as access routes and travel corridors. Prior to the advent of freeways they were the principal traffic arteries of the city, and they still carry a significant share of vehicular traffic. Urban arterial corridors can be characterized as the "in-between" spaces of the city. They connect centers with subcenters, and the later with one another, in the multi-centered urban expanse that is typical of the post-industrial American city[1].

In the last decade considerable discussion has focused on the emergence of "urban villages," their challenge to the primacy of downtown areas, their incompatibility with mass transit, being developed along major freeway intersections and geared towards the private automobile[2]. Studies in transportation literature have analyzed the phenomenon of the emergence of employment centers in the suburbs[3] and have sought to find ways to "unlock the suburban gridlock."[4] Similarly, in the design field, neo-traditionalists have sought to reinvent the American suburb and make it pedestrian and transit friendly[5]. Some other studies have focused on the resurgence of the modern downtown and on efforts to pedestrianize it or make it transit friendly[6].

But while studies and evaluations have focused almost exclusively on centers, subcenters, and suburbs, not much emphasis has been given to the spaces "in between." The numerous corridors which connect these centers have been given only cursory attention, relegated to a role simply as connectors of the centers. Despite their omnipresence and functional significance, very little effort has gone into the studying and understanding of how these corridors function, change, and develop over time, and how physical design and land use changes can affect trip generation and traffic congestion. City planning policy has often ignored the corridor environments. As a result, more often than not urban arterial corridors represent fragmented pieces within the metropolitan region, with poor connections to their surrounding context. Uncoordinated, haphazard, unsightly, even unsafe development patterns too often characterize these commercial roadway stretches.

This study investigates ways for the retrofit of urban corridors A basic strategy that is explored is the intensification of corridors, the increase of their residential densities in combination with the provision of housing supporting services and pedestrian roadside amenities. It is hypothesized that retrofit, reinvestment, and intensification could enhance the transit potential of corridors. This assumption is based on findings that residents in areas of high density, local businesses and good transit will drive less because some trips will be diverted from private cars to buses or foot, and the remaining trips will be shorter[7]. This results from closer, and concentrated shopping, entertainment, and recreation destinations. Short trips to stores, parks, banks, etc. account for a large portion of all vehicle trips, some studies have claimed that they comprise four fifths of total trips and two thirds of total auto mileage[8] At the same time higher density areas offer a better market for transit, affording the possibility of better service[9].

Another assumption of the study is that infill development, that is the accommodation of new growth in the areas "in-between" centers and sub-centers, is more desirable than the current pattern of sprawl that accompanies the emergence of "edge cities."[10] As has been argued sprawl development costs from 40% to 400% more to serve[11]. Thus, intensification and concentration of development along transit corridors could help cut automobile mileage, and improve air quality and fuel efficiency.

A reevaluation of the function and role of urban arterial corridors provides a rich and untapped opportunity. The purpose of the research is to examine case study corridors in Los Angeles and propose land use policies, zoning regulations, and urban design guidelines to make them more transit friendly environments and more exciting places to live and work. For the purposes of this study a corridor typology was constructed, where different corridor segments were classified on the basis of their land use, density, and transit characteristics. Three case studies representative of different corridor environments were then selected and studied. This involved extensive field work, an analysis of the physical characteristics, social composition, and travel characteristics of each corridor, and the administration of a survey to selected households and businesses along the corridor (see Appendices). While the field work gathered data on the land use, transportation, and design characteristics of each corridor, the survey focused on the residents' perception and level of satisfaction with elements of the corridor, their utilization of public transit, and their opinions regarding corridor retrofit strategies. Based on the findings of the field work and the survey a series of urban design and land use guidelines have been crafted.

Evolution of Urban Commercial Corridors

The evolution of commercial corridors can be traced back to the end of the nineteenth century, when most American cities started to expand rapidly beyond the limits of their downtown area. Even before the coming of the automobile alert speculators had begun erecting commercial buildings along trolley lines. These commercial establishments served the households that had started locating along the lines, sparing the residents from having to go all the way to downtown to shop[12].

These first commercial structures outside downtown, consisting of a single row of shop fronts mark the genesis of the commercial strip. These structures were perceived as interim improvements, designed to produce enough revenue to pay the taxes and hold the property for more intense development in the future. Hence, these buildings were also referred to as "taxpayers," and the linear commercial corridors they were fronting were called "taxpayer strips."

For businesses the taxpayer strip offered an ideal solution. Rents were lower than downtown, yet large number of people lived close by. Customers could walk, take the electric car, or drive to the shops. The strip was less congested and allowed for more parking near the stores. By the 1920's, motor vehicles were not only more numerous but also faster and larger. Motorists wishing to shop grew impatient with crowded streets and the lack of parking. Buying and clearing valuable urban land for parking lots was often prohibitively expensive in downtown. Soon banks and department stores opened branch outlets along the taxpayer strips, vying for choice plots or major intersections. As Liebs explained, "*the new businesses induced more and more customers and the demand for parking soon overwhelmed available curbside space. Before long enterprising developers started building taxpayer blocks, set back a car length from the sidewalk to provide perpendicular parking in front of the stores.*"[13]

Taxpayer strips could be found all over the country, but nowhere did they have more impact than in Los Angeles. Los Angeles actually did not "invent" commercial corridors, but rather made them integral to its urban fabric. The premiere urban corridor of Los Angeles, the "Broadway of the West" was of course Wilshire Blvd. The Miracle Mile part of this strip with its posh shops was one of the attractions of the city. The special automobile-oriented design pattern of Wilshire--the wide band of the boulevard itself and the placement of extensive parking areas to the rear--commenced in the late 1920's.

The city of Los Angeles and almost all the surrounding communities had innumerable secondary urban strips. By the end of the 1930's some of these strips began to assume status such as Hollywood Blvd in and around Vine, Melrose Ave., Sunset Blvd, Olympic Blvd, Pico Blvd. All these commercial corridors were loosely lined with single-story retail stores and occasional supermarkets, movie houses, and two-story commercial buildings. They combined both car- and pedestrian-oriented functions (such as drugstores, groceries, small shops). By the mid-1930s parts of these strips were widened and extended. Such street improvements set the stage for the eventual strip commercialization, and the complete dominance of the automobile.

As the less dense commercial strips reached out to the suburbs they became suburban rather than urban. Such was the case for example with Ventura Blvd in Los Angeles, which ran the length of the San Fernando Valley. Linear suburban centers were never very large and they were almost exclusively geared to the needs of the immediate surrounding suburban population.

By the end of the 1930s, commercial corridors (urban or suburban) in Los Angeles started assuming an exclusively automobile-oriented character. It was this time that Los Angeles boasted the largest array of drive-in buildings to be found anywhere in the country. These buildings ranged from Bullocks Wilshire, whose main entrance actually faced the parking lot, to numerous restaurants, and over a dozen drive-in markets, some of which were already small scale shopping centers.

Gas stations, hot dog stands, motels, shopping centers, drive-in theaters found their home at the corridors. As competition increased merchants looked for new ways to lure their perspective clients. Each sign and building had to visually shout "slow down, pull in and buy." Thus, the architecture of the strip became the direct product of its commercial function. Rules on the strip were usually less strict than those in downtown or in older, denser, commercial zones. Keenly aware that trade would be lost if they could not capture the attention of the passer-by motorist, the merchants tried to blend building and sign, architecture and advertising. From the 1950's onward anything could go on the commercial corridor, that started becoming a collection of micro-environments, a visual hodge-podge of often unrelated building elements. Some parts of

corridors became overloaded by an endless amount of signs that decorated or extended beyond the shopfronts.[14] In the 1970's many small, neighborhood serving shops were progressively replaced by long, warehouse-type buildings with blank facades and no decoration or windows. Window displays and sidewalk trees often disappeared, parking lots proliferated and the corridors became visually monotonous for pedestrians. As Rapoport explained "*A roadside strip, full of parking lots and large elements is extremely open spatially and provides inadequate information to pedestrians, since there are few visible changes; at slow speeds there is a low rate of information, few noticeable differences, and the environment is boring.*"[15] The proliferation of mini-malls, that mushroomed on the corner lots of many corridors during the 1980s, did nothing to enhance the "place quality" and pedestrian potential of corridors. An exlusively automobile-oriented building with parking lots fronting the sidewalk, the mini mall further disrupts the already fragmented street wall of the commercial corridor.

In the 1990s it is clear that even though urban corridors exist within a context of residential development, with hundreds of square miles of single and multi-family residential land uses abutting the rear of each corridor, the potential for continuity of pedestrian access between residential and commercial development has been rebuffed by the piecemeal nature of development along corridors and the extended use of parking lots.[16] In sum, the present corridor environment is pedestrian and transit unfriendly (even though many bus lines are travelling along corridors), because qualities of pedestrian place-making have been overlooked in favor of spread out automobile access.

Los Angeles Mid and South-Central City Corridors

Los Angeles is a city of corridors. The city's General Plan, however, has endorsed a "centers concept." City planners have envisioned the centers as a high-density growth nodes, interspersed by lower density residential and commercial areas. The mid and south-central city areas are strategically located between a number of such centers (Downtown, Studio City, Hollywood, Universal City, Airport/El Segundo). A big number of urban arterial corridors pass through a variety of residential neighborhoods, connecting the mid and south-central areas to the outlying employment centers.

In terms of land uses we find a prominence of strip commercial activities on the corridors. However, it should be stressed that not all corridors are alike. Some host mixed use and residential establishments; some consist of exclusively low-rise buildings, while in others mid-rise and high-rise offices can be found. Over their length, the character of these corridors changes. Traffic volumes and street rights-of-way differ. There is no dominant architectural style; buildings of various styles and eras succeed one another. Also socio-economic and ethnic differences influence the intensity and distribution of uses and activities.

A survey of over twenty mid and south-central city corridors in Los Angeles revealed differences in land uses and densities. Corridors were classified in five categories based on their prominent land use: Mixed-Use, Office/Commercial, Retail/Service, Industrial, and Residential, and in three categories based on their density: high, medium, or low density. A corridor typology (Table 1) and a brief profile of each corridor type (that discusses their land use, street configuration, traffic and transit characteristics, and building and block configuration) was constructed (see Appendices).

In the last decades, Los Angeles mid and south-central city corridors saw business migrating to the suburbs. As the economic crisis of the central city deepened, demand for commercial space along corridors fell dramatically. Thus, many mid and central city corridors are today characterized by low densities, even though their zoning allows for much higher densities.[17] The area's corridors are decaying environments. Corridors such as Washington, Vermont, Crenshaw, and Pico display a good share of underutilized and vacant land, empty structures, bordered-up store fronts, and a disproportionate concentration of automobile-oriented uses (fast-food stores, car lots, body shops, used car dealerships, junk yards). Also part of the corridors' commercial building stock was damaged during the 1992 riots.

From an aesthetic point of view corridors in the area display a general visual disorder. Even though one can encounter some unique and appealing buildings (especially along Sunset Blvd.) the majority of the corridor space is plagued with poorly maintained facades, fragmentation of the building edge, chaotic signage, inermitent lighting, absence of open spaces, and landscaping.

With no exception mid and south-central city corridors represent transit-unfriendly environments. Even though the corridors accommodate more transit traffic than the surrounding residential streets and a significant percentage of residents depend on transit (see Figures 1,2), the corridors' physical space and land use patterns do nothing to support the needs of the transit traveller. The sidewalks are narrow, there is a dramatic lack of pedestrian amenities, street furniture,[18] and open space; debris clatters the streets; traffic patterns are often confusing.

Corridors in the area are unsafe environments. The surveys showed that crime is the most prominent problem of residents and business owners in all the three corridors studied (Table 6). A good amount of criminal activity occurs at the bus stops[19]. Even though we cannot hold physical factors exclusively responsible for crime it has been shown that environmental conditions can ameliorate or contribute to crime.[20]

Corridors in the area pass through mostly low-income residential neighborhoods. Densities in the residential areas abutting the corridors are much higher than those of the city as a whole. South Central has a population density of 15,669 persons per square mile, which is over twice the average of the city as a whole. Population densities are extremely high in the mid city area, where specific census tracts accommodate over 70,000 people per square mile.[21] With a very large percentage of low-income, minority residents and growing overcrowding the area has an acute need for affordable housing.[22]

Notwithstanding the need for affordable housing, there is great public concern regarding further development in the region. Because of the city's air quality and congestion problems, new development is often seen with apprehension or at least skepticism. Planners are today more pressed to consider alternatives to the automobile, namely walking and transit. According to John Holtzclaw:

> *"The Los Angeles area is projected to double in population by about 2050. At a decrease in VMT of 25-30%, as the residential density doubles, if the Los Angeles area grew only by infill, rather than sprawling out in a copy of the present urban form, 43 to 52 billion miles of vehicular travel could be saved annually in Los Angeles and Orange counties,... $25 to $30 billion in auto ownership and operating costs, 2 1 to 2.6 billion gallons of gas could be saved by residents. They would pollute the air less by 31 to 37 million Kgs of HC, 70-84 million Kgs of NOx and 596 to 715 million Kgs of CO at 1990 emission levels.[23]"*

Then, the combination of the above mentioned factors, namely the overabundance of land zoned as commercial in Los Angeles mid and south-central city corridors, the unfulfilled demand for affordable housing in the area, and the pressing need in the region to find alternatives to the private automobile, make the retrofit of corridors with infill development of housing and supporting services a desirable option. Thus, the focus of this research is to identify ways, strategies and guidelines that can convert the currently bleak corridor environments into an exciting place to live, walk, and shop. The next section of this paper gives a review of the literature of the land use and urban design attributes that influence pedestrian street use and transit friendliness.

Attributes Influencing Pedestrian Use and Transit Friendliness: Literature Review

Converting urban arterial corridors to pedestrian use is quite a challenge. The basic structure of a corridor is long and linear, while pedestrians need concentration of activities and concentric rather than linear patterns to provide more shopping opportunities per walking distance.[24] Sidewalks are interrupted by numerous driveways and parking lots, buildings are often set back from the streets, many building facades are blank, the street space with traffic and noise is often hostile to pedestrians. On the other hand, the high level of transit usage along some corridors, the proximity of residential uses, and the corridors' current underdevelopment that allows for infill and densification, all provide good reasons for pedestrian-oriented improvements.

There is a widespread agreement among researchers of pedestrianism and pedestrian behavior that the presence or absence of certain physical, environmental, and perceptual attributes has a direct impact on the "pedestrian potential" of a street.[25] Amos Rapoport argues that "*The use of streets by pedestrians is primarily culturally based, since physical environments do not determine behavior. Physical environments, however, can be supportive or inhibiting.*" Rapoport enlists nine variables involved in pedestrian street use: Technology, safety, environmental variables, climate and weather, topography, distance to a given goal, availability and presence of services, culture, and physical/perceptual characteristics.[26] The same author in a more recent work argues that "*environments supportive of pedestrians can be understood at four levels: survival level, efficiency level, comfort level, pleasure/ enjoyment level.*"[27]

Any meaningful discussion on pedestrian activity should distinguish between the types of such activity. Pedestrian activities can be dynamic (walking, running, strolling) or static (sitting, resting). Thus, streets should provide static spaces for certain activity settings (e.g. plazas, bus shelters, kiosks, outdoor cafes, or other nodes), but also should act as linkages to and from the various settings of the urban environment. To accommodate both static and dynamic pedestrian behavior a street should display both "place" and "link" qualities.[28] Caliandro informs us that link qualities of a street are strong "*when its linear nature is emphasized by its volumetric enclosure and it is also a specific connector between two distinct goals*"; while place qualities are strong "*when the street space articulates activity settings, be this by enclosure, variation in width, or other means and when this potential corresponds to social need.*"[29]

A reading of the literature on pedestrianism reveals a number of variables that can encourage or inhibit pedestrian activity.[30] These include: density, type and mix of land uses, pedestrian/automobile interaction, configuration and condition of the streetscape, convenience, comfort, and security.

Density is a critical factor for pedestrian activity. Streets are active when densities are high enough to support goal-directed as well as spontaneous activities. In general, the average

walking distance increases as development becomes denser.[31] Also increased population density within the pedestrian threshold of a transit corridor improves transit usage. To support transit service a minimum of 7-8 dwelling units per acre is necessary. When densities rise as high as 30 dwelling units per acre, transit usage has been found to triple, while transit trips can outnumber auto trips at 50 dwelling units per acre.[32] High densities, however, are often opposed by homeowners of established single-family neighborhoods, who are afraid that multi-family housing in the vicinity of their properties will have an adverse effect on property values[33]. As has been argued, however, "*density in itself may be wrongly accused .. Unconsciously we do as much as we can to make high-density living unbearable. We put it next to freeways to shield the low density neighborhoods; we don't provide adequate services, and we provide too few parks and other green spaces* "[34] Opponents of high density are afraid that high-rise megastructures will encroach upon their neighborhoods. But intensification can also be achieved through infill, with three to four-story mixed use buildings on currently underutilized and empty lots. Good designs and layouts of such developments will assure their good fit with their surroundings.

Land uses (their type and distribution within an area) are important variables for pedestrian activity. Certain types of land uses are more pedestrian and transit compatible than others. In general, pedestrians are attracted to mixed use urban areas, where there are opportunities for socializing, people watching, eating, and shopping. Large lot, single-family subdivisions and industrial areas do not usually generate pedestrian activity. Transit-oriented land uses emphasize a pedestrian environment and encourage the use of public transportation being within easy reach of a transit stop. "Appropriate uses" for retail and services include bakeries, delicatessens, cafes, bookstores, eat-down restaurants, camera shops, video and music stores, drugstores, florists, clothing stores, beauty salons, day care, professional offices. Such uses do not require the carrying of large and heavy parcels. On the contrary, drive-in establishments discourage pedestrian street use. Furthermore, drive-ins appropriate a lot of space and they contribute to air pollution and waste of fuel.

Researchers advise for concentration rather than sprawl of commercial uses (in the form of activity centers) in close proximity to residential establishments. According to Untermann, shops should be placed in patterns so as to allow fulfillment of one's shopping needs from one location. The trick is to reduce the number of short driving trips (typical of a shopping expedition) by providing more shopping opportunities near one's residence.[35]

The articulation of ground floor uses is particularly important for the enhancement of street life. Ground level land uses are often private and do not relate to the street. More often than not, urban corridors are lined up with "dead uses," such as parking lots, banks with no window openings, and inward oriented office buildings. The distribution and character of activities along the street front can help create a rich pedestrian domain, where the sidewalk is extended into the buildings.

Finally, the existence of places that can serve as nodes, sheltering and accommodating static pedestrian activities, is critical for pedestrianism. Spaces for standing, sitting, relaxation (open spaces, plazas, cafes, bus shelters, even a few benches in the shade) need to be present in a pedestrian oriented environment. Such spaces allow the pedestrian to step out of the flow and pace of street life for some moments rest.

The type of **interaction between pedestrians and automobiles** affects the existence and intensity of pedestrian activity. There is no room for pedestrians in environments exclusively designed for the automobile. For pedestrian activity to exist a symbiotic relationship is necessary

between motorists and pedestrians. People can happily coexist with cars if they are protected by the dangers entailed from the presence of traffic. The literature on pedestrianism provides a lexicon of ideas for the enhancement of pedestrian safety. These include physical improvements such as provision of painted crossings, raised crosswalks, safe crosses, traffic islands, narrow driveways; adequate street lighting; sidewalk widening[36], and the separation of street from sidewalk through planter strips and/or on street parking. Certain transportation controls are also beneficial for pedestrians, such as the standardization of signs and signals and the extension of the time pedestrians are allowed by traffic lights to cross an intersection. Also suggestions for the reduction of noise and traffic include small intersection radii, lowering of speed limits, reduction of the number of traffic lanes, and fine tuning of vehicular volumes.

The **configuration and condition of the streetscape** can detract or encourage pedestrian activity. Pedestrians need a high level of visual stimulation--what Rapoport calls "complexity"--to maintain their interest in walking. Complexity results from the juxtaposition of different elements, the mix of activities, variation in texture, color and detail, and flexible design that allows changes over time.[37] A fine grain of narrow-fronted buildings arrayed as a continuous street wall is much more exciting visually for pedestrians than a coarse grain of long and fragmented building frontages. Other aesthetic improvements that can increase the pleasure and excitement of walking include restoration of distinctive architecture, well designed street furniture, and rich foliage. Studies have shown that street trees are acknowledged to be the single most powerful device of defining and humanizing streets.[38] In our surveys we also found that the vast majority of people want to see more trees on the corridors. Finally, two other elements: street enclosure (when building facades are continuous and there is a vertical width to height ratio) and human scale (when the street environment is constructed of diverse, small pieces) are described as enhancing the aesthetic appeal and, thus, the pedestrian potential of a street.[39]

The condition of the streetscape depends upon its maintenance and cleanliness. Maintenance includes the general upkeep of the sidewalk, its furniture and landscaping, the restoration and painting of building facades, walls, and street signs. Empirical studies have found that cleanliness of the street is particularly important for residents, business owners, and passers-by. Donald Appleyard in a study of residential streets in San Francisco found that cleanliness was viewed as the most desirable quality of streets. Appleyard reasoned that:

> *"the appearance of the street is a reflection of ourselves to the visitor. Living on littered streets reflects poorly on our own ability to take care of our home, or implies a lack of competence, efficiency, and social status. The concept of dirt and pollution is also bound up with its opposite, cleanliness and our vision of order.*[40]

The dirty street environment was a prominent and common concern that was raised by respondents in our surveys of all three corridors studied.

The level of **comfort and convenience** a street can offer to pedestrians directly influences pedestrian concentration and activity. Comfort involves protection from rain, wind and sun. This can be accomplished by design with the provision of arcades, awnings, overheads, and bus shelters. Comfort is also achieved by facilitating pedestrian circulation through wide sidewalks, traffic signalization that favors pedestrians, and provision of sidewalk amenities (benches, public phones, newsstands, restrooms, food kiosks, even vest pocket parks). Fruin, however, warns against the excessive use of sidewalk "paraphernalia" that can obstruct the pedestrian's pace and line of sight, especially at corner intersections.[41]

Convenience depends on the directness and continuity of the walk, and easy on foot (or bicycle) access to services, amenities, and public transportation. Reduction of a pedestrian's walk length can be achieved through pedestrian shortcuts, mid-block connections, and concentration of activities along nodal points and transit stops. Some other suggestions that are found in the literature include the provision of shopping carts, locker or check-in points to store packages, and delivery systems that could assure extensive foot shopping without the burden of packages.[42]

Pedestrian Security is one of the most important prerequisites of any pedestrian activity. Security from crime topped people's list of priorities for the urban corridors studied. It can be expected that people will not want to walk, stand, or shop on unsafe streets. It has been found that a fair amount of crime occurs at the bus stops or on the way to and from bus stops.[43] Certain physical improvements, such as adequate lighting, building and landscaping configurations that enhance rather than obstruct observation by other pedestrians, and location of bus stops in safe, well-travelled areas can improve the pedestrian's perception of security.

All the previous discussion can be summarized in Table 2

Three Corridor Case Studies

For the purposes of this study three segments of urban corridors were selected for detailed analysis: Crenshaw Blvd, between Adams and Pico; Vermont Ave., between Martin Luther King and Slauson; and Sunset Blvd, between Las Palmas and Gordon Ave (Figure 4). Each segment is representative of a different corridor type (see Table 1). The following section draws the socio-physical profile of each corridor environment and reports on residents' perceptions, needs, and level of satisfaction regarding each corridor.

CORRIDOR PROFILE CRENSHAW

Corridor Type	Mixed Use
Dominant Use.	Residential
Density·	Low
Typical Parcel:	50x155 ft
Total Bldgs:	148
Low-rise:	134 (90.5%)
Medium-rise:	13 (8.8%)
High-rise:	1 (0.7%)
Zoning	Commercial/Residential
Transit.	Two bus lines
Min Headway:	Line 40. 5min
4:00-5 00p m.	Line 210: 8min
Traffic·	Moderate/heavy
Street Width:	90' total right of way
Sidewalk:	9' (total)
Grain:	Mostly fine
Nodes	Busstops, mini malls

Crenshaw Blvd: A Street in Transition

Crenshaw is a mixed use, low density urban corridor. Most buildings along this corridor segment are residential, while commercial uses can be found on all intersections (Figure 4). The residences that line up the street are mostly old, large, single-family homes. They have spacious front yards (about 40 feet deep) that buffer against noise and traffic, but enjoy little actual use. These lawns do not help to define or enclose street space, but rather seek to isolate the street from the house.

The corridor has witnessed extensive transition in the last decades. Most single-family structures have been subdivided into two or more units. Renters replaced long-time home owners.[44] Some structures are no longer residential, but host a variety of other uses, such as day care facilities, churches, and social clubs. Overall the grain of this corridor segment is a fine one (Figure 5). However, in recent years a number of apartment buildings appeared on the corridor.

These newer buildings often look out of character in style and scale. They are larger (occupying two or three consolidated lots) than older residences and are not set back as far from the street. This creates at times a fragmented street edge as buildings jut in and out of lot lines. Homes vary greatly in the degree to which they are maintained. Some are freshly painted with well-manicured loans. Others have broken windows, flaking paint, even structural damages; a few look unoccupied. The newer apartment buildings are, in general, better maintained than many of the older residences.

LAND USES: CRENSHAW

Residential	82 1%
Auto-related	6 4%
Institutional	2 6%
Neighborhood Commercial	1.9%
Light Industrial	1.3%
Vacant	5 7%

Commercial buildings consist of two mini-malls and nine gas stations. Even though primarily residential, the corridor is in short supply of neighborhood retail and housing supportive services. The highlight of this corridor segment is the community gardens, a small lot where people can plant vegetables and flowers. However, the lot fenced off from the sidewalk, does little to enrich the streetscape. No other open space (park, playground, or tot lot) exists along this corridor.

GROUNDFLOOR USES CRENSHAW

Business	**Frequency**
Gas stations	9
Fast food/coffeeshops	9
Groceries/mini marts	2
Video shops	2
Check cashing	2
Cleaners	1
Beauty salon	1
Flower shop	1
Dental office	1
Insurance office	1
Storage	1
Institutional/other	
Churches	4
Resource Center	1
Pre-school	1
Social club	1

The street environment is quite unfriendly to pedestrians. Sidewalks are relatively narrow (five feet with a four-foot shrub lane). Street trees are small and planted sporadically along the corridor (Figure 6). Private landscaping at front yards is at times lush providing some shade to pedestrians. However, in some lots the entire front yard has been paved and is used for parking. There are no outdoor sitting spaces along the corridor (with the exception of two lonely benches) and no bus shelters. Despite Crenshaw's apparent lack of pedestrian amenities one finds a small pedestrian activity along the corridor. Two types of pedestrians are encountered: People waiting for their bus, and residents heading to the mini-malls.

Vermont Avenue: A Blighted Commercial Strip

The segment of Vermont Ave, under study is characterized of low density, strip commercial development with an excessive concentration of automobile-oriented businesses (Figure 4). Most of this commercial development is old, in poor shape, and interspersed with vacant lots (19% of the total lots along this corridor segment are vacant) and boarded-up structures. Uses are often incompatible with one another. Auto-oriented uses along Vermont usually occupy a number of continuous parcels. Because of their need to store automobiles and equipment such businesses

are set back from the street and are surrounded by parking and storage. Auto-oriented uses are pedestrian unfriendly since they are visually uninteresting, and they produce noise and fumes.

The undifferentiated commercial zoning of the corridor has resulted in a concentration of undesirable uses. A survey conducted by the Vermont Slauson Economic Development Corporation found that residents felt that the corridor (the segment that crosses South-Central Los Angeles) features an excessive amount of liquor stores, junk yards, pawn shops, bars, "hot sheet" motels, and low quality retail stores.

Some old mixed use buildings can be found on the corridor. These consist of ground floor retail with apartments on the second and sometimes on the third floors. Very few residential developments (eleven in all) are located on this corridor segment. Most of them are multi-family projects in poor shape, inwardly oriented, and mostly resembling fortresses rather than homes.

Some public and private services are available along Vermont. Most of these services are provided by the many churches (twelve in all) located on the corridor. Other institutional uses and services include schools, day care facilities, a few clinics and a community center (Figure 7). Many of these facilities are located within existing commercial structures, due to the lack of appropriate space. The lack of services is combined with a very poor level of street maintenance. Many street lights are broken, empty lots are filled with trash, there is litter on the sidewalks. Street furniture is almost non-existent (Figure 6). There is no usable open space on that corridor segment, and hardly any landscape at all. Out of the forty-three blocks surveyed only six were found to feature a limited number of trees. Visually this corridor segment is plagued by boarded-up storefronts that reflect the high vacancy rates and fences and walls that border many commercial facilities and empty lots (Figure 7). A 1992 ULI report on Vermont Avenue found a "general visual disorder and chaos" and the corridor being *"plagued with deteriorated commercial structures, poorly maintained facades, eclectic signage, and intermittent lighting-- a visual clutter that conveys a seedy, disordered impression."*[45]

CORRIDOR PROFILE VERMONT

Corridor Type	Retail/Service Commercial
Dominant Use	Auto-related
Density:	Low
Typical Parcel.	50x135 ft
Zoning	C2 (commercial)
Total Bldgs:	129
Low-rise:	129 (100%)
Transit.	Two bus lines DASH service
Min Headway	Line 204: 9min Line 354: 9min
Traffic	Moderate/Heavy
Street Width	80' total right of way
Sidewalk.	8-10 ft
Grain	Varied
Nodes	Busstops, ATM, taco stand, clinics, liquor shop

LAND USES: VERMONT

Neighborhood Commercial:	32.0%
Auto-related:	13.7%
Mixed-Use:	13.1%
Institutional:	7.0%
Light Industrial:	5.9%
Residential:	4.0%
Office:	3.3%
Motel:	2.0%
Vacant	19.0%

Being such a hostile environment for pedestrians it is quite a surprise to find a modest pedestrian activity on Vermont. This is mostly static, with people gathering at bus-stops, medical clinics, a taco stand, an ATM machine, and a liquor store.

GROUND FLOOR USE: VERMONT

Business	Frequency
Auto-related	20
Mini market/check cashing	10
Beauty Salon	10
Fast Food/ Coffee shop	10
Clothes	5
Appliances	5
Music/Video	4
Liquor Store	4
Bars	3
Discount Store	2
Cleaners	2
Pawn Shops	2
Motel	2
Super Market	1
Shoe Repair	1
Tailor	1
Glass	1
Iron Works	1
Flower shop	1
Wig store	1
Office supplies	1
Insurance	1
Tax service	1
Photo/Fax	1
Institutional	
Churches	12
Clinics	4
Educational	3
Day care	2
Community Center	1
Bank	1

Sunset Boulevard: A Hodge-Podge of Urban Artifacts

The segment of Sunset Blvd. under study can be classified as an office/commercial corridor. It consists of medium to high rise office buildings interspersed with large pockets of retail and service (Figure 4). As a result of the presence of high-rise buildings commercial density on this corridor is much higher than in the other two examples studied. The presence of office buildings has encouraged a variety of office support services such as banks, restaurants, travel agencies, copying and printing services. Also the proximity of this corridor segment to Hollywood is reflected on its land use pattern. A considerable amount of businesses pertain to the entertainment industry. There are no residential buildings on this corridor with the exception of four mixed use developments, where the ground floor is occupied by retail or office uses and the upper floor(s) by residences.

The corridor lacks uniformity, a fact that is reflected in the absence of a typical lot and block size. The size of blocks fronting this segment of Sunset Blvd. can vary from 150 ft to 850 feet in length. Aesthetically, the corridor is a hodge-podge of buildings from different periods, and of different sizes and architecture. Different building styles intermix with one another. They range from the mediterranean style of the 1930s with tile roofs and stucco, to the international style of the 1950s and 1960s of the curtainwall office tower, to the postmodern mini-mall of the 1980s with eclectic themes (e.g. old western) and architecture. The scale and grain of these buildings varies tremendously (Figure 5). There are small mom and pop retail shops, medium rise studios that spread over an entire block, strip malls at many intersections, and high-rise (15-25 story) office buildings. This visual hodge-podge creates fragmentation and an inconsistent street edge (Figure 7). While parts of the corridor benefit from the rich architecture and texture of some buildings (some of which have been restored to their original splendor), other parts feature monotonous blank and inward-oriented facades. Also buildings differ in their level of upkeep and maintenance.

Sunset has a wider sidewalk and more pedestrian amenities than the other two corridors, probably due to the presence of offices[46]. However, the pedestrian realm leaves enough to be

desired. For one, there is no public open space to sit and relax other than three private plazas which, however, cannot be used by the general public. Landscaping, even though at greater quantities than in the other two corridors, is sparse, irregular, and inadequate to offer some shade (Figure 6). Being a major east-west arterial the street is often plagued by heavy traffic and noise from the passing automobiles. No measures (improvements such as safe crosses, traffic islands, raised crosswalks, etc.) have been taken to make this automobile dominated environment safer for pedestrians. However, pedestrian flow, even though not big, is noticeably larger than in the other two corridors, probably due to the greater variety of retail and services and the existence of several nodes (Figure 7).

CORRIDOR PROFILE. SUNSET

Corridor Type:	Office Commercial
Dominant Use:	Office
Density:	Medium
Typical Parcel:	No
Zoning:	Commercial
Total Buildings:	64
Low-rise:	49 (76 6%)
Medium-rise:	10 (15.6%)
High-rise	5 (7.8%)
Transit:	3 Bus Lines 2, 3, 429
Min Headway:	10 min (for all)
Traffic:	Heavy
Street Width:	100 ft total right of way
Sidewalk:	12-15 ft
Grain:	Varied
Nodes:	Movie theaters, restaurants, shopping center

GROUND FLOOR USES SUNSET

Business	Frequency
Restaurant/deli fast food/cafe	26
Insurance/Travel	7
Beauty Salon/ Massage	7
Copies/Prints	6
Food Mart	3
Auto-related	3
Health Club	3
Shoe Repair	2
Tax Service	2
Electronics	2
Cleaners	2
Dentist/Optometrist	2
Furniture	1
Rugs	1
Flower Shop	1
Luggage	1
Drug Store	1
Locksmith	1
Postal Supplies	1
Office Supplies	1
Liquor Store	1
Gift Shop	1
Jewelry	1
Institutional/Other	
Banks	5
Theaters	3
Motels	2

LAND USES: SUNSET

Office:	31.9%
Neighborhood Commercial·	26 1%
Entertainment Industry.	11.6%
Mixed Use:	5 8%
Auto-related·	5.8%
Motels/Clubs:	5 8%
Light Industrial:	2.9%
Institutional:	2 9%
Vacant·	7 2%

The Residents Talk: Survey Findings from the Three Corridors

During May and June 1993 a survey was distributed to selected households along each corridor and in the residential areas immediately behind each corridor.[47] The survey asked people about their purposes for visiting the corridor, their level of utilization and satisfaction with different elements of the corridor, and about changes they wished to see. Also some questions addressed specific issues regarding transit service along the corridor. The following discussion summarizes and evaluates the survey's major findings.

Level and Reason of Corridor Utilization. All three corridors enjoy high levels of utilization (people coming to the corridor for some activity) from residents. As shown in Table 3, 60.5% of the respondents at Crenshaw, 80.5% at Sunset, and 64.1% at Vermont visit the respective corridor at least twice per week, with a significant number declaring themselves as everyday users. The noticeably higher level of utilization for Sunset Blvd. is probably due to the fact that this corridor segment offers a wider range of services and retail than the other two corridors. Most residents visit the corridors mostly in order to shop or use some service (Table 4). Being such pedestrian unfriendly environments it comes as no surprise that a very small minority of residents chooses to stroll along the corridor. Also a very small number of residents (9.1% for Crenshaw, 13.6% for Sunset) come to the corridor to "catch a bus." The significantly higher percentage of respondents on Vermont Ave. (21.8%) that come to the corridor in order to utilize its bus service is a reflection of the low rates of car ownership along this corridor (Table 9). Finally, it is interesting to note that almost one quarter of the respondents at Sunset and Crenshaw work on the corridor (Table 4). We have no way of knowing if this "jobs-housing balance" can be found in other Los Angeles corridors. However, the potential of corridors to accommodate both business and housing should not be underestimated.

Level of Dissatisfaction and Perceived Problems. It seems that people use the corridors by necessity rather than choice or satisfaction. People of different sex, race, and age (see Appendix for socio-demographic characteristics of respondents) had a lot to complain about the corridor environment. We have received some passionate responses about the "cheap looking buildings and ugly aesthetics that bring sadness to all of us," the "drabness and litter of the streets and sidewalks," the "congested busses that leave behind a tail of smoke," the "gangs that menace people at busstops," the "disinvestment and urban decay," the "lack of choice for shopping and entertainment," the "asphalt desert of sidewalks," and the "speeding traffic that makes it unsafe to walk" (excerpts from the responses to the question "what are the biggest problems of the corridor?").

Crime ranked at the top of people's concerns (Table 6). Respondents referred to the gangs, drug trafficking, prostitution and transiency that menaces their streets. Ugly appearance of the streetscape ranked also quite high among people's perceived problems. Many complained about the ugly buildings, the eyesore of billboards, the trash, dirt, and graffiti, and the lack of greenery. The traffic condition of the street (congestion during peak hours, cruising on weekends, speeding, crazy driving, air pollution, fumes) annoyed some residents of Crenshaw Blvd. However, only 10% of Sunset residents and 7.7% of Vermont residents reported traffic as the biggest problem. Inconvenience (poor transit service, lack of parking, inadequacy of services) was listed by only a few as the most important problem of each corridor.

Figure 8 shows residents' high levels of dissatisfaction regarding different elements of the corridor environment. People were mostly dissatisfied with the lack of cleanliness and landscaping and the poor aesthetics of corridors. The majority of respondents were also unhappy with the

lack of safety, open spaces, and the inadequacy of community services. More than half of the respondents expressed their dismay with the existing retail establishments. Transit service and parking availability were considered dissatisfactory for a significant minority of residents in each corridor.

Desired Changes. People had some very common desires for change. "Safer street environment", "better aesthetics,"[48] "cleanliness," "better shops and services," ranked as the most common responses (Table 7). Other desired changes included open spaces, better bus service along the corridors, the banning of street vendors. In a specific question about desired shops and services food markets, cafes and family restaurants were the type of shops that gathered most people's preferences. In general, small neighborhood shops (drug stores, groceries, bakeries, video rentals, flower shops, etc.) were identified by respondents as the most appropriate and desirable for the corridor (Table 8). Such retail establishments that seem to gather the preference of most residents are also pedestrian and transit friendly, since shoppers do not usually have to carry large parcels. Addressing the same question some respondents also asked for "better looking stores," "less expensive stores," and "less liquor stores."

In a closed-ended question that asked respondents if they wished to see more of housing, transit lines, parks/open spaces, retail shops, restaurants, community services, trees, benches, and bus stop shelters along the corridor, the last three items received almost unanimous approval (Figure 9). Such street improvements require relatively little cost and effort. Almost every item of the list with the notable exception of housing scored high points. Housing was approved by a significant minority in each corridor (27.3% for Crenshaw, 40% for Sunset, 38.5% for Vermont). There are three possible explanations why more housing was not considered desirable by the majority of respondents: 1) Homeowners of well established single-family residential neighborhoods behind the corridors may be scared that multi-family projects in their immediate vicinity will bring in undesirable population and will lower their home value. 2) Corridors have always been perceived as automobile-oriented, commercial environments, and thus incompatible with housing. 3) Current corridors lack many housing supporting services.

Transport and Transit Characteristics. Even though our sample consisted of people that lived on or very near the corridors under study, it was quite surprising to find that a very significant percentage of them used their car to reach various destinations (shopping, friends, work) along the corridor (Table 5). People may hesitate to walk or use bikes because of inconvenience (shops and services scattered in different areas), fear for their safety, lack of enjoyment for the walk or ride, or lack of comfort due to the absence of pedestrian amenities. People coming to the corridor on foot were much more common in the Vermont Ave. sample which has low car ownership rates (31.7% of respondents did not own a car), than in the Cranshaw Blvd. sample, where only 4.9% did not own a car, while 63.4% owned two or more cars (Table 9). Car ownership plays of course, a very important role in the use or nonuse of public transportation. Vermont Ave. residents are very much dependent on the bus service. Only 18.4% of the respondents from this street declared that they never use public transportation (Figure 10). This was true for many more people in the other two corridors (58.5% for Crenshaw Blvd., 45% for Sunset Blvd). It should be noted, however, that even in these two corridors the numbers of people that use public transportation are quite higher than that of the city's or the county's as a whole (compare Figures 1 and 2).

Finally respondents were asked to identify improvements that would increase their utilization of bus service. Most common responses included enhancement of safety inside the bus and at the bus stop, increased frequency and reliability of the bus service, cleaner buses, cheaper fares,

and more convenient bus routes. (Table 11). It should be observed that these responses identify changes in the operation, surveillance, and management of the bus service, rather than mitigation of environmental factors (with the possible exception of the issue of security at the bus stop, where environmental conditions may play a role).

Urban Design Guidelines for Corridor Retrofit[49]

The effort to convert a commercial arterial corridor into a pedestrian and transit friendly environment requires a combined approach of land use policies, physical/environmental improvements, and transportation controls. Of course, ultimately, people's decision to use a mode of transportation is influenced by their level of satisfaction with it and with alternative modes that they have access to. However, as already discussed, physical/environmental factors can be supportive or inhibitive for pedestrian activity and transit usage. The following section discusses land use and urban design guidelines that seek to increase a corridor's transit and pedestrian friendliness. ~~Guidelines are developed so as to enhance and support the attributes (identified in Table 2) enhancing pedestrian use and transit friendliness.~~ Guidelines are developed so as to enhance and support the attributes that have been found to contribute to pedestrian use and transit friendliness (Table 2).

1. **Density**

* Housing development along corridor types 1a, 1b, and 2 (see Table 1) must have a minimum density of 24 units per net acre.
  Housing development along corridor types 1c, 3a, 3b, and 5 must have a minimum density of 18 units per net acre and a minimum average of at least 20 units per net acre.
  Housing development should not be encouraged along corridor type 4.

Justification: Densities of 8 to 30 dwelling units per acre are necessary to sustain significant transit and pedestrian use At lower densities ridership will not be sufficient to generate transit fares to offset the cost of providing transit service. Corridor types 1a,1b, and 2 accommodate heavy traffic. They mostly host medium and high-rise office, commercial, and mixed-use establishments. Residential densities can be significantly increased at selected pockets of these corridors, which can accommodate medium or high-rise multi-family housing in combination with a variety of housing supportive services and amenities. Corridor types 1c,3a,3b, and 5 display light to medium traffic patterns and host mostly low-rise commercial, residential, or mixed-use establishments. Current densities can be increased throughout these corridors by infill development in the form of 2-4-story townhouses, row houses, stacked flats, and ancillary units (granny flats). Residential development is not seen as fit for industrial corridors (type 4).

2. **Land Uses/Zoning**

* **Mixed Use Development:** In all corridors (with the exception of industrial) a mix of horizontally arranged uses should be encouraged. Corridor types 1a,1b,2,3a,3b can also have a vertical mixing of uses at specific segments. For these corridors zoning should allow and encourage the addition of residential on top of existing or new office/commercial.

Justification: Research has shown that the horizontal or vertical mixing of uses contributes to pedestrianism. Vertical mixing of uses is in general more difficult and costly. However, in corridor types 1a,1b a vertical mixing of uses can be found. In corridor types 2, 3a, 3b one can find at points a vertical mix of office and retail uses. Thus, the addition of residential stories on top of such uses would be consistent to the basic structure and morphology of such corridors and should be considered.

* **Activity Nodes:** Buildings that house significant goal-oriented activities (banks, supermarkets, drug stores, cleaners, day care services, etc.) should be concentrated at major activity nodes along the corridor.
* Activity nodes should be in close proximity to transit stops.

Justification: Adequate and diverse services in close proximity to residential establishments help to minimize travel distances between necessary stops. The concentration of significant services and facilities along nodal points allows the fulfillment of shopping/service needs from one location. Businesses and services that are not frequented on a very regular basis (e.g. travel agencies, dentist/optometrist, gift shops, flower shops) can be articulated along the entire street front (for corridor types 1a,1b,1c,2,3a,3b) making for an easy continuity of choices. Finally, proximity of busstops encourages the use of transit for shopping trips.

* **Transit-Oriented Businesses:** Zoning should target the reduction of land zoned for automobile-oriented uses along corridors identified as targets for increased pedestrianization. Rezoning should seek to convert auto-oriented uses to residential and transit-oriented neighborhood retail

Justification: Most corridors display an abundance of transit and pedestrian unfriendly automobile-oriented uses. Many of these businesses are not doing well as evidenced by the many vacancies of previously automobile serving establishments. As already discussed, certain types of land uses are more transit-oriented and pedestrian friendly than others. Thus, zoning and planning incentives should seek to attract such mixture of land uses along corridors.

* **Housing:** Provide a wide variety of infill low and medium rise housing types along corridors.
* Locate larger multi-family developments at nodes, next to services and facilities (schools, day care centers, recreational facilities, etc).
* Where deep lots exist (over 135 ft) allow the building of granny flats at the back of the lot.

Justification: The provision of 2-4 story residential structures with commercial activities on the first floor along currently underutilized transit corridors contributes to a significant increase in residential densities, provides much needed housing, and allows the relief from overcrowding of adjacent areas. Depending on the morphology of each corridor, the real estate market, and the existing housing needs a variety of housing types can be accommodated on corridors. These may include smaller attached units, such as halfplexes and duplexes that are in scale with adjacent single-family residential areas, second and third story units above retail, row houses, townhouses, live-work space, and granny flats for deep lots. Since, as the surveys have shown, most people are dubious regarding the allocation of housing along commercial corridors, every effort should be

made
~~taken~~ that new residential and mixed use developments are consistent to the general character and the needs of the adjacent areas.

* **Housing Supporting Services:** Support services for housing must be located within a maximum of one quarter mile of all residential developments. Services such as day care, laundry facilities, shopping and recreation can be provided in activity nodes, in the commercial portions of a mixed-use project, or in a residential building. Open space, and/or play areas must be provided on site for residential projects.

Justification: Support services are necessary if housing is to be a viable option along corridors. Providing essential services around residential areas also increases the possibility that residents will obtain goods and services locally. The allocation of such services within the pedestrian threshold of one quarter mile encourages walking rather than driving.

* **Open Space in Residential Developments:** A minimum of 25% of the lot area must be set aside for open space. Either communal open space or private open space can count for the fulfillment of this requirement. "Parking courts" can also fulfill part of the open space requirement provided that they meet the standards set forth in the parking section of these guidelines.

Justification: Open space is needed to compensate for the increased densities, and the reduction (and sometimes elimination) of front and side setbacks). Particularly for small lots such a requirement may be quite constraining. However, the reduction of the parking requirement (see parking section) and the possibility to count as open space parts of the lot devoted to parking if they meet the requirements of a parking court, makes this guideline implementable.

* **On Site Parking:** Reduced parking standards should be applied along corridors. Multi-family residential and mixed-use buildings may reduce their parking spaces by at least 10%.

* Residential projects with at least 20% of their units dedicated as low-income housing would fall under the following minimum parking requirements: One space per unit for units with fewer than two bedrooms, one and one half spaces for units with two or three bedrooms; two spaces per unit for units with four or more bedrooms.

Justification: Limited rather than ample parking encourages commuter use and transit service. In recognition of the high frequency of transit service and of the increased levels of transit dependency currently present in many corridors the reduction of the parking requirement is a reasonable policy. Furthermore, with new developments oriented toward the street and with increased pedestrian amenities, there should be less of a need to travel by car for errands along the corridor. Low income households have lower rates of automobile ownership[50], so it makes sense to further reduce the parking requirement for affordable housing developments.

* **On Street Parking:** On street parking should be allowed along corridors and should be counted as a portion of any project's parking requirement.

Justification: Utilizing on street parking helps reduce the on-site parking requirement. Also, as has been already discussed, the existence of a parking zone along the street acts as a buffer that protects pedestrians on the sidewalks.

* **Parking Lots:** Parking lots should be located behind buildings and accessed from alleys (whenever possible). All parking lots must have one tree per four parking spaces. Landscaping buffers must be provided between parking lots and the public right-of-way.
* **Parking Courts:** An area will be considered a parking court if it contains pedestrian amenities (benches, planters, other seating), special paving, and landscaping and if the space not occupied by parked vehicles can be used by residents as open and/or play space. Parking courts should include devices (e.g. speed bumps) to slow moving cars, and should be designed so as to ensure pedestrian safety.
* **Joint Use/Shared Parking:** Shared parking should be encouraged between residential and near-by commercial developments.

Justification: Parking lots should not dominate street frontage. Parking lots fronting the street fragment the sidewalk edge and create uninteresting spaces for pedestrians. Therefore parking lots should be sited behind buildings and be accessed from an alley. When no alley exists, effort should be made to access parking lots from secondary side streets. Only if the parcel is located at mid block and there is no other ingress/egress right-of-way available, a driveway should provide access. Trees should be planted at parking lots, since they soften their visual impacts and provide shade and comfort for pedestrians. If the parking lot is treated as a parking court it can become an open space amenity for residents. Many parking lots are almost empty (or with no moving traffic) for a large part of the day. Thus, through special design and landscaping parking lots can be converted into useful open spaces for pedestrians. Since many land uses have different peak periods of parking demand[51], policies that enable shared parking will help reduce the amount of land devoted to the automobile.

3. Pedestrian and Automobile Interaction

* **Street Width:** For corridors that are not major arterials lane widths should not exceed ten feet.
* **Intersections:** Wherever possible (especially at intersections with minor residential streets) the intersection sidewalks should be expanded into the adjacent parking lanes, and raised crosswalks (flush with the sidewalk) should be provided.
* **Crosswalks:** Crosswalks should be provided every 150 feet or so. Crosswalks should always be provided at transit stops.
* **Driveways:** Driveways should not exceed: twelve feet for parking lots with up to 15 cars; fourteen feet for parking lots up to 20 cars; eighteen feet for parking lots with more than twenty cars.
* **Sidewalk Width:** Sidewalks should be at a minimum ten feet wide, and preferably wider to allow for comfortable pedestrian movement, street trees, projecting display windows, etc.

Justification: Slowing vehicular traffic helps in creating a safer, more comfortable and pedestrian friendly environment. However, it should be stressed, that detailed traffic studies should proceed any major changes in roadway configuration. Providing wider sidewalks encourages pedestrian

movement; while the narrowing of driveways forces drivers to ingress/egress parking lots carefully and slowly.

4. Streetscape Aesthetics

* **Setbacks:** Mixed-use and commercial developments should have zero front and side yard setbacks. The residential portions of mixed use developments should be encouraged to step back away from the front lot line. Residential ground floor setbacks should be a minimum of five feet and a maximum of twenty feet. Ground floor living space should be encouraged to be either lowered or raised half a story so as to be separated from the street level. Side setbacks should be a minimum of zero and a maximum of ten feet.

Justification: Currently most corridors display a fragmented sidewalk edge. The lack of front setbacks for commercial and mixed-use projects will bring these buildings closer to the sidewalk and to pedestrians. Zero side setbacks for commercial buildings would have the effect of requiring access points from the front and rear of the structure. Entrances and windows would be oriented to the front and rear of the building, providing views of the streets and alleys. The maximum setback of twenty feet for residential buildings will prevent them from being sited toward the rear of the lot, thus creating gaps in the street facade. At the same time, however, for reasons of privacy and noise reduction, living spaces should not open up directly onto the street. Thus, a minimum front setback is set for residential developments.

* **Entrances:** Pedestrian access points for residential and commercial developments should be oriented towards the street. Entrances for the residential and commercial portions of mixed use projects must be separate and distinct. Auto access must be from the rear, where alleys are present. Where no alleys exist, automobiles should access on-site parking lots or parking courts from a driveway or side street (if the development is on a corner parcel).

Justification: Transit and pedestrian oriented development should encourage access to homes, shops, and services from the street. Development patterns that require pedestrians to cross or walk along large parking lots fronting the street discourage pedestrian activity by making walking inconvenient and boring. Orienting access points towards the street allows for shorter walking trips. Additionally, residential projects should be oriented toward the street to increase street and neighborhood safety[52].

* **Facades:** Residential buildings along corridors are encouraged to have porches, patios, decks, stairs, within the area created by the front setback. Their street facades should be articulated with entrances, windows, bays, and balconies. Wall mounted lights, entry patios or porches, and landscaping should be encouraged.
* Commercial and mixed-use building facades should be articulated, especially on the ground floor with doors, display windows, arcades, awnings, signs, and wall mounted lighting. Blank walls or a series of garage doors is not permitted. Display windows should cover at least two thirds of the storefront.

Justification: Front setbacks of residential buildings can potentially become dead spaces for residents and passers by. The existence of elements such as porches, landscaping, decks, etc. can

help make the space visually interesting for pedestrians and useful and appealing for residents. The retail frontage of commercial buildings should embrace the sidewalk. Aesthetically appealing commercial frontages can encourage window shopping as well as attract the passers-by into the store.

* **Landscaping**: Street trees should be planted consistently along the corridors. A minimum requirement should be one street tree for every thirty feet of frontage. Preferably such trees should be broad leaf canopy trees, although tree selection should conform with the existing landscaping and climatic conditions of each area. Where sidewalk width exceeds ten feet, a planter strip (4'-6') should be encouraged.

Justification: Trees provide both comfort and aesthetic appeal. Pedestrians need a comfortable walking environment, and shade is an integral part of achieving this. Furthermore, street trees and other landscaping improve the visual quality of streets and neighborhoods. They break the monotony of pavement and create a psychological boundary between pedestrians and traffic. Trees also provide a slight buffer against street noise by producing background noise as the wind passes through their branches. A requirement of one tree per thirty feet of frontage has been implemented by the city of San Diego[53]. Planter strips provide additional greenery and further buffer pedestrians from traffic.

5. Comfort/Convenience

* **Street Furniture:** Amenities such as benches, planters, newsstands, trash receptacles, public phones, water fountains, bike racks, and mailboxes should be provided regularly and consistently along corridors. Particular emphasis should be placed on providing street furniture and bus shelters at activity nodes and bus stops.

Justification: The existence of street furniture and sidewalk amenities increases the level of comfort and convenience for the pedestrian and the transit passenger. Currently such amenities lack to a great extent from most corridors. The careful location of street furniture is also important so that it does not destruct pedestrian circulation.

* **Public Open Space**: Corridors should host open spaces accessible to the general public. Larger commercial/office developments should be given the incentives to create street level landscaped plazas, directly accessible from the sidewalk, and open for public use. Mini parks should be encouraged, especially where long blocks are present, for sitting and to serve as buffers between commercial and residential development. The location of bus stops in very close proximity to plazas and mini parks is particularly encouraged.

Justification: Public open space, however small, can add to the feeling of community in the corridor, can enhance the quality of the residential environment, and provide comfort for the pedestrian's static activities. Such public open spaces should be consistent to the character of the surrounding area, and should include elements that attract activity (bus stops, food kiosks, newsstands, coffee shops), so that they do not become dead, empty, and dangerous spaces.

* **Location / Layout of Transit Stops:** Transit stops should be located close to activity nodes, such as shopping centers, large office or residential developments, public open space. At a minimum, a bus shelter with bench should be provided at each bus stop

Justification: If appropriately designed and sited transit stops can act as focal points for adjacent neighborhoods. By locating transit stops at nodal points walking distances between them and major destinations of transit passengers are minimized. The proximity of transit-oriented development and pedestrian amenities to bus stops adds convenience for the transit passenger and provides incentives for the use of public transit. By widening the sidewalk near bus stops more pleasant and safer waiting areas can be provided. This can happen if the sidewalk at bus stops expands into the parking lane.

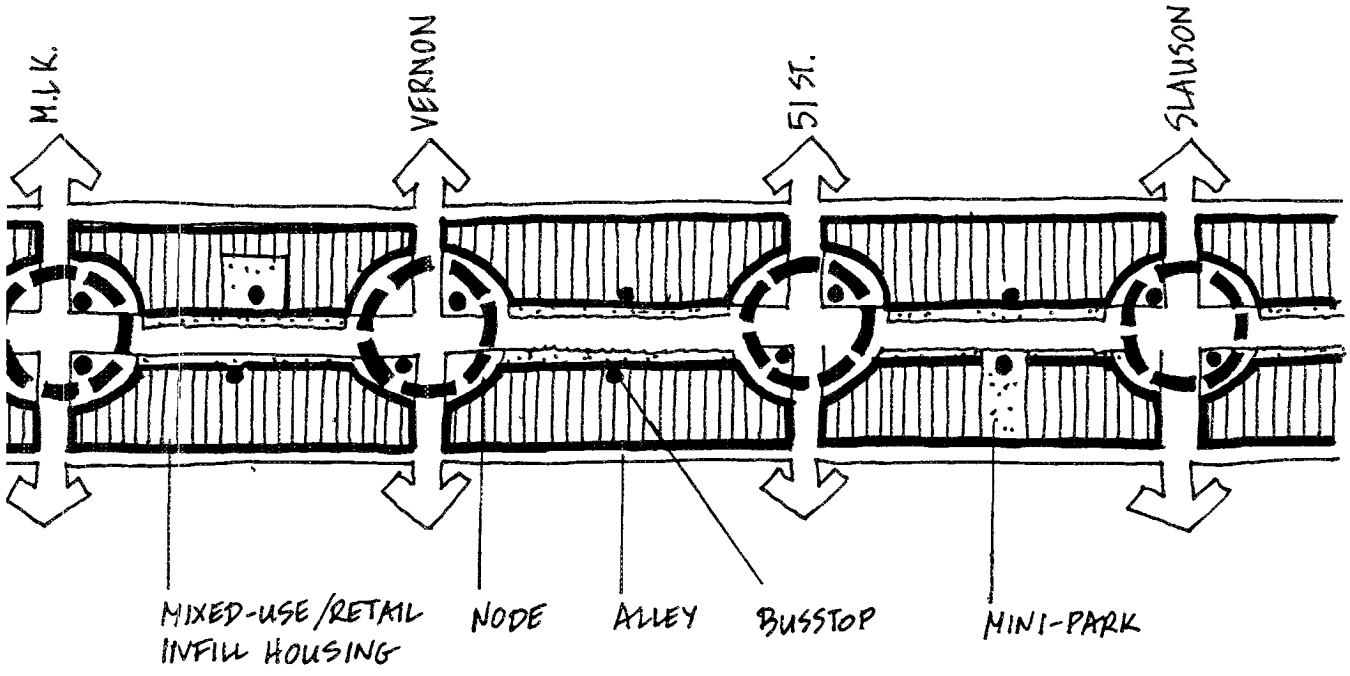
* **Mid-Block Connections:** Whenever possible, mid-block connections are particularly encouraged. These can be realized in conjunction with mini-parks, or mid-block activity nodes.

Justification: Mid-block connections provide linkages to the corridor from the residential areas behind. Particularly for large blocks these connections are important because they reduce walking and can bring pedestrian activity from the surrounding neighborhoods to the corridor.

Concept Plans for the Three Corridors

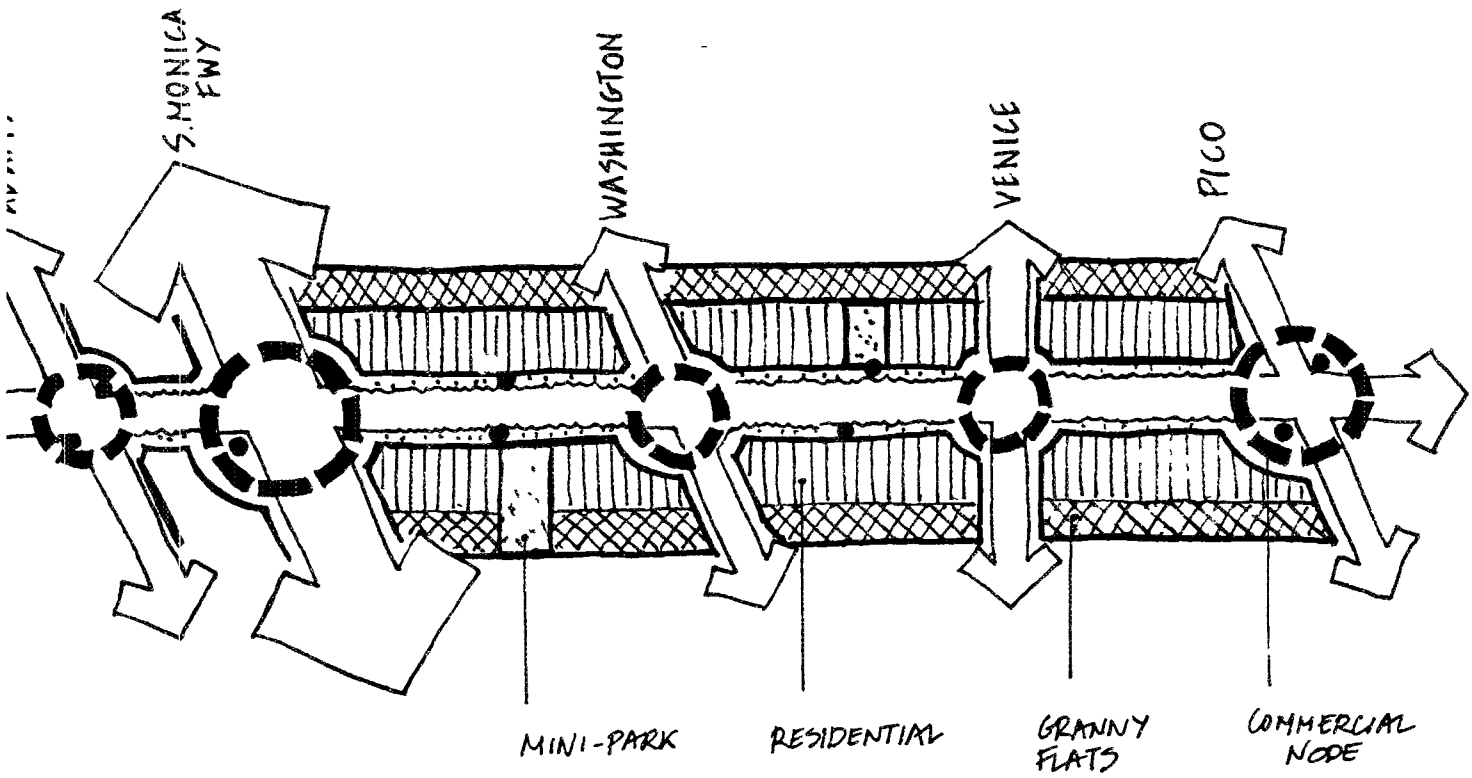
Figures 11, 12, and 13 summarize graphically specific visions for the three corridors studied. As already discussed, the underlying goal for all three environments is that they become more transit and pedestrian friendly. The concept plans follow the general strategies and guidelines previously discussed, however, adapted to the specific context of each corridor.

Figure 11: VERMONT AVENUE CONCEPT PLAN



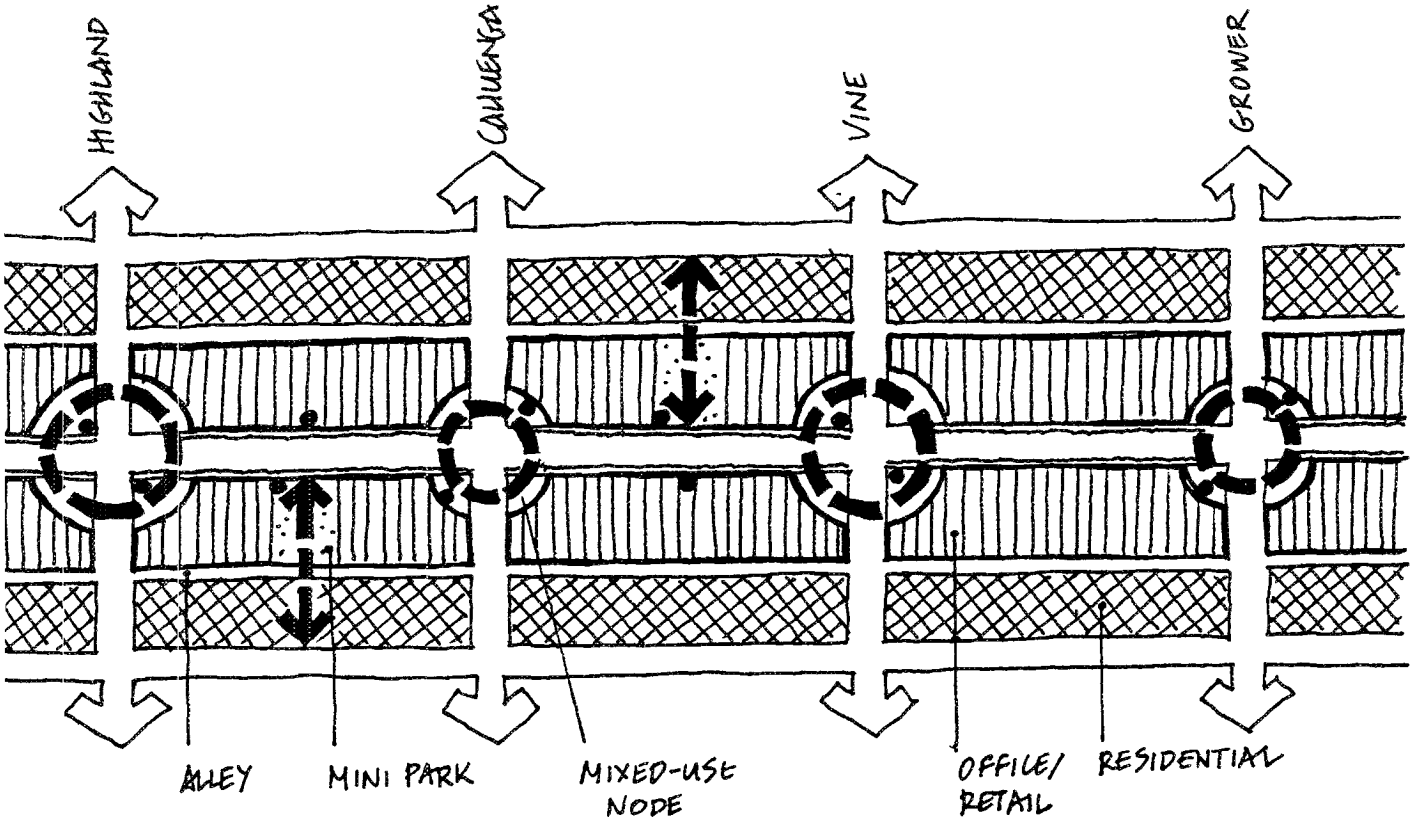
- **Increase of residential densities through infill, mixed-use housing, and granny flats.**
- **Residential at setback over retail and institutional.**
- **Maximum building height: Four stories.**
- **Creation of primary activity nodes at major intersections (Martin Luther King, Vernon, 51st, Slauson) with concentration of neighborhood retail, services, community center, open space, and transit stop).**
- **Creation of secondary nodes in between primary nodes in the form of mini parks with bus stop.**
- **Linear landscaping and street improvements.**

Figure 12: CRENSHAW BOULEVARD CONCEPT PLAN



- **Enhancement of the existing residential environment by the provision of housing supportive services.**
- **Increase of residential densities through the addition of granny flats at the back of the existing deep lots.**
- **For consolidated lots encouragement of three-story row housing in scale with the surrounding residential buildings.**
- **Maximum building height: Three stories.**
- **Concentration of all major commercial development at two activity nodes (Pico, Santa Monica Freeway).**
- **Confinement of automobile-oriented uses around the freeway intersection.**
- **Creation of secondary nodes at Adams, Washington, and Venice Blvds. with transit stops, corner shops, housing supportive services.**
- **Open community gardens to the street and create another mini park at mid-block in between Washington and Venice Blvds.**
- **Linear landscaping and street improvements.**

Figure 13: SUNSET BOULEVARD CONCEPT PLAN



- **High and medium rise office and mixed use nodes on Cahuenga, Vine, and Grower Streets.**
- **Low rise (1-3 stories) office retail and studio support services in between nodes.**
- **Encouragement of different types of multi-family residential on deep lots facing secondary streets.**
- **Separation of street front commercial with residential at the back through alleys or green zones.**
- **Development of links between the commercial corridor frontage and the residential development at the back through passeos, pedestrian ways, etc.**
- **Unified treatment of street front through lighting, signage, landscaping.**

Epilogue

This study has focused on Los Angeles commercial corridors. Corridors such as these studied, however, can be found in almost any major American city. For this reason we believe that many of the guidelines proposed are valid and applicable for many corridor environments. Of course carefull assessment of community needs and values, as well as examination of the socio-physical and economic characteristics of the specific urban context in question should proceed policy suggestions and decisions.

The study represents a small effort to balance land use and transportation decisions, examining (and manipulating) the land use factor of the equation. We believe that the renewed interest and effort to coordinate land use and transportation planning is well worth the trouble, not only in terms of greatly improving mobility and making public transportation more efficient and effective, but also in terms of encouraging the development of higher quality public environments.

I would like to thank my research assistants Russel Driver, Debra Depratti, Jean Gilbert, and Chris Smith at the Graduate School of Architecture and Urban Planning, UCLA for their help in conducting the field work, surveys, and graphic representation for this study.

Endnotes

1.This pattern of multi-centered development, where employment centers are dispersed through an urban region, loosely connected by freeways and arterials is most typical of Sunbelt cities. See Sawers, L. and Tabb, W. (Eds) 1984. *Sunbelt/Snowbelt*, New York: Oxford University Press.

2.Erickson, L. and Gentry, M. 1985. "Suburban Nucleations," *Geographical Review*, Vol.75:1, pp.19-31; Baerwald, T. 1982, "Land Use Change in Suburban Clusters and Corridors," *Transportation Research Record*, Vol.861, pp.7-12.

3.Cervero, R. 1984. "Managing the Traffic Impacts of Suburban Office Growth," *Transportation Quarterly*, Vol.38:4, October, pp.535-550, Orski, K. 1985. "Suburban Mobility: The Coming Transportation Crisis?" *Transportation Quarterly*, Vol.39:2, April, pp.283-296.

4.Cervero, R. 1986a. *Suburban Gridlock*, New Brunswick: Rutgers University Press; Cervero, R. 1986b. "Unlocking Suburban Gridlock," *Journal of the American Planning Association*, Vol.52:4, pp.389-406.

5.Andres Duany and Elisabeth Plater-Zyberk have gained national attention and architectural commissions with their efforts to revive the principles of old-fashioned, pedestrian friendly neighborhood design in the suburbs, see Morgenthaler, E. 1993. "The Village Anew," *Los Angeles Times*, Real Estate Section, Sunday 8/29/1993, pp.K1, K7. Also San Francisco-based architect Peter Calthorpe has written about alternate suburban growth patterns. See Calthorpe, P. 1989. *Pedestrian Pocket Book*, Princeton University Press. Calthorpe has developed transit-oriented development ordinances for San Diego and Sacramento County.

6.William, J. 199? "Downtown, Shows the Way: More Jobs, Fewer Cars," *The Region* ....; Harrison, M. 1987. "Promoting the Urban Experience in Portland, Oregon," in Vernez-Moudon, A. (Ed.) *Public Streets for Public Use,* New York: Columbia University Press; Greenberg, K. "Toronto Streets Revived," in *Public Streets for Public Use.*

7.Holtzclaw, J. 1991. *Explaining Urban Density and Transit Impacts on Auto Use,* State of California Energy Resources Conservation and Development Commission, Docket No. 89-CR-90.

8.Holtzclaw, J. 1991, op.cit.

9.According to Puskarev and Zupin, 1980. *Urban Rail in America: An Exploration of Criteria for Fixed-Guidance Transit*, Urban Mass Transportation Administration, U.S. Department of Transportation, the lower limit for local bus service is eight dwelling units per acre, while the threshold for high capacity transit service such as express buses or rail is twenty-four dwelling units per acre.

10.Gareau, J. 1991, *Edge City*, New York: Doubleday.

11.Frank, J. 1989. *The Costs of Alternative Development Patterns*, Urban Land Institute.

12.Liebs, C. 1985. *Main Street to Miracle Mile American Roadside Architecture*, Boston: Little, Brown, and Company.

13.Liebs, C. op.cit.

14 Critics called these signs "visual clutter" or "visual pollution." This commercial architecture and signage was later defended by Robert Venturi, Denise Scott Brown, et al in their work *Learning from Las Vegas*, 1977.

15.Rapoport, A. 1987. "Pedestrian Street Use: Culture and Perception," in Vernez-Moudon, A. *Public Streets for Public Use*, op.cit., p.87.

16.Caliandro, V. 1978. "Street Form and Use: A Survey of Principal American Street Environments," in Stanford Anderson (Ed.), *On Streets*, Cambridge: The MIT Press.

17.Zoning maps show an overzoning of commercial space. For example, the one-mile segment of Pico Blvd. between Western and Fairfax, contains 82 acres of commercially zoned land with a potential build-out of 5.4 million square feet of commercial space. This far exceeds the market demand for commercial/retail space in the area. See Community Redevelopment Agency of Los Angeles, July 1991. *Greater Mid-City Area: Commercial Corridor Revitalization Study.*

18.Throughout the one-mile segment of Vermont Boulevard we counted two benches and one newspaper stand. Also only six out of the forty-three blocks on Vermont have trees on the sidewalk.

19.In a 1986 telephone survey of residents of west central Los Angeles it was found that Vermont Ave (one of our case studies) was the most dangerous corridor in terms of bus stop crime. See Levine, N., Wachs, M. and Shirazi, E. 1986. "Crime at Bus Stops: A Study of Environmental Factors," *Journal of Architectural and Planning Research*, Vol.3:4, pp.339-361.

20.Newman, O. 1972. *Defensible Space: Crime Prevention Through Urban Design.* New York: Macmillan; Rand, G. 1984. "Crime and Environment: A Review of the Literature and its Implications for Urban Architecture and Planning," *Journal of Architectural and Planning Research*, Vol.1:3, pp.3-19; Levine, N., Wachs, M, and Shirazi, E. 1986. op.cit.

21.The densest census tracts in Los Angeles with densities of 78,166 (122 persons/acre) and 76,664 per square mile lie in the Mid-city area. See Meyerson, H. 1991 "Latter-Day Lower East Side," *LA Weekly,* August 2-August 8.

22.Los Angeles Housing Department, 1993. *Briefing Book.*

23.Holtzclaw, J. 1991. op.cit, p.25.

24.Untermann, R. 1984. *Accommodating the Pedestrian.* New York: Van Nostrand Reinhold.

25. Pedestrian potential is defined as "*a measure of the ability of a street environment to generate and sustain pedestrian flow.*" *See* Victor Caliandro, 1978. "Street Form and Use: A Survey of Principal American Street Environments," in *On Streets*, p.185.

26.Rapoport, A. 1987. "Pedestrian Street Use: Culture and Perception," in *Public Streets for Public Use*, p.81, op.cit.

27.A. Rapoport, 1990. *History and Precedent in Environmental Design*, New York: Plenum Press, p.258.

28.For a discussion on how the place and link qualities have been separated in contemporary streets see: Ellis, W.C. 1978. "The Spatial Structure of Streets," in *On Streets*, op.cit.

29.Caliandro, op.cit. p.184.

30.Some useful sources on pedestrianism/pedestrian activity include: Pushkarev, B. and Zupin, J. 1975. *Urban Space for Pedestrians*, Cambridge: The MIT Press, Anderson, S. (Ed.) 1978. *On Streets*, Cambridge: The MIT Press, Untermann, R. 1984. *Accommodating the Pedestrian*, New York: Van Nostrand Reinhold; Levinson, H. 1986. "Streets for People and Transit," *Transportation Quarterly*, Vol.40, October, pp. 503-520; Fruin, J. 1987. *Pedestrian Planning and Design*, Mobile: Elevated World, Inc., Vernez-Moudon, A. (Ed.) 1987. *Public Streets for Public Use,* New York: Columbia University Press; Rapoport, A. 1990. *History and Precedent in Environmental Design*, New York: Plenum Press; Untermann, R. and Vernez-Moudon, A. 1990. "Designing Pedestrian Friendly Commercial Streets," *Urban Design and Preservation Quarterly*, Vol.13:3, Fall, pp.7-13;

31.Untermann, R. 1984. *Accommodating the Pedestrian*, op. cit.

32.See Pushkarev, B. and Zupan, M. *Demand for Transit. The Role of the Density of Development*; Weissman, S. and Corbett, J. 1992. *Land Use Strategies for More Livable Places*, Sacramento: The Local Government Commission.

33.A case in point is the wealthy Californian city of San Marino, where zoning bans any multi-family housing development.

34.Weissmann, S. and Corbett, J. 1992. op. cit.

35.Untermann, R. 1987. "Can We Pedestrianize the Suburbs?" in Vernez-Moudon, A. (Ed) *Public Streets for Public Use*, op. cit.

36.According to Levinson, H. 1986. "Streets for People and Transit," *Transportation Quarterly, Vol.40,* October, pp.503-520, the minimum desired sidewalk width should be based on 2.5 to 3.0 feet per pedestrian lane plus additional space to compensate for obstruction. The desired minimum dimension for a sidewalk in a shopping street is 10-12 feet, when there is no bus stop, and 14-16 feet, when there is a bus stop present.

37.Rapoport, A. 1990. op.cit.

38.Greenberg, K. 1987. "Toronto: Streets Revived," in Vernez-Moudon, A. (Ed), *Public Streets for Public Use*, op. cit.

39.See Caliandro, V. 1978. "Street Form and Use: A Survey of Principal American Street Environments," in S. Anderson (Ed.) *On Streets*, op. cit., Rapoport, A. 1990. *History and Precedent in Environmental Design*, op. cit.

40.Appleyard, D. 1981. *Livable Streets.* Berkeley: University of California Press, p. 64.

41.Fruin, J. 1987. op. cit.

42.Untermann, R. 1984. *Accommodating the Pedestrian*, op.cit.

43.See Levine, N. 1982. "Bus Crime Exposure in Santa Monica: Results of a Survey," Los Angels: Graduate School of Architecture and Urban Planning, University of California, Levine, N. Wachs, M. and Shirazi, E. 1986. op. cit.

44.According to the 1990 census residential units along this corridor segment are 71.9% renter-occupied and 28.1% owner-occupied.

45.Urban Land Institute, 1992. *Vermont Avenue Corridor Los Angeles, California*, 11/13/1992, Washington, D.C.:ULI.

46.We have counted 15 benches, 9 mailboxes, 4 bus shelters, 6 public phones, and 8 places where newsstands can be found.

47.Four hundred questionnaires were distributed per corridor. We have received back 244 completed surveys.

48.People suggested specific changes that would result in better aesthetics, such as the retrofit/facelift of buildings, the addition of greenery and landscaping, the elimination of ugly billboards, etc.

49.This section has benefitted from the work of Peter Calthorpe and specifically the compilation of Transit-Oriented Development Design Guidelines for Sacramento County and the city of San Diego, and from the work of my research assistant Russel Driver who studied Vermont Avenue as part of his master thesis requirement at the Graduate School of Architecture and Urban Planning.

50.The Los Angeles Housing Department (LAHD) conducted a survey of low and moderate income housing developments in April, 1993. Twenty-five non-profit developments were surveyed to determine the number of off-street parking spaces available, the number of spaces actually used, and the number of automobiles owned per household. The survey found an average automobile ownership of 0.93 cars per household. The study also found that 33% of the existing parking spaces were not occupied. Los Angeles Housing Department, *Parking Survey*, April 1993.

51.For more discussion on the justification of shared parking see Calthorpe Associates, 1990. *Transit-Oriented Development Design Guidelines for Sacramento County*, p.65, and Calthorpe Associates, 1992. *Transit-Oriented Development Design Guidelines for the City of San Diego*, p.81.

52.According to Jane Jacobs (*The Death and Life of Great American Cities,* New York: Vintage Books, 1961) pedestrian presence, what she calls "eyes on the street" help make a street environment safe. Jacobs highlights the importance of mixed use, pedestrian oriented environments, stressing that people will not use or watch a street that is not interesting. She claims that the most successful streets are safe and communal because they are lively. While her claims are based on observations of her neighborhood, Greenwich Village in New York City, a lively street would at least be more interesting than a deserted one.

53.Curcio, P. 1988. "Transit and Planning Techniques in San Diego," in Attoe, W. (Ed.), *Transit, Land Use & Urban Form*, The University of Texas at Austin, pp.89-100.

Corridor		Density	Land Use	Transit	Traffic	Comments	Example in LA
Mixed-Use	1a	High	Mixed-use office, institutional, or residential above retail/commercial	Many bus lines, often with rail transit underground	Heavy auto and transit use Pockets with heavy pedestrian use	Usually prominent streets in the city with wide sidewalks and medians Often grand boulevards	Parts of Wilshire and Figueroa (in the CBD area)
	1b	Medium	Low or medium rise commercial buildings with pockets of multi-family residential - or - Mixed-use commercial with residential or office on second and third floors	Many bus lines, often rail transit	Medium to heavy	Vertical or horizontal mix of uses Usually inconsistent facades, on-street parking, and narrow sidewalks	Sections of. Figueroa, Western, Normandy, Central, Vermont, Manchester, Florence, M L King
	1c	Low	Low rise commercial with single-family residential	Some buses	Medium	Commercial facilities auto-oriented Street front is fragmented	Normandy, **Crenshaw**, Pico, parts of Olympic
Office Commercial	2	Medium to high	Interspersion of high or medium-rise office with low-rise commercial, retail, institutional	Many bus lines	Heavy	Fragmented facades with auto orientation and a preponderance of mini-malls	Parts of **Sunset**, Wilshire, Hollywood Bl , Santa Monica
Retail / Service Commercial	3a	Low	Low-rise strip commercial with auto orientation	Bus lines	Light to medium	Mostly auto oriented uses, fragmented street facades	**Vermont**, Washington, parts of Broadway
	3b	Low to medium	Strolling commercial, low rise retail establishments	Bus lines	Light to medium	Many restaurants, boutiques, continuous street facade, pedestrian orientation	Melrose, parts of Santa Monica, Sunset, La Brea
Industrial	4	Low	Light industrial, industrial	Limited bus accessibility	Light to medium	Warehouses, salvage/junk yards, lots of vacant space, no pedestrian amenities, little or no landscaping, large setbacks	Alameda, Slauson
Residential	5	Low to medium	Predominantly residential	Limited bus accessibility	Light to medium	Often a mix of single and multi-family residential	Exposition, Avalon, Hoover, parts of Adams, Van Ness, Arlington

Figure 1: Study Area Commute Modes
Work Trips

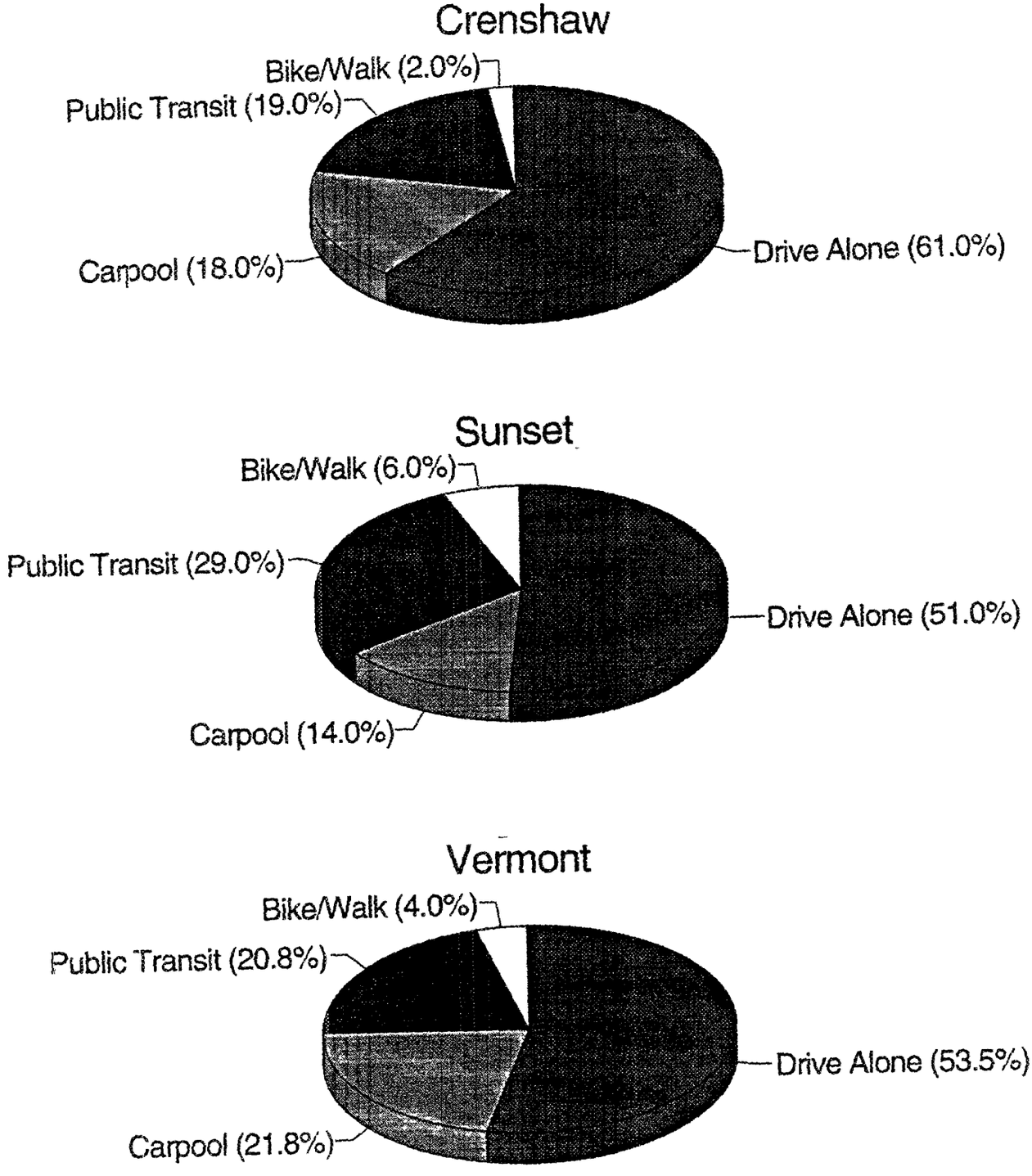
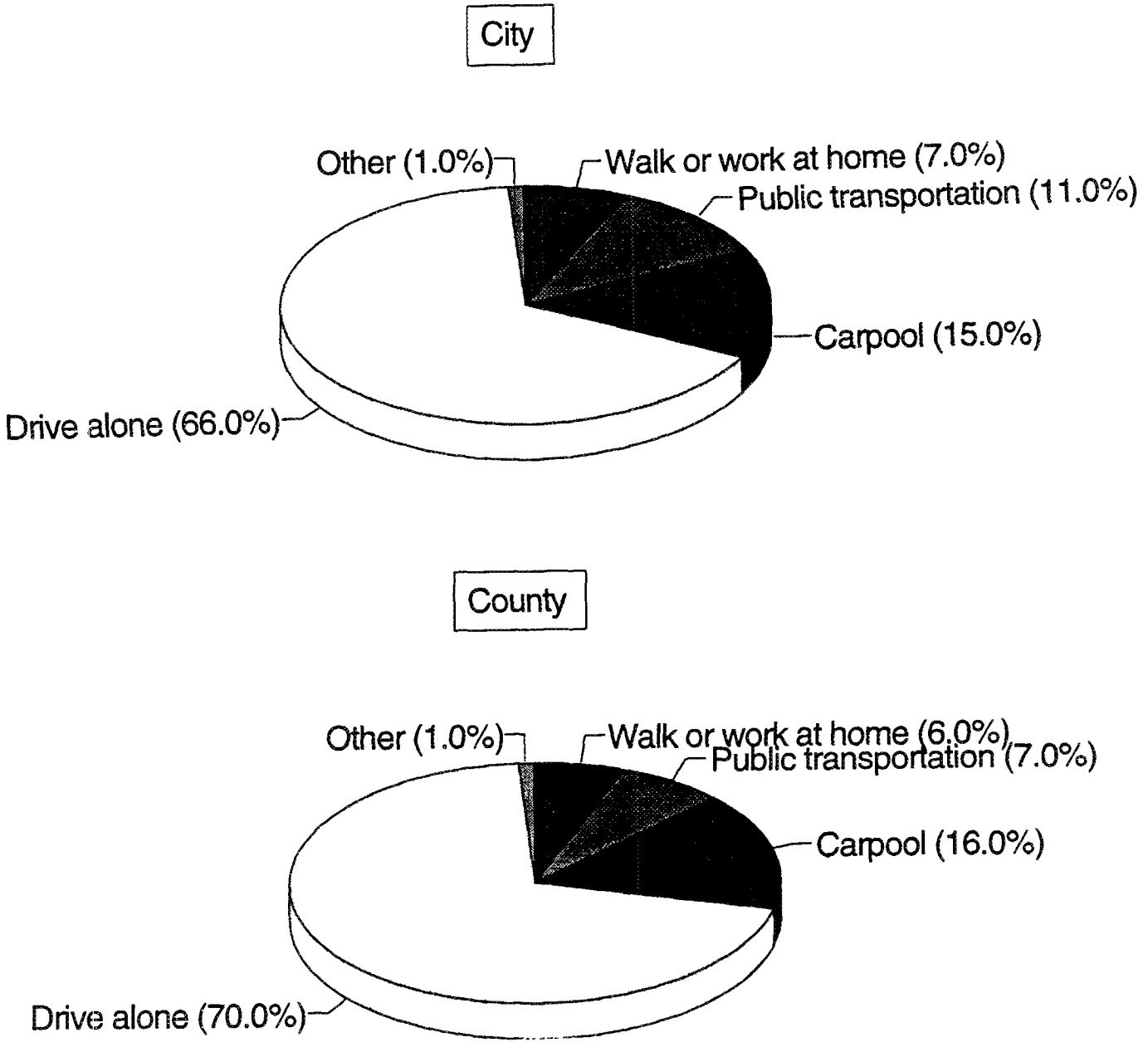


Figure 2: City & County Commute Modes Work Trips



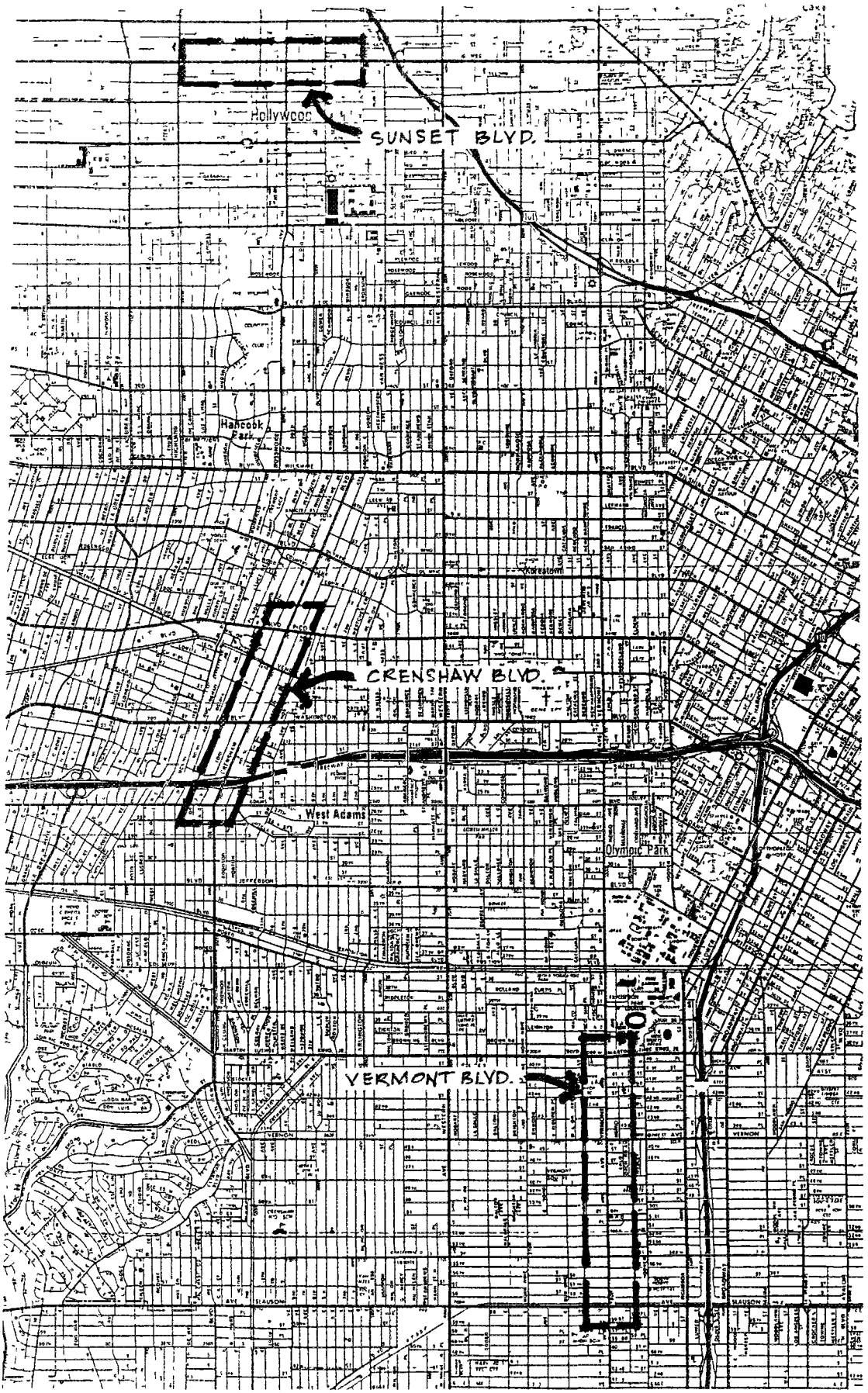


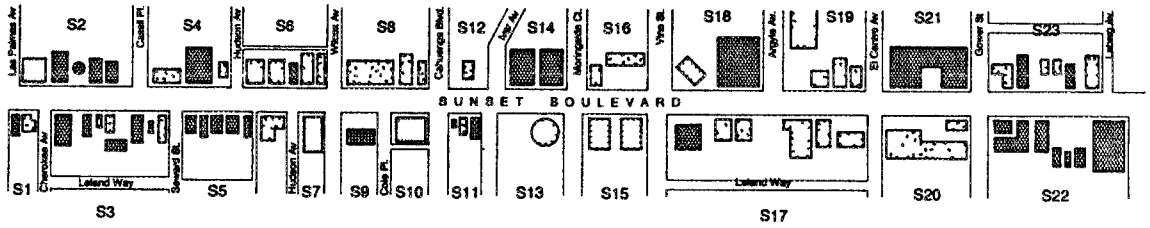
Figure 3 Site Area Map

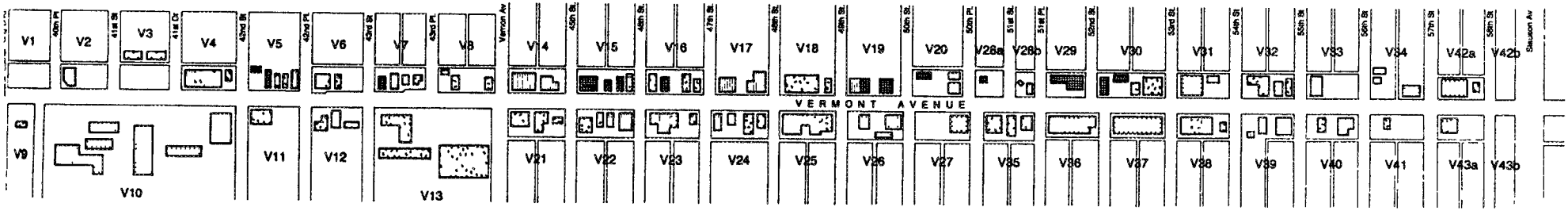
Table 2: Attributes Influencing Pedestrian Use and Transit Friendliness

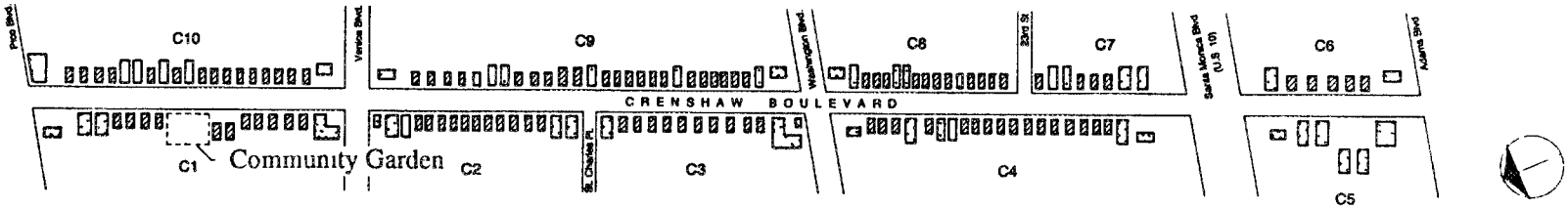
ATTRIBUTES	OBJECTIVES	IMPROVEMENTS
)ensity	• mınımum 8 du/acre • for hıgh capacity transit: 24 du/acre	infill residentıal & mixed use development
,and Uses	• land use mix; intensification of residential uses	mixed use development
	• concentration rather than sprawl of commercial actıvity	activity centers
	• emphasıs on groundfloor uses	pedestrian/transit-oriented businesses
'edestrian/Automobile nteraction	• ıncrease of pedestrıan safety	paınted crossings, raised crosswalks, safe crosses, traffic ıslands, narrow drıveways, lightıng, buffer zones (planter strıps, on street parking)
	• decrease of traffic congestıon and noise	traffic controls, reduction of lanes, lower speed limits
:onfiguration / :ondition of Streetscape	• good aesthetıcs	human scale, street enclosure, texture, color, detail, fine grain of buildings, dıstınctıve architecture, landscapıng, well designed street furniture
	• good maintenance/cleanliness	clean/paint/upkeep street, sidewalk, buildıngs, walls, signs, street furniture
:omfort / :onvenience	• protection from weather	arcades, awnings, overheads, bus shelters
	• sidewalk amenıties	benches, public phones, newsstands, food kiosks, open space
	• unobstructed pedestrıan circulation	wıde sıdewalks, traffic signalızation, elimination of sıdewalk paraphernalıa, handicapped access
	• easy access to servıces and publıc transportatıon	pedestrıan shortcuts, mid-block connections, concentration of servıces/shopping around transıt stops
ecurity	• reduction of street and bus stop crime	lightıng, appropnate building/landscaping configurations

LAND USE

- Office
- Neighborhood Commercial
- Single Family Residential
- Multiple Unit Residential
- Entertainment
- Mixed-Use
- Institutional
- Other
- Auto Oriented
- Vacant







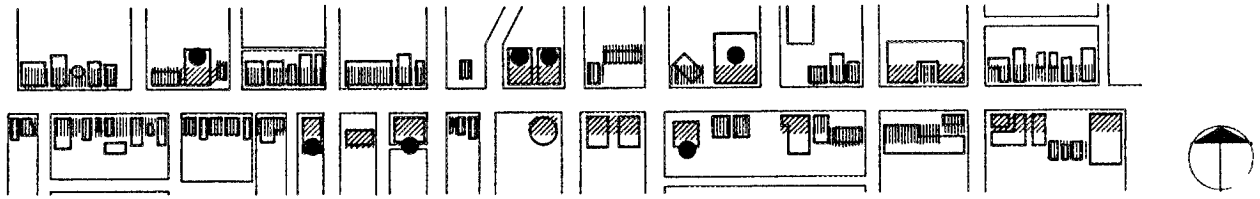
GRAIN

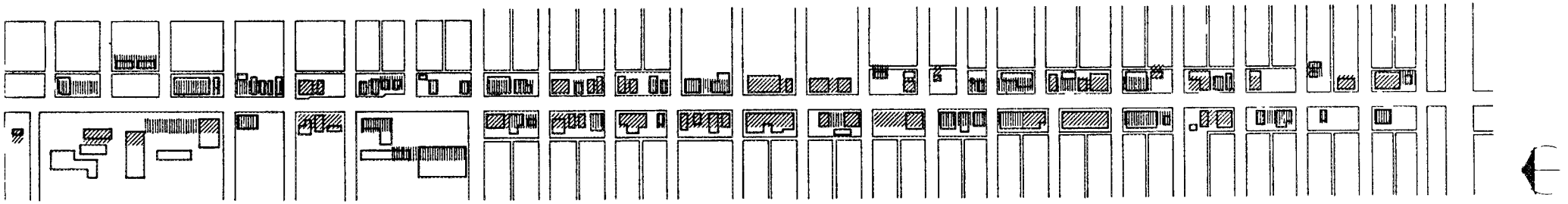
Fine

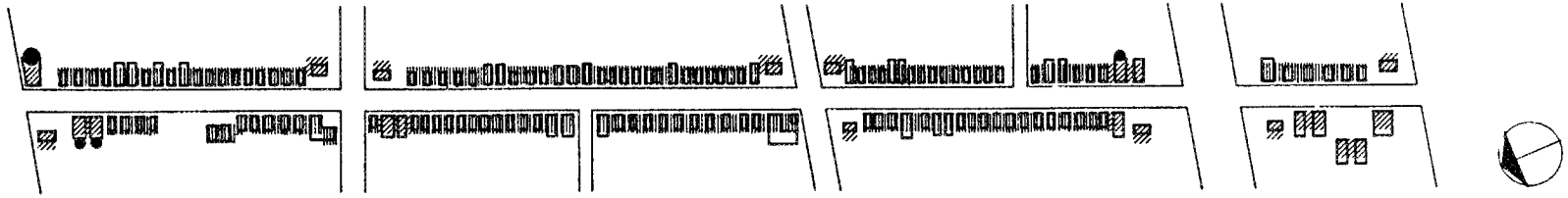
Coarse

Major Scale Inconsistancy

Scale Inconsistancy





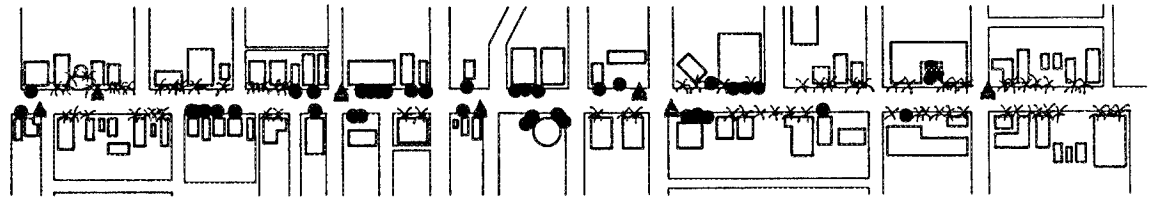


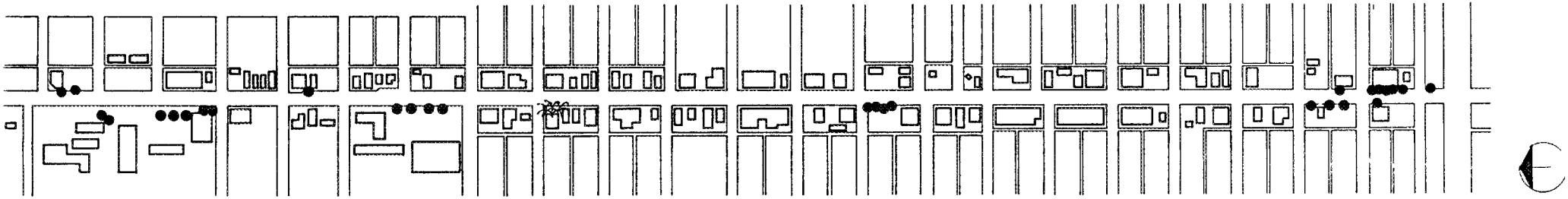
STREET FURNITURE AND LANDSCAPING

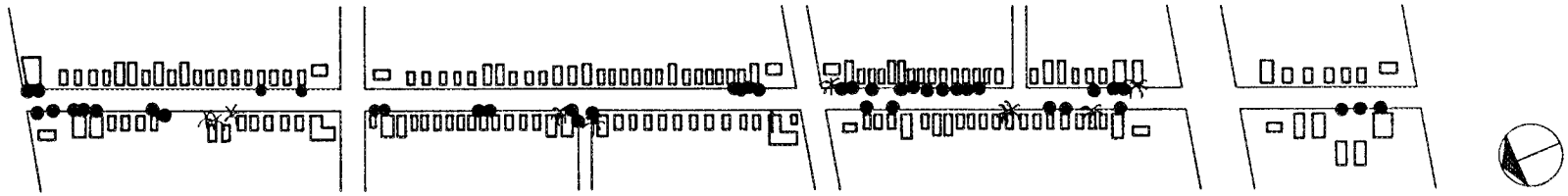
Bus Shelter

Shade tree

Palm tree







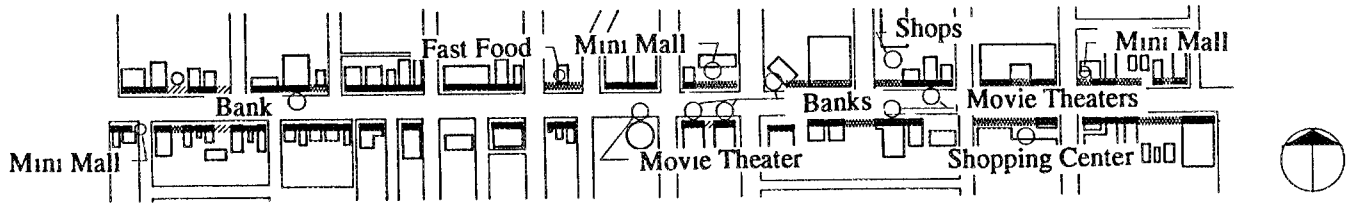
Continuous Setback Frontage

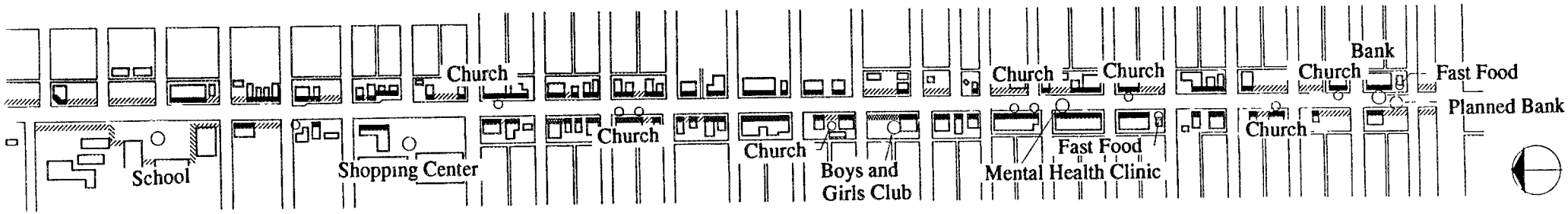
Continuous Street Frontage

Fence

Wall or Wall/Fence

Node





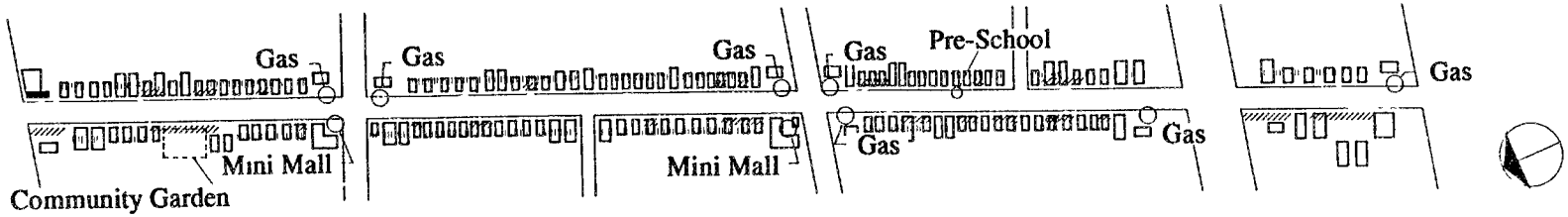


Table 3: Frequency of Corridor Use

Frequency	Crenshaw (%)	Sunset (%)	Vermont (%)
Every day	34 2	41 6	25 6
4-5 days/week	0.0	14 6	15 4
2-3 days/week	26 3	24.4	23.1
1 day/week	18 4	2 4	23.1
<1 day/week	7.9	14.6	10.2
Other	13.2	2.4	2 6

Table 4: Reasons for Corridor Use

Reason	Crenshaw (%)	Sunset (%)	Vermont (%)
Shop/use services	28.8	42.4	38.2
Visit friends	9.1	0 0	3.7
Walk/stroll	7.6	13 6	10.9
Catch bus	9 1	13.6	21.8
Work	24 2	23.6	14 5
Live nearby	16.7	3.4	7.3
Other	4.5	3.4	3.6

Table 5: Modes of Transportation to the Corridor

Mode	Crenshaw	Sunset	Vermont
On foot	12.4	37 9	44 0
Bike	4.2	8.6	2.0
Bus	14 6	8 6	20 0
Car	64.6	43.1	34 0
Other	4.2	1 8	0 0

Table 6: Corridors' Three Biggest Problems

Street	**#1** (% of responses)	**#2** (% of responses)	**#3** (% of responses)
Crenshaw	Crime 38.6	Ugly appearance 24 6	Traffic 21.0
Sunset	Crime 48 6	Ugly appearance 27.1	Traffic 10 0
Vermont	Crime 39.4	Ugly appearance 30 3	Inconvenience 16.7

Figure 8: Respondents Dissatisfied or Very Dissatisfied

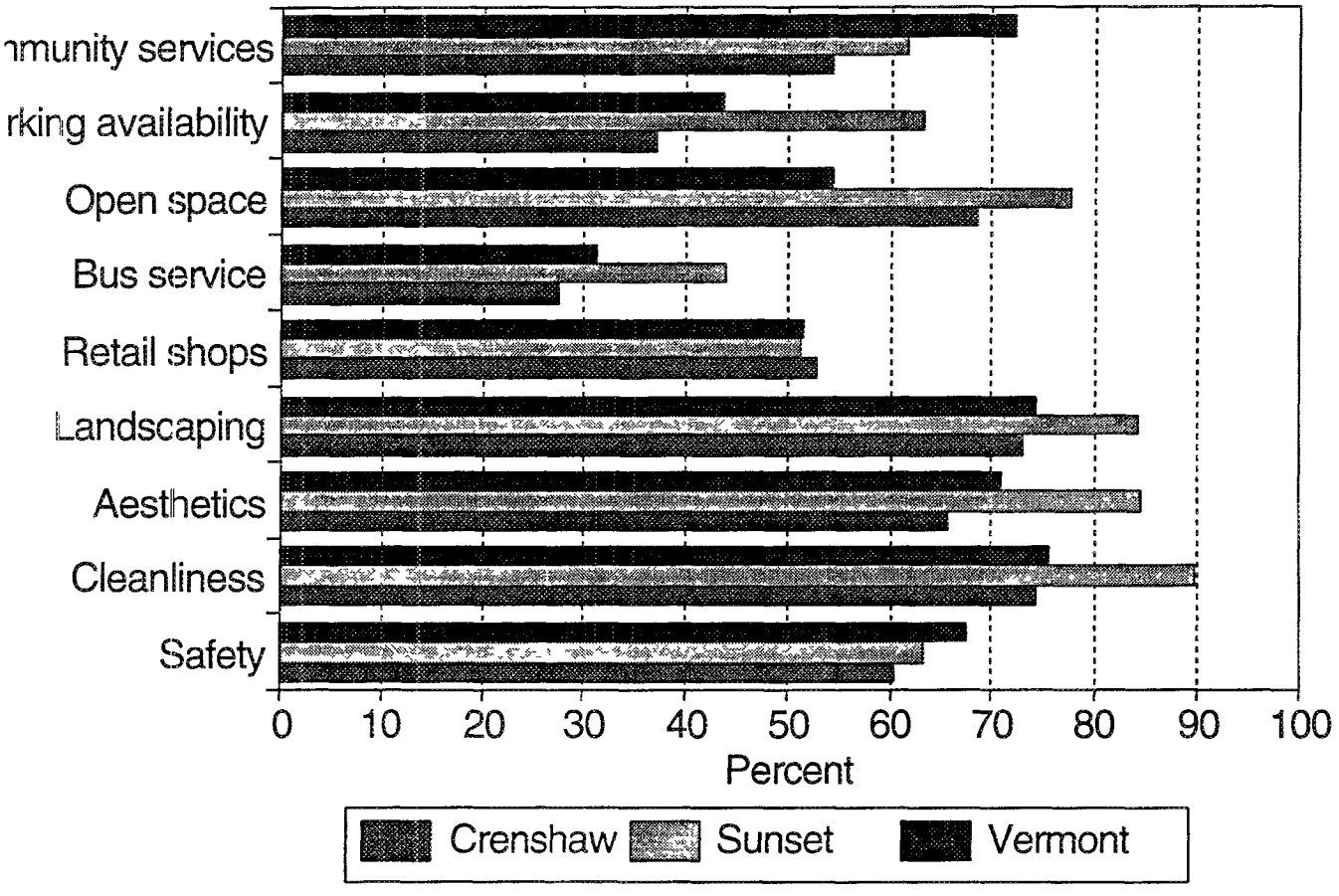


Table 7: Most Desirable Changes to Corridors

Street	#1 (% of responses)	#2 (% of responses)	#3 (% of responses)
Crenshaw	Increased safety 25.9	Better aesthetics 15.5	Cleanliness - 12.0 More or better shops - 12 0
Sunset	Better aesthetics 21 6	Increased safety 17.6	Cleanliness 16 2
Vermont	Increased safety 24.6	More or better shops - 21.6	Cleanliness 15.4

Table 8: Most Desirable Shops and Services for Corridors

Street	#1 % of responses	#2 % of responses	#3 % of responses
Crenshaw	Neighborhood* retail 25 8	Food market 15.2	Restaurant/cafe 13 7
Sunset	Neighborhood retail 32 0	Food market 22.0	Restaurant/cafe 18 0
Vermont	Neighborhood retail 34 8	Food market 12.1	Health clinic 12.1

* Neighborhood retail includes responses such as clothing, book/music/video, shoe, and drug stores, or beauty salons

Figure 9: "Yes" Responses to Corridor Improvements

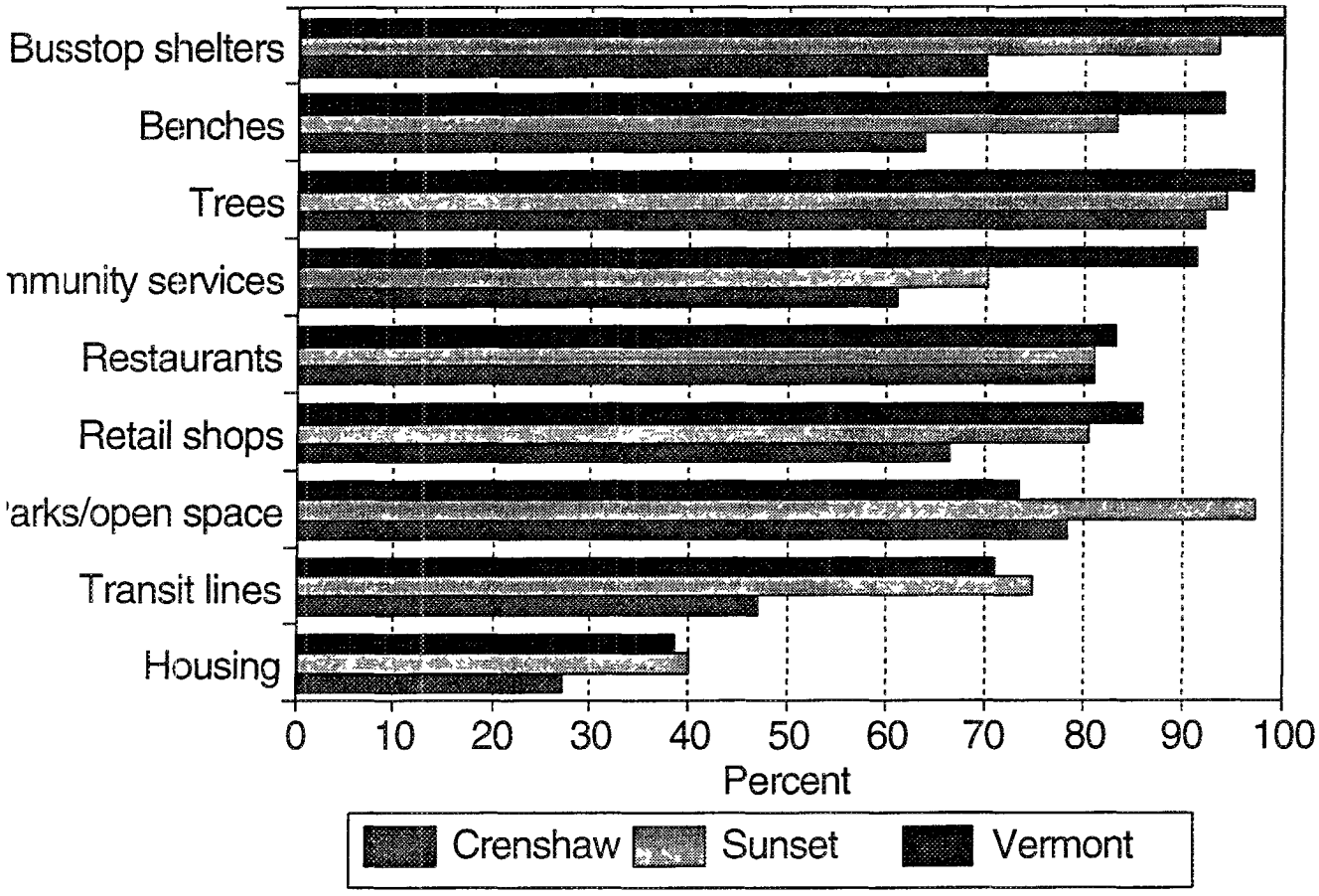


Table 9: Number of Cars per Household

Number of cars	Crenshaw	Sunset	Vermont
None	4.9	10.0	31.7
One	31 7	35.0	31.7
Two	29.3	45.0	26 8
Three	9.7	7 5	4 9
More than three	24.4	2.5	4.9

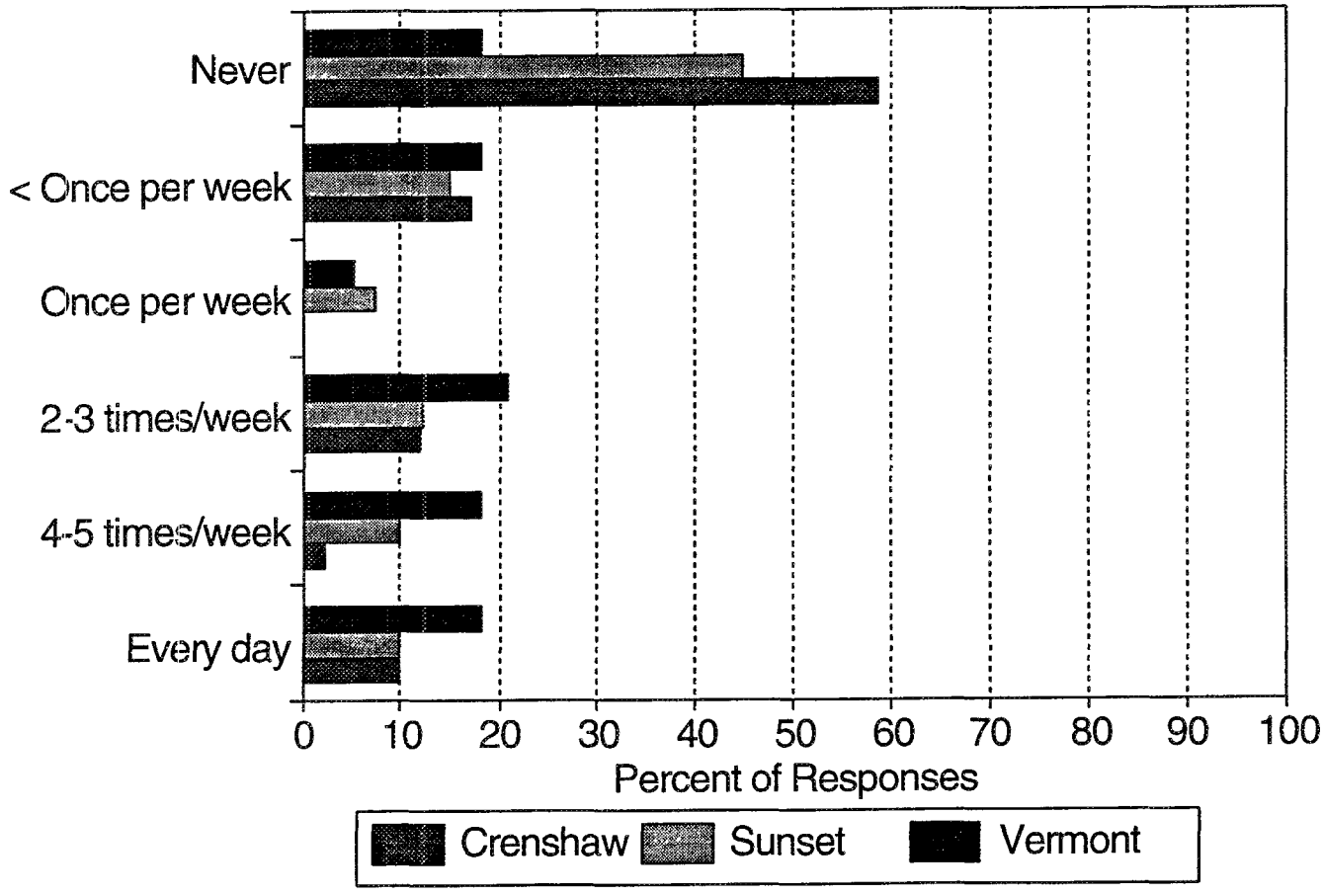
Table 10: Percentage of Respondents Using Public Transit to:

Reason	Crenshaw (% of responses)	Sunset (% of responses)	Vermont (% of responses)
Go to work	18 6	19.5	40.0
Shop	18 6	34.2	57.5
Visit friends	16.3	21.9	32.5

Table 11: Most Frequently Mentioned Factors that Would Increase Respondents' Use of Corridor Buses

Street	#1 % of responses	#2 % of responses	#3 % of responses
Crenshaw	Nothing 27.2	Increased safety 21.2	Frequency/ regularity of bus service 21.2
Sunset	Frequency/ regularity of bus service 23.8	Increased safety 16 7	Cleaner buses 9.5 Cheaper fares 9.5 Nothing 9.5
Vermont	Increased safety 51.9	Nothing 11.1	More convenient routes 7 4

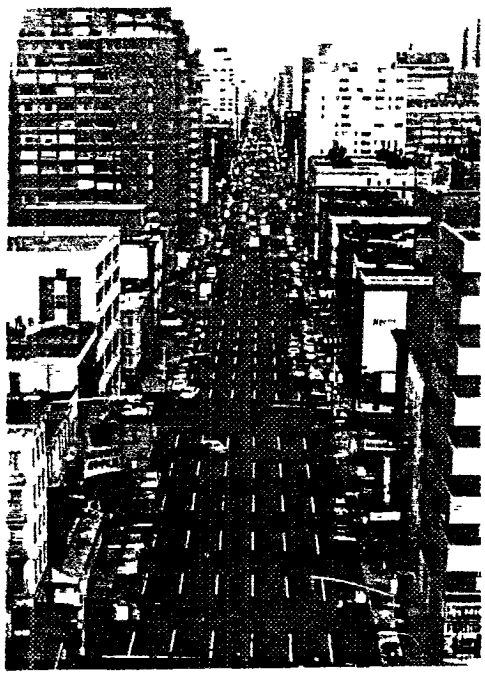
Figure 10: Frequency of Public Transit Use



APPENDICES

Land Use

High density mixed-use corridors consist of office, institutional, or residential above commercial uses. The mix of uses is almost always vertical, minimizing walking distance for residents and workers to various services. Services tend to be a mix of office supporting uses such as restaurants, banks, hotels, and tourist attractions. Where residential is present there also tend to be shops, cafes, bookstores, and entertainment uses.



Transit/Traffic

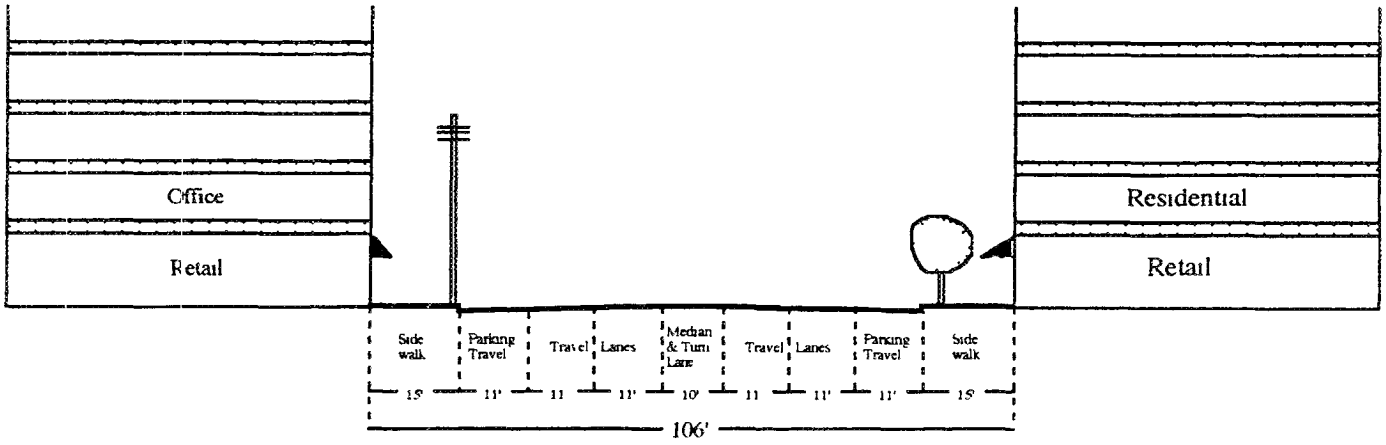
These corridors are almost always major arterials, or "grand boulevards." They tend to be major focal points of the city and region in which they are located. High density mixed-use corridors are well served by transit, having multiple bus lines and often heavy rail. Because traffic volumes are high, air quality and noise impacts are of great concern to residents of these corridors.

Buildings, Parcels, and Blocks

Buildings in these corridors tend to be taller than in other commercial corridors, with minimal setbacks and underground parking. They are of varying age and physical condition. Ground floor uses are often oriented toward the street. Newer office buildings often display plazas that front the corridor. Because of typically heavy pedestrian volumes some pedestrian amenities are usually present. Parcel sizes are usually large to accommodate high intensity uses such as office buildings. Block sizes tend to consistently large and fully built out.

Street Configuration

High density mixed-use corridors are necessarily wide, having up to four lanes in each direction dedicated to automobile travel. Some corridors have wide medians, sidewalks, and other pedestrian amenities. In some cities these corridors become "grand boulevards" and serve as social focal points for the urban residents. In some cases, sidewalks and/or the median are well shaded by street trees and have sufficient space for street furniture and social gatherings. These corridors also tend to be well lit to allow for 24-hour use of the street.



Land Use

Medium density mixed-use corridors can consist of either a vertical or horizontal mix of uses. Horizontal mixed-use corridors typically have retail and commercial buildings intermixed with pockets of multi-family residential development Vertical mixed-use corridors have retail uses on the ground floor with one to three floors of office or residential above. The street has a fine grain distribution of uses, placing a variety of services within walking distance of many residents. Restaurants, pubs, and specialty boutiques are typical first floor uses; with medical offices, professional office space, and residential uses above.

Transit/Traffic

The street is heavily travelled in these corridors by automobile users, transit users, and pedestrians. Traffic volumes can be medium to high due to the activities occurring along the street. It is not uncommon for multiple bus routes to serve the corridor, or for rail to be present either above or below ground.

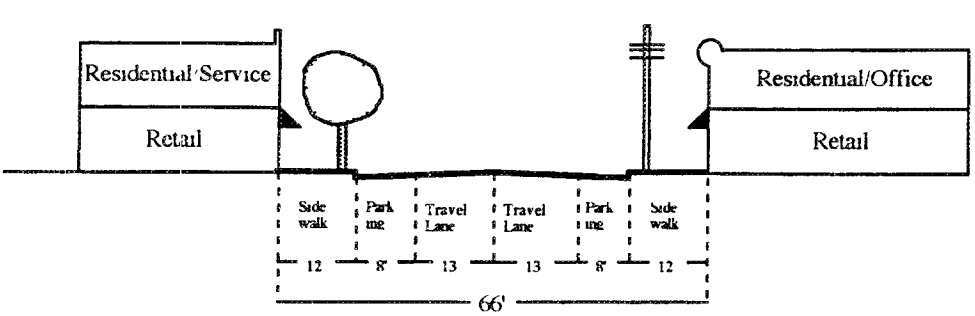
Buildings, Parcels, and Blocks

The above photograph shows a typical mixed-use street in San Francisco. Most buildings have bottom floor retail, with offices and residential above. All buildings have similar size, bulk, and setbacks, creating an unbroken and interesting street facade. Further, buildings are oriented toward the street and have articulated ground floors. These awnings, canopies, and windows create and interesting walking environment. Parking is either located underneath or behind the buildings in order to maintain an unbroken street frontage.

Street Configuration

Medium density mixed-use corridors tend to have narrow streets, wide sidewalks, and a large number of street trees. Often the street is too narrow to allow for a median. However, the wide sidewalks contain enough space for generous planting of street trees. Street furniture is also common in these corridors, as well as awnings and display windows to attract customers. Street lighting tends to be adequate. Signs and billboards are oriented towards pedestrians instead of automobiles, making the street facade aesthetically pleasing. The street edge is often continuous and complex, complementing dynamic pedestrian activity.

In areas that are less developed street facades may be inconsistent, sidewalks may be narrower, and landscaping may be absent. However, commercial and residential developments should still have similar massing and character.



Land Use

Low density mixed-use corridors include both single family residential and retail/service uses along the street. The mix of uses is almost always horizontal, with low density housing located between nodes of retail development. As a result, services tend to be convenient to many residents. The corridor can be either auto oriented or designed with pedestrians in mind. Landscaping tends to be more prevalent than in strictly commercial corridors, due to the presence of single family homes.

Buildings, Parcels, and Blocks

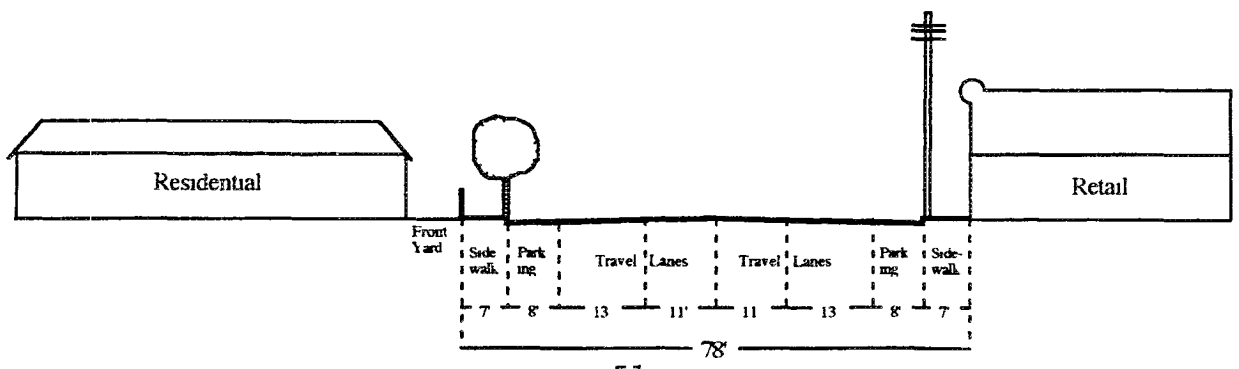
In this photograph a single family home is adjacent to a local market. Note the differences in scale and building type, as well as the unattractive gates over the front of the market. Building setbacks tend to be inconsistent, with commercial buildings fronting the street and residential buildings set back 20 feet or more. Parcel sizes are more uniform than in office/commercial corridors, and blocks tend to be long and narrow.

Transit/Traffic

Corridors of this type tend to have heavy traffic volumes. This is a particular problem because of the presence of single family homes facing the street. Impacts from traffic noise and pollution can degrade the residential environment and cause health and safety problems. Due to the low density nature of the street, there are a limited number of buses running through the corridor.

Street Configuration

A typical low density mixed-use corridor is auto oriented, even though there are single family residences facing the street. Although the street is narrower than in larger commercial corridors, it still tends to be wider than is warranted by traffic volumes alone. Sidewalks are usually narrow, sometimes with a "parkway" consisting of street trees. Planted medians can also be present. The street edge tends to be walled where commercial is present and fenced in residential sections of the corridor. Lane widths, right of way, and typical set backs are shown below:



Land Use

Office commercial corridors consist of medium to high-rise office buildings, usually interspersed with pockets of low rise retail and service. As a result, densities tend to be higher than those found in most other types of corridor. The presence of office uses often encourages services that office workers can use during the work day – banks, restaurants, dry cleaners, drug stores, etc.

Transit/Traffic

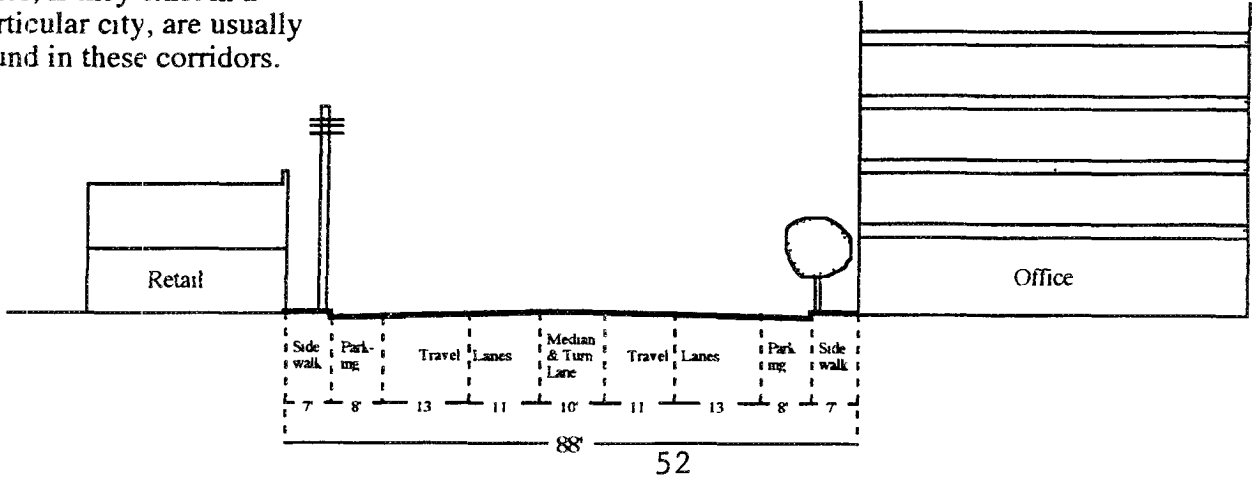
Because a large number of people are working on the corridor, there tends to be good transit and auto access, usually at the expense of pedestrian movement. The street is usually an arterial, with multiple bus lines serving the corridor. The street itself tends to be wide enough to provide capacity for the high traffic volumes seen during commute hours. As a result, street parking is sometimes not permitted during peak travel periods. Also, fume and noise impacts from large traffic volumes discourage pedestrian use of the street. Dedicated bus lanes, if they exist in a particular city, are usually found in these corridors.

Buildings, Parcels, and Blocks

A typical office/commercial corridor has many building types. In the above picture the massing and styles of buildings are incompatible, and create a fragmented appearance to the street. Many of the developments focus inward, ignoring the street. Building facades lack continuity and ground floor articulation. Parking can typically be found behind, to the side, or under buildings. Street trees are planted irregularly, with little thought given to aesthetics, to their ability to provide shade, or to their potential to act as buffers from the street. Parcel sizes vary widely depending on the size of the existing development. Block sizes tend to be large, occasionally bisected by an alley or small street.

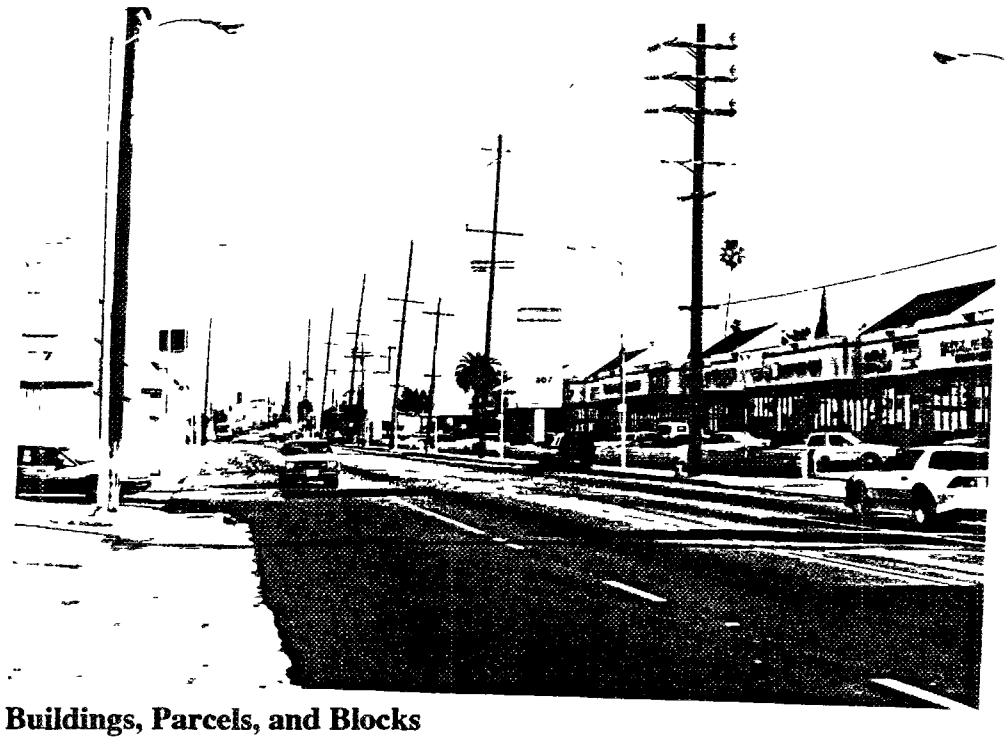
Street Configuration

A typical office commercial corridor has a street width between 80 and 100 feet. In the example below, the street has two travel lanes in each direction, on-street parking, and narrow sidewalks. The street edge is fragmented, alternating between walled and open boundaries. Limited pedestrian amenities are present in these corridors.



Land Use

Corridors of this type do not contain mixed-use and typically consist of one story retail and service uses. The grain tends to be coarse, with long stretches of similar uses. Uses are auto-oriented, placing a premium on convenient access and parking. Mini-malls are frequently found in these corridors. Typical uses found in mini-malls are: restaurants, beauty supply, laundry, and various services.



Transit

It is typical for this type of corridor to have a limited number of bus lines, but no rail or other heavy transit. Land uses and urban design do not support transit, with little space given to pedestrians.

Buildings, Parcels, and Blocks

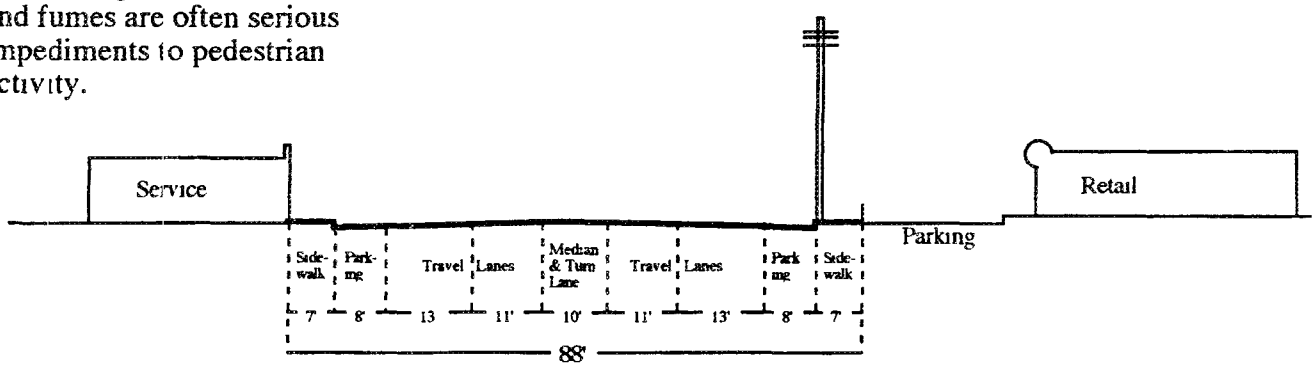
Buildings tend to be one story commercial, with setbacks of sufficient depth to allow parking in front of the stores. Most buildings are designed to attract the auto-travelling consumer and have signage oriented to the street to accomplish this goal. There is no facade continuity between developments, and little articulation other than the signage mentioned above. Parcels tend to be narrow and long in the direction parallel to the street. Blocks are long, some with alleys, few with mid-block connections into the neighborhoods behind. Often, vacant lots accommodate parking.

Traffic

With the exception of rush hours, many low density commercial corridors carry low traffic volumes. The corridor is used primarily by through traffic, with the uses along the street generating little traffic of their own. However, due to poor street design traffic noise and fumes are often serious impediments to pedestrian activity.

Street Configuration

Retail/Service Corridors usually have wide streets and narrow sidewalks. Many corridors of this type have painted medians for turning movements. There are few street trees, if any, and no planted buffer between pedestrians and automobiles. Often there is on-street parking. Street lighting is usually poor, and street furniture is rarely present. The street edge tends to be fragmented, either blank or consisting of monotonous street walls. Pedestrian activity is limited to movements between automobiles and shops. A typical street cross section is shown below:



Land Use

This corridor type consists of small-scale retail and services uses, oriented toward pedestrian users. No mixed-use projects are present, but residential and office uses tend to be nearby. The uses are fine grained, with many different types of buildings and shops located in close proximity to one another. There do not tend to be large, outlet type retail establishments or warehouses "Strolling" Retail/ Service Commercial Corridors typically consist of a wide variety of shops and boutiques. Examples include: restaurants, shops, banks, cafes, bookstores, and specialty retail.

Buildings, Parcels, and Blocks

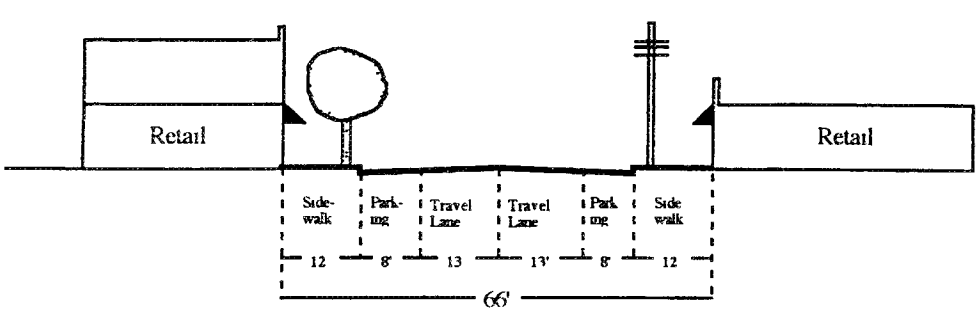
Low rise buildings predominate in these corridors. Because retail uses are targeted to pedestrian shoppers, considerable attention is paid to building facades and aesthetic appearance. Parcel sizes tend to be uniform, creating developments of similar size and bulk. Block sizes are small, allowing for multiple points of entry to the corridor from the surrounding land uses as well as short distances between crosswalks.

Transit/Traffic

Because such corridors are oriented around pedestrian use, urban design schemes have been utilized to minimize the negative impacts of automobile traffic. "Strolling" commercial corridors tend to be small streets, with a maximum of two travel lanes in each direction. Transit access tends to be good to support the walking orientation of the corridor.

Street Configuration

These corridors tend to have well-defined travel zones. Right-of-way is provided for pedestrians, bicycles, and automobiles. Sidewalks are wider than those found in other types of corridors. Pedestrian amenities such as street trees, street furniture, good lighting, and special paving in crosswalks are also provided. The street tends to be narrower than other commercial corridors, with a maximum of two travel lanes in each direction. Parallel or angled on-street parking is usually provided. A typical cross-section of a strolling commercial corridor is presented below:



Land Use

Industrial corridors tend to be devoid of other types of uses. The availability and affordability of services is minimal. Industrially zoned corridors consist of warehouses, manufacturing plants, auto body shops, and other industrial uses. Because industrial uses tend to be incompatible with other uses such as housing and shopping, these corridors are fairly isolated. Other nearby uses are separated from industrial uses by buffer zones consisting of empty lots, light industrial land use, or even walls.

Transit/Traffic

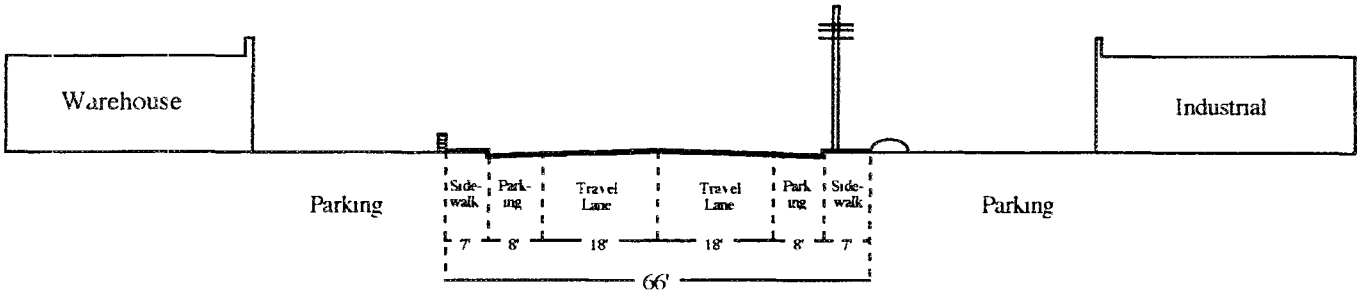
Traffic volumes are light on industrial corridors due to the low densities typically associated with this type of development. The street is frequently used by service/ delivery trucks. As a result of the low density arrangement of the land uses, bus service is limited or non-existent.

Buildings, Parcels, and Blocks

Industrial buildings have large footprints, huge setbacks, and consist of one or two stories. In some recent buildings, great emphasis has been placed on aesthetics in the form of surrounding landscaping. These industrial parks are inwardly oriented, creating the appearance of an island within a sea of parking. Most buildings along an industrial corridor are free standing objects, with no facade continuity or pedestrian amenities. Often sidewalks are not present in these corridors. Parcel and block sizes tend to be very large. Each industrial lot requires a large area for both the building and its associated parking.

Street Configuration

When present, sidewalks tend to be narrow and discontinuous. The industrial street itself tends to be wide, with only one lane of travel in each direction. Wide streets are often necessary to allow for turning movements of the trucks accessing the various industrial uses along the corridor.



Land Use

Residential corridors usually consist of single-family residences. Sometimes these single-family dwelling units are interspersed with apartment buildings or townhouses. Availability and affordability of services varies greatly between corridors. In some suburbs the nearest services are twenty minutes or more by car. Conversely, in some cities services can be found less than one block away. Affordability of services varies as well, with some of the poorest communities having the least affordable services.

Buildings, Parcels, and Blocks

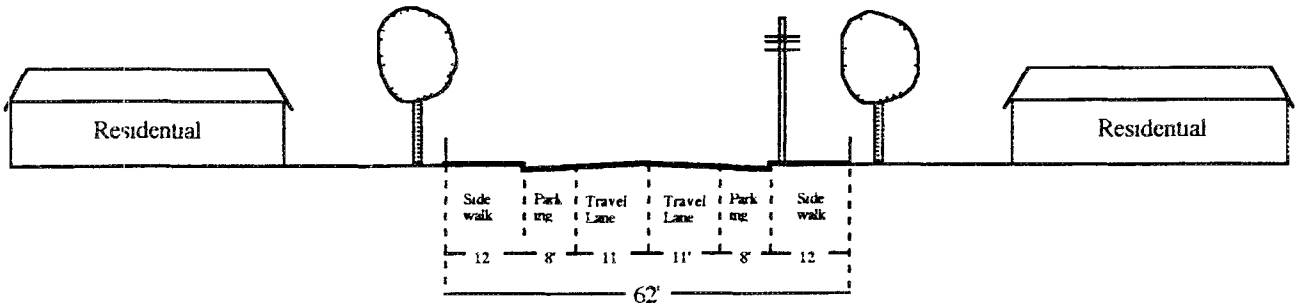
Single-family residences maintain similar size and bulk. Sometimes apartment buildings are integrated into single-family corridors without regard for neighborhood character, the scale of the development, or the prevailing architectural style of the area. Parcel and block sizes in residential corridors tend to be consistently small. Some neighborhoods have alleys and mid-block connections to the street.

Transit/Traffic

There is usually no transit available to low density residential neighborhoods. However, there is limited transit services in some medium density residential corridors. Air and noise impacts from traffic has been minimized in some residential streets by use of cul-de-sacs, narrow streets, and collector systems to keep through traffic off residential streets. These strategies have been applied with less success in larger residential/arterial corridors

Street Configuration

Residential streets tend to be narrower than commercial streets, reflecting the lower traffic volumes that they are expect to carry. Narrow streets can also serve the duel purpose of discouraging high-speed driving and "cut through" traffic. Sidewalks vary in size from non-existent to 10 - 15 feet wide. However, even when sidewalks are narrow, walkers are often buffered from street traffic by on-street parking or greenways. Also, where traffic volumes are low, pedestrian activity is safer and more pleasant.



Appendix

	C	S	V
1 How often do you come to the corridor?			
Every day	34 2	41 5	25 6
4-5 days/week	0 0	14 6	15 4
2-3 days/week	26 3	24 4	23 1
Once a week	18 4	2 4	23 1
< Once a week	7 9	14 6	10 2
Other	13 2	2 4	2 6
2 Why do you usually come to the corridor?			
Use shops/services	27 9	42 4	38 2
Visit friends	8 8	0 0	3 6
Walk/stroll	7 4	13 6	10 9
Catch the bus	8 8	13 6	21 8
Work	23 5	23 6	14 5
Live here	16 2	3 4	7 3
Other	4 4	3 4	3 6
3 How do you usually come to the corridor?			
On foot	12 4	37 9	44 0
Bicycle	4 2	8 6	2 0
Bus	14 6	8 6	20 0
Car	64 6	43 1	34 0
Other	4 2	1 8	0 0

4 Degree of satisfaction with the corridor

	Crenshaw				Sunset				Vermont			
	VS	S	D	VD	VS	S	D	VD	VS	S	D	VD
Safety	7 9	34 3	28 9	28 9	0 0	36 8	39 5	23 7	8 1	24 3	32 4	352
Cleanliness	0 0	28 2	38 5	33 3	00 0	10 3	53 8	35 9	10 8	13 5	35 1	406
Aesthetic appearance	0 0	31 4	28 6	40 0	0 0	15 4	59 0	25 6	9 7	19 3	45 2	258
Landscaping	0 0	30 6	25 0	44 4	0 0	15 8	60 5	23 7	11 4	14 3	42 9	314
Retail shops	5 7	42 9	31 4	20 0	2 7	45 9	35 1	16 2	9 1	39 4	39 4	121
Bus service	17 2	51 7	20 7	10 4	12 5	43 8	21 9	21 9	20 0	48 6	20 0	114
Open space	0 0	34 3	25 7	40 0	2 8	19 4	44 4	33 3	12 1	33 3	39 4	152
Parking availability	14 3	45 7	25 7	14 3	5 3	31 6	36 8	26 3	12 5	43 7	31 3	125
Community services	11 4	31 4	31 4	25 8	0 0	38 2	41 2	20 6	11 1	16 7	47 2	250

	C	S	V
5 What are the biggest problems along the corridor?			
Traffic	21 0	10 0	4 5
Inconvenience (poor transit service, lack of parking or services)	5 3	7 2	16 7
Crime	38 6	48 6	39 4
Appearance (lack of landscaping, ugly aesthetics/buildings, trash)	24 6	27 1	30 3
Other	10 5	4 3	9 1
Don't know	0 0	2 9	0 0

6 What changes would you like to see on the corridor?

	C	S	V
Safer	25 9	17 6	24 6
Better aesthetics	15 5	21 6	13 8
Cleaner	12 0	16 2	15 4
More shops or services	12 0	10 8	21 6
More community feeling	6 9	0 0	0 0
Less traffic	3 4	10 8	1 5
Better transit	3 4	4 1	3 1
More parks	6 9	0 0	0 0
Banning of street vendors	5 2	0 0	1 5
Different mix of land uses	3 4	0 0	0 0
Parks/playgrounds	0 0	2 7	1 5
Street furniture	0 0	2 7	4 6
Other	5 4	10 8	12 4
Don't know	0 0	2 7	0 0

7 What shops and services would you like to see on the corridor?

Neighborhood retail	25 8	32 0	34 8
Food market	15 2	22 0	12 1
Restaurant/cafe	13 7	18 0	10 6
Theaters	1 5	4 0	0 0
Department store	3 0	4 0	3 0
Liquor store	0 0	4 0	0 0
Hardware store	4 5	0 0	4 6
Health clinic	3 0	0 0	12 1
Recreation	6 1	0 0	3 0
Community services	3 0	0 0	4 6
Utility company office (phone, gas co)	0 0	0 0	3 0
Discount store	0 0	0 0	4 6
No more stores/fine as is	10 6	4 0	3 0
Other	13 6	12 0	4 6

8 Would you like to see more of the following on the corridor?

	Crenshaw		Sunset		Vermont	
	Yes	No	Yes	No	Yes	No
Housing	27 3	73 7	40 0	60 0	38 5	61 5
Transit lines	46 9	53 1	75 0	25 0	71 0	29 0
Parks/open space	78 4	21 6	97 3	2 7	73 5	26 5
Retail shops	66 7	43 3	80 5	19 5	86 1	13 9
Restaurants	81 1	18 9	81 1	18 9	83 3	16 7
Community services	61 1	38 9	70 4	29 6	91 4	8 6
Trees	92 1	7 9	94 4	5 6	97 2	2 8
Benches	63 9	36 1	83 3	16 7	94 1	5 9
Busstop shelters	70 1	29 9	93 7	6 3	100 0	0 0

9 Age

	C	S	V
< 18	0 0	0 0	0 0
18-29	15 0	25 6	22 5
30-39	30 0	23 1	20 0
40-49	25 0	23 1	15 0
50-64	22 5	20 5	30 0
65 +	7 5	7 7	12 5

10 Race

White	2 6	8 9	7 5
African American	58 9	0 0	50 0
Hispanic	10 3	15 4	30 0
Asian American	15 4	12 8	5 0
Native American	7 7	2 6	2 5
Other	5 1	10 3	5 0

11 Sex

Female	62 5	43 6	65 8
Male	37 5	56 4	34 2

12 Number of cars in household

None	4 9	10 0	31 7
One	31 7	35 0	31 7
Two	29 3	45 0	26 8
Three	9 7	7 5	4 9
> Three	24 4	2 5	4 9

13a Frequency of public transit use

Every day	9 8	10 0	18 4
4-5 days/week	2 4	10 0	18 4
2-3 days/week	12 2	12 5	21 1
One day/week	0 0	7 5	5 3
< one day/week	17 1	15 0	18 4
Never	58 5	45 0	18 4

13b Do you use public transit to

	Crenshaw		Sunset		Vermont	
	Yes	**No**	**Yes**	**No**	**Yes**	**No**
Go to work	18 6	81 4	19 5	80 5	40 0	60 0
Go shopping	18 6	81 4	34 1	65 9	57 5	42 5
Visit friends	16 3	83 7	9 8	90 2	23 7	76 3

14 What would make you use public transit along the corridor more often?

	C	S	V
More frequent bus service	22 6	23 8	3 8
Safer buses	16 1	11 9	30 9
More stops	0 0	2 4	0 0
Cleaner buses	6 5	9 5	0 0
Less crowded buses	6 5	7 1	0 0
No transients or gangs	3 2	4 8	11 5
Cheaper fares	6 5	9 5	3 8
Cleaner air	0 0	2 4	0 0
Metro rail/subway	3 2	4 8	3 8
Nothing	22 6	9 5	11 6
Other	12 8	9 5	34 6
Don't know	0 0	4 8	0 0