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Pedestrian Areas in Los Angeles:

Influence of design features and market area on pedestrian activity.

A case study of three commercial strips.

A thesis submitted in partial satisfaction

of the requirements for the degree

Master of Arts in Urban Planning

By

Manuel Antonio Soto

2012

ABSTRACT OF THE THESIS

Pedestrian Areas in Los Angeles: influence of design features and market area on pedestrian activity. A case study of three commercial strips.

By

Manuel Antonio Soto

Master of Arts in Urban Planning

University of California, Los Angeles, 2012

Professor Anastasia Loukaitou-Sideris, Chair

Suburbanization and urban sprawl during the last century have privileged the private automobile over public transit and walking, generating automobile-oriented urban spaces that are largely out-of-scale and alienating for pedestrians. Towards the end of the twentieth century and into this one, urban designers and neo-traditional urban form advocates have sought to reverse this trend and re-orient the urban experience around pedestrians.

This thesis examines the spatial, social, and economic aspects of pedestrianism in three active pedestrian areas of Los Angeles to identify the causes of their activity, and to shed light on how these aspects work together to achieve pedestrian vibrancy. Three old commercial strips were selected to reflect a wide range of demographic, socioeconomic, and urban space characteristics; these three cases were analyzed to determine qualitative and quantitative factors that influence pedestrian flow and activity, such as business type and quantity, physical

characteristics of streets, blocks and sidewalks, and demographic and socioeconomic characteristics.

These case studies show that there are factors that have a direct and positive influence on pedestrian traffic and activity along sidewalks (such as the gross leasable area and population density in the neighborhood area), while other factors have a direct and negative influence on pedestrian traffic (for example, wide store fronts, and a high number of convenient shopping and personal and professional services). At the same time, other features considered important to walking in the literature, such as ample parking, greenery, landscaping, and street furniture were found to have an indirect or ambiguous influence on pedestrian traffic. Perhaps more importantly, I found through observations across the study cases, that variables interact in different ways to produce at least three design outcomes that attract pedestrians: (1) a business mix that respond to people's tastes and preference in the neighborhood trade area, (2) slower vehicle traffic speeds and frequent opportunities for crossing the street, and (3) physical and psychological comfort conditions along sidewalks that mostly result from providing adequate space for walking, buffering from traffic, and consistency and continuity along shopping strips.

The thesis of Manuel Antonio Soto is approved.

Randall Crane

Brian D. Taylor

Anastasia Loukaitou-Sideris, Committee Chair

University of California, Los Angeles

2012

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CHAPTER 1: Introduction

Pedestrians were a dominant force in traditional urban areas at the beginning of the last century. Cities were designed with the pedestrian in mind as walking was the main means of transportation for most trips in the city. Cities were dense, packing as many people and activities per block as possible; development was compact with mixed uses within the same block or building. In this environment, trip origins and destinations were closer together, which allowed access to most destinations on foot. A structure of well-defined neighborhoods, protected public spaces, and commercial centers provided the necessary pedestrian scale and diversity to make streets attractive to walk and the centers of social interaction (Calthorpe, in Katz 1994).

Neo-traditional urban form advocates, and the New Urbanism in particular, sustain that the entire city should be designed according to similar urban principles, and an increasing body of research has concluded that factors such as land use and physical design features of streets and sidewalks have a direct relationship with pedestrian activity and street vibrancy (Ballou 1978, Engwicht 1999), although the literature has been light on examining key design factors that determine walkable neighborhoods. In light of this gap in the research, this thesis proposes to look at a number of busy pedestrian areas and identify in more specific terms, through empirical research, which design and urban form variables relate to observable levels of pedestrian activity, and how they influence pedestrian activity.

The overall goal of the investigation is to understand the dynamics of pedestrian activity in today's urban environment, integrating neo-traditional urban design theory with analysis of the demographic and socioeconomic context, and perspectives on the retail world to lay the ground for further understanding of *street livability and vibrancy*, which are the main outcomes

sought out by current urban design movements such as the New Urbanism¹ and the Smart Growth.²

Los Angeles is often regarded as a city with poor walking conditions, however there are many areas in the city that do attract pedestrian activity and present the type of urban design conditions that are sought out by the New Urbanism. I want through my thesis to begin looking at active pedestrian areas in Los Angeles and start constructing an empirical understanding of factors that encourage pedestrian activity in post-suburban³ Los Angeles. I have selected three different walkable areas of the city representing a variety of urban design, development density and socioeconomic conditions to start testing urban design features and other factors that are assumed to influence pedestrian activity. In that regard most of the observations, analysis and findings of this thesis relate to urban design and retail conditions in Los Angeles that may not be easily transferred to other metropolitan areas.

1.1 Statement of the Problem

Up to the middle of the 20th century most pedestrian activity in US cities was taking place in downtown. From the 1950s onward, however, increasing suburbanization, urban sprawl, and

¹ New Urbanism promotes the creation and restoration of diverse, walkable, compact, vibrant, mixed-use communities composed of the same components as conventional development, but assembled in a more integrated fashion, in the form of complete communities. These contain housing, work places, shops, entertainment, schools, parks, and civic facilities essential to the daily lives of the residents, all within easy walking distance of each other (www.newurbanism.org).

² Smart growth is an urban planning and transportation theory that concentrates growth in compact walkable urban centers to avoid sprawl. It also advocates compact, transit-oriented, walkable, bicycle-friendly land use, including neighborhood schools, complete streets, and mixed-use development with a range of housing choices.

³ The term post-suburban Los Angeles is often used in scholarly research (especially Edward Soja and Dana Cuff at UCLA) to describe the shift in urban development, from expansion and sprawl to implosion and densification, that has been occurring in the city in the last two decades of the twentieth century and beginning of the twenty-first century. Through this process Los Angeles has been slowly reinventing itself, reclaiming and transforming its traditional neighborhoods and commercial centers.

the interstate highway system made old commercial strips and downtowns lose much of their importance as centers. Starting in the 1950s, wealthier middle-class populations left the inner cities and went to the suburbs. Retail and businesses followed suit and old commercial corridors decayed and were abandoned (Loukaitou-Sideris 1997). But since the 1980s, new masses of immigration from Asia and Latin America have populated many US inner cities and started an urban-space recycling process that has re-exploited the retail opportunities along major urban corridors and old commercial strips. As a result, some old commercial strips have been regenerated this time wearing an ethnic costume (Loukaitou-Sideris 2002).

Old commercial strips are recognizable pedestrian areas due to the pedestrian activity that is found around retail (Uhlig, 1979). They were originally developed around transportation corridors linking downtowns with the first suburban developments. As corridors and thoroughfares, they expanded the commercial space traditionally bounded to downtowns, adopting urban design features similar to downtowns such as continuous façades, street level retail and residential or office space upstairs. The corridors' façades and sidewalks were developed at a pedestrian scale (Loukaitou-Sideris, 1997).

Retail market categorizes centers according to their size and tenant mix as being of neighborhood, community, or regional scale (ULI, 1999). In Los Angeles, the combination of many diverse neighborhoods served by retail centers of different scale creates a complex web of shopping centers with overlapping consumer-catchment areas or *trade areas*. The competition among shopping centers for trade areas creates an innovation incentive to provide the best fit with consumers' life-styles and cultural backgrounds. The process of meeting consumer demands and needs allows for the specialization of retail centers and the rise of unique shopping areas.

In this manner, some old commercial strips and districts seeking to attract customers have exploited a particular identity or theme, and re-shaped their retail district in the Old Town Main Street style; in metropolitan Los Angeles, examples include downtown Monrovia and, in the case of immigrant areas (as ethnoscares), Pacific Boulevard in Huntington Park. The goal, in both of these cases, has been to create a destination (Crawford, in Sorkin 1992).

It is implicit in the retail and shopping mall literature that pedestrians and retail look for each other; retail businesses need high levels of pedestrian traffic, and pedestrians look for retail to satisfy their consumer needs (for example: Lagerfeld, 1995; Robertson, 1990; ULI, 1999; Ostertag, 1982; Ballou, 1978; Rubenstein, 1978; Institute of Transportation Engineers, 1966). Therefore, to understand how and why pedestrian vibrant areas work, it seems necessary to understand their retail composition and characteristics.

Market analysis guidelines, suggested by the Urban Land Institute (ULI, 1999 for the development of successful shopping centers, encourage the definition of trade-areas⁴ based on: population and accessibility, assessment of household purchasing power, and assessment of competition from surrounding shopping centers. Shopping centers survey shopping habits and expenditures of consumers in their trade areas. Store variety, diversity, and uniqueness (the value added through one-of-a-kind stores) are a function of the particular shopping habits and needs of surrounding residents. Market analyses then get translated in a *cultural fit* between shopping centers and their surrounding neighborhoods. In the same fashion, the inner-city neighborhoods of Los Angeles, increasingly characterized by high degrees of cultural and

⁴ Neighborhood shopping centers have their trade area within a radius of 1.5 miles only, or a 5 to 10-minute drive (ULI, 1985, see Table 22). Community centers have their trade area within a radius of 3 to 5 miles, or a 10 to 20-minute drive, while regional centers have their trade area within a radius of 8 miles, or more than a 20-minute drive.

ethnic diversity, are shaping the composition of their retail centers, which in turn, and in order to match their consumers' specific demands, are creating unique shopping environments.

If vibrant pedestrian areas can be explained in terms of retail (land use) and trade area (social) characteristics, what, then, is the role of urban design and form in shaping a bustling commercial strip? Some authors (Lagerfeld, 1995; Ballou, 1978; Bell 1975) argue that there is a direct relationship between *good atmosphere* and pedestrian activity. In their words, good atmosphere would be achieved by careful attention to environmental and aesthetic values such as well designed store fronts, controlled signage, landscaped places, appropriate street furniture, lighting, safety, and clean sidewalks. To achieve good atmosphere, we can infer that a delicate balance between retail and spatial characteristics would be required, and that several factors may influence walking within pedestrian intensive areas, for instance: the number of amenities accessible within walking range (retail and land use mix), the environmental and aesthetic qualities of each place (urban design features), and social variables such as the area median income, population density, or the residents' cultural background (including class and ethnicity).

In general, the literature has produced a number of "best practices" documents summarizing the urban design features and environmental conditions that are necessary to produce vibrant pedestrian areas (Ballou 1978, Bambrilla and Longo 1977, Brenes-Mata 1995, and Engwicht 1999), however no research work to date has attempted to actually measure the effects of urban design features on pedestrian activity, and identify which features are more important to generate desired levels of pedestrian activity.

The scope of this thesis then is to test the assumptions in the literature through direct field observation, measurement and documentation of retail, urban design, and demographic characteristics, with the goal of identifying more clearly the variables that affect pedestrian

activity, developing an understanding of how they influence pedestrian activity, and how these variables are working together for the production of a vibrant pedestrian environment and a good pedestrian atmosphere.

1.2 Importance of Research

At least four research fields will benefit from deeper knowledge about pedestrians and their relationship with shopping and urban space in old commercial streets: retail studies, travel behavior analysis, urban design, and social use of public space.

Retail studies are generally developed in the private sector through market research and consumer habits surveys, focusing on measuring consumer purchasing power, tastes, and unsatisfied demands within trade areas (ULI 1995, Lion 1976). These factors help configure the type of retail and variety of businesses within shopping centers.

Travel behavior analysis focuses on understanding travel: how trips are made, when they are made, and how often they occur. With regards to retail, travel behavior analysis considers personal choices and decisions with respect to shopping trips. This type of analysis explores whether shopping trips are chained-trips or multi-purpose trips (trips combined with other trips such as shopping for groceries on the commute home from work), or just single-purpose trips. Also important to travel behavior analysis are studies of ridesharing patterns—whether people travel to shopping centers alone or in-groups; travel mode studies—whether people travel by automobile, bus, bicycle or foot; and trip generation studies—whether the number of trips is influenced by factors such as development density, population density, median income, or even parking availability at the shopping center (Mutizwa-Mangiza 1991, Ornstien 1976).

Urban design scholarship will also benefit from an empirical understanding of spatial

factors affecting pedestrian activity in retail areas. What should be the right balance between roadway space for vehicles and sidewalk space for pedestrians? Are there significant variations in street width and traffic flow/design among vibrant pedestrian areas? What is the relative importance of factors like store frontage, height, and layout, and other spatial factors such as, block length, buffer zones, walkway capacity, and street furniture? What is the role of parking, how much parking is needed, how does its location affect area retail performance, and how much can we control it (reduce it or price it) without affecting the area's retail attraction (San Diego Metropolitan Transit Development Board 1978, Lagerfeld 1995)?

Relevant as well is the observation of social behaviors in shopping areas because they give clues about the social use of public spaces. How well is design responding to social needs in these areas? Does the cultural background of consumers influence the retail type, spatial characteristics and sidewalk activities that take place in an area? How relevant are shoppers' cultural backgrounds in explaining levels of pedestrian activity in the area?

1.3 Scope of the Investigation

This thesis focuses primarily on pedestrians, on their use of public space, and retail and urban design features in old commercial strips of Los Angeles. The main goal is to understand how urban form, land use, urban design, and demographic characteristics combine to create vibrant pedestrian environments in post-suburban Los Angeles. An important part of the analysis is geared towards identifying variables that play a role in creating such environments along commercial strips.

A case study approach appeared as the best way to start understanding and categorizing the problem into several factors and different variables. For that reason I chose a comparative

analysis of three case studies, because that would allow for a more detailed study of how design features influence pedestrian activity, and also identify which variables are more important to explain observable levels of pedestrian activity, on a case-by-case basis. The alternative was to conduct a bigger study including many different areas in Los Angeles that would have required an extensive data collection effort and relative generalization of variables, which in my view would have precluded understanding of local nuances, and how variables work together to produce vibrant pedestrian environments of different size and quality.

As mentioned, the focus of this thesis is old commercial strips. It does not compare these strips with other—bigger and more complex—contemporary shopping centers, such as downtown pedestrian malls in Los Angeles like Santa Monica Third Street Promenade, regional shopping malls, or regional entertainment centers like Universal City Walk. Comparative analyses of a reduced number of study cases may limit the ability to generalize findings. But to compensate for such limitations, the selection of cases has sought to represent a wide variety of cultural backgrounds and life styles to allow for a larger understanding of design variables in their relationship with pedestrian needs.

The study findings are based on weekend observations, on sunny days and during the early afternoon period (typically the busiest time of day). Certain variables such as, shop turnover rates, history of the area, retail performance, and nature of development (spontaneous versus planned) have not been considered in this study, because they are not identified in the literature as factors having an influence in the creation of walkable urban environments; though it is possible that they influence pedestrian activity in the long-term. Similarly, I have not considered seasonal variations in weather that may also affect pedestrian turnouts in each case of study.

1.4 Organization of the Report

This chapter presents and describes the objectives of the investigation, focuses on how the study fits in the current literature, and defines the scope of the investigation.

Chapter 2 delineates the theoretical framework driving this study, looking particularly at the literature on, street space and its public use, qualitative and quantitative studies on pedestrians, pedestrian malls and shopping centers, retail theory, urban design, shop design, and consumer behavior.

Chapter 3 discusses the methodological approach, presents the cases of study, explains how the cases were selected, which variables of analysis were selected, and documents data collection processes.

Chapter 4 presents a description and preliminary analysis of each case study with respect to retail, urban design, and urban form characteristics, as well as pedestrian counts data.

Chapter 5 develops findings through a comparative analysis of variables among cases.

Lastly, Chapter 6 elaborates on conclusions responding to the initial research questions, identifying possibilities for further research.

CHAPTER 2: Theoretical Framework

2.1 Streets as Public Space

Part of the literature concerning pedestrian life focuses on regaining control over the street and its public space for public use and community building (Jacobs, 1993; Vernez-Moudon, 1987; Appleyard, 1981; Breines and Dean, 1974). Cities today, according to Engwicht (1999), provide no sense of place. The separation of land uses and automobile oriented developments such as shopping malls, mega stores, and, campus-like, industrial and office parks, have created sterile urban environments with neighborhoods lacking a sense of communal life.

Donald Appleyard argued in 1980 that the automobile had created an insatiable demand for access and travel, fueling a demand for parking at every destination. Thus, the fabric of cities is blown apart to make space for parking. The resulting physical space, ordinary and of diminished aesthetic quality, reduces the number of people on the street by eliminating the environmental complexity that makes walking attractive (Vernez-Moudon, 1987). The automobile and its street network introduce freedom, mobility, and the power to choose where to live, work, and shop. As a consequence, relationships between travel origins and destinations today depend less on their proximity and more on the choices people have made on where to live and work (Appleyard, 1980).

In response to these trends, Engwicht's (1999) manifesto reclaims the streets for public life and the creation of livable communities. Streets embody movement, access, and public life; livable streets enhance the quality of life and have substantial sociological benefits. Aiming at forming community, strengthening neighborhoods, and boosting street life, Vernez-Moudon (1987) called for drastic reductions in vehicular traffic and travel distances. She and others

sustained that managing traffic, protecting neighborhood landmarks, fomenting a diverse street ecology, congregating and protecting different income groups would create a new set of values and images for communal life and the use of public space (Bosselman et. al., 1999; Engwicht, 1999; Ben-Joseph, 1995; Vernez-Moudon, 1987; Appleyard, 1981; Breines and Dean, 1974). But for this to happen, the scholars argue that we need to rethink the design of streets and the use of public space, taking into account many characteristics of our society and re-examining our priorities.

2.2 Pedestrians

The research on streets as public space portrays the pedestrian as the ultimate consumer of public space (Ballou, 1978). The pedestrian, however, has often been neglected in the planning process. There is a lack of priority with regards to pedestrian issues in transportation planning (Brenes-Matta, 1995). Brenes-Matta asserts that pedestrians should be part of an integral approach when planning urban spaces that is more human, and sociological. As such, spatial analysis should incorporate the human scale in the design of pedestrian spaces and the promotion of pedestrian schemes and traffic controls to create truly urban spaces for the pedestrian (Brenes-Matta, 1995).

Brambilla and Longo's landmark study, *For Pedestrians Only* (1977), surveyed the planning, design, and management, of vehicle traffic-free zones through case studies in Europe and North America. The study's main conclusions were that traffic management for pedestrians brought economic revitalization, environmental improvements, and social benefits to businesses and pedestrians alike within auto-free zones. Similar conclusions were arrived at by Ballou (1978) in *The Uptown Pedestrian*.

The careful attention to the needs of pedestrians, as consumers, is what makes the regional shopping mall a successful model. The more comfortable pedestrians are the longer they will stay; the longer they stay the better chance they will buy. Central areas and shopping strips are not malls, however, and they must support a multiplicity of uses, all sharing a limited space. Making the pedestrian comfortable in the street is a critical factor in the process of creating a vibrant urban environment (Robertson, 1990; Ostertag, 1982; Ballou, 1978; Rubenstein, 1978).

Ballou (1978) argued that physical elements affect how the pedestrian interacts with the urban environment and that there is a need for building a relationship between the pedestrian and the physical environment. He identified the following factors, which are closely focused on the quality of the sidewalk space that is provided to perform pedestrian activities:

- *Spatial Relationships*: scale (the relationship between façade length, height and sidewalk width), penetrability (the rhythm of façade openings at ground floor are thought to introduce diversity and variety to the pedestrian experience), and climate (shade from trees or canopies usually make sidewalks more pleasant).
- *Safety Needs*: control of pedestrian and vehicular conflicts (usually at intersections and pedestrian crossing points), buffer zones between roadway and sidewalk space

(usually in the form of greenery or parking), lighting, and walkway space (the walking space that is free of impedances such as newspaper racks, trash bins, pay phone booths, kiosks, parking meters, light-posts, etc.).

- *Physical Comfort*: adequate allocation of space for walking, waiting, browsing, and observing (which are deemed as the main pedestrian functions in public spaces), space for standing or sitting at predictable congestion points (such as display windows or other commercial attractions, bus stops, and/or intersections), and pathways dimensioned in relation to the amount of pedestrian flow generated.
- *Psychological Comfort*: personal buffer zones (personal space requirements to avoid contact with others and feel comfortable), trees and planting (or other elements that give visual comfort), and provision of visual clues that give information, direction and assurance to the pedestrian (such as appropriate signage or coherence in the design of façades and street elements).

Ballou (1978) concluded that in summary the pedestrian experience should be a comfortable one, in terms of the walking duration or the number of amenities accessible, but also visually attractive and rewarding. The factors included in the list above were the primary set of variables that I utilized to analyze the three study cases presented in this thesis.

2.3 Shopping Centers and Pedestrian Malls

During the 1960s and 1970s, suburban shopping centers were the enemy of downtown commercial areas, offering ample free parking, wide selection of goods and services, pleasant and safe shopping environments, and convenient locations (San Diego Metropolitan Transit Development Board, 1978; Institute of Transportation Engineers – ITE, 1966). As a

consequence, pedestrian malls in American downtowns began changing their priorities in terms of design and economic activities. They sought to enhance the competitive position of central areas to outlying ones by incorporating the elements that attracted shoppers such as parking space availability, separation of pedestrians from vehicle traffic, and careful attention to environmental and aesthetic values. In summary, they started taking care of the shopping atmosphere (Rubenstein, 1978; Lion, 1976; Bell, 1975).

Well designed store fronts, controlled signage, landscaped areas, appropriate street furniture, and lighting are the elements that make up what shoppers call “good atmosphere,” and the urban designer, an “aesthetically pleasing environment” (Bell, 1975). Also, producing a pleasant shopping environment brought control enforcements over the use of public space by homeless, public inebriates, punks-rockers, and/or drug users, who were thought to inhibit shoppers from using outdoor commercial strips. Public safety and the values of suburban middle-class shoppers were the key factors underscoring this concern (Robertson, 1990).

Vibrant pedestrian spaces require an uninterrupted sequence of activity in order to sustain a vital urban district. There is a temporal dimension to this such as having evening activity from restaurants, bars, clubs or theatres. There is a physical dimension, as well, such as avoiding blank uninteresting walls fronting the street. And there is an environmental dimension, such as reducing noise and pollution of diesel buses or other heavy duty vehicles, while at the same time accommodating the needs of the motorized public that flocks into these areas (Robertson, 1990).

Vibrant pedestrian spaces require pedestrian oriented improvements which range from the modified street (that accommodates both motorized vehicles and pedestrians) to the multi-level mall (that separates vertically vehicular and pedestrian traffic). In the modified street, design treatments usually in the form of widened sidewalks and the provision of landscaping and

other amenities facilitate pedestrian movement. Such a street could also have bus bays strategically located to allow safe and convenient bus loading (San Diego Metropolitan Transit Development Board, 1978; ITE, 1966).

Downtown pedestrian malls offer retail goods, business services, personal services, food and drink places, and other uses (including theaters, hotels, churches, governmental offices, or private clubs). The more unusual uses are frequently the greatest asset and the most difficult to get such as, a hobby shop, pet shop, shoe repair, or jewelry store (Bell 1975, Chavez 2001). On the other hand, a neighborhood center is just a group of stores built to fit together and serve the nearby community. It should have a supermarket, drugstore, restaurant, beauty shop, dry cleaner, card and gift shop, liquor store, hardware store, doctor and/or dentist offices, and a bank (ULI, 1985; Bell, 1975).

Changes in retailing, during the last decades, have gradually replaced the independent locally owned enterprises with national chain stores and restaurants, and big box discounters. The influx of chains has led to increased rents, and forced owners of smaller, independent establishments to close or relocate their stores. In response, efforts oriented towards the promotion, maintenance, and programming of pedestrian malls have included: the integration of pedestrian and vehicular needs, the integration of indoor and sidewalk spaces, and the coexistence of national chain stores and local independent entrepreneurs (Robertson, 1990).

2.4 Retail

Strong trends in the national retail market appear to be working in favor of old commercial strips and downtowns. A reaction is setting in against the monotony and homogeneity of the shopping mall. People are spending less time in malls, and only a few malls

are being built (Lagerfeld, 1995). Part of the explanation for this change is simply that suburban markets have become saturated. At the same time, strip shopping centers (big box retailers and power centers) that bring high-volume discounters together in one location are drawing customers away from the mall (Lagerfeld, 1995). As argued: “Focus group analyses show that people are tired of shopping malls filled with the same stores they can find everywhere else in the country, and many say they want to shop in downtowns, in quaint, one-of-a-kind stores” (Lagerfeld, 1995:112).

To avoid monotony, many cities are borrowing operations from regional malls to add a local flavor in their commercial strips and downtown malls. City development agencies allied with local business partnerships and non-profits are manipulating the tenant mix, locating good traffic generators, and revitalizing neighborhood assets (Chavez, 2001; Fulmer, 1998; Newman, 1998; Lagerfeld, 1995). A successful example of this is found at Colorado Boulevard in Old Pasadena where, amid modern chain stores and restaurants, three survivors of a less attractive past—porn, pawn, and piercing shops—were encouraged to stay because they were catalogued as historical heritage, and also they added flavor, spice, and much needed variety to the boulevard mix (Chavez, 2001). To achieve variety, public-private partnerships are copying well-managed malls creating tiny low-rent spaces called “incubators,” and are recruiting local entrepreneurs to set up shops (Lagerfeld, 1995).

In the retail industry, *pedestrianization* efforts, both at the downtown and neighborhood scale, remain a commercial endeavor committed to maximizing sales by creating a harmonious co-existence between moving vehicles and the shopper. Retail sales and private control often ensure the success of these projects while qualities such as commercial diversity, public access, and street life are ignored (Vernez-Moudon, 1987). Pedestrianization is often identified with

shopping areas, and within the retail trade there is a tendency to regard pedestrian zones simply as urban market places (shopping corridors with a high density of customers). This is driven by a causal relationship between pedestrian frequency, ground value, and sales volumes (Uhlig, 1979).

To understand consumer behavior, retail analysis borrows methods from travel behavior analysis to establish consumer trip-making patterns with respect to shopping goods. There are three categories of shopping, which in turn are linked to different shopping goods: comparison shopping, convenience shopping, and specialty shopping (Mutizwa-Mangiza, 1991; Potter, 1982). The Urban Land Institute established that comparison-shopping draws customers from the shopping centers' regional trade area (ULI, 1985). Specialty goods draw customers from a larger—rather undefined—area, while convenience shopping draws customer from just a neighborhood area (Sim, 1984). There are other factors influencing shopping trips in addition to locational influences (Mutizwa-Mangiza, 1991; Potter, 1982), such as:

- Comparative buying; the ability to compare goods at one point
- Preferred quality of goods and services
- Convenience of shopping under one roof or place
- Pleasant shopping environment
- Availability of price incentives, such as sales and/or credit, and
- Recreational aspects of shopping trips; shopping in combination with relaxation and/or entertainment.

The economic health of a shopping district also depends on how well it is organized and how accessible it is. For Klaus Uhlig (1979) the length of the street is not as important as the distance from local public transit stops or parking areas. Retail requires vehicular traffic to be

able to come right up to the boundary of the pedestrian zone. Convenient parking areas should not be at a distance of more than 600 – 1,200 feet from stores, and delivery of supplies should occur in the back (Uhlig, 1979).

Howe and Rabiega, in their study *Beyond Strips and Centers: the Ideal Commercial Form* (1992), concluded that planners must address some basic questions before affirming an ideal “system of commercial structures” or shopping district, including:

- What do consumer choices and travel patterns reveal about their relationship to stores?
- What configurations of stores are supported by consumer behavior?, and
- What configurations would most efficiently and satisfactorily support this behavior?

Constant changes in retail and technology, particularly the addition of super-stores and mega-stores as elements in the sprawling structure of ancillary malls, create a commercial system of increasing complexity (Howe and Rabiega, 1992).

2.5 Shop Design and Consumers

At downtowns and commercial strips two positions are in conflict: planners and architects tend to see streets and sidewalks primarily as a civic realm (public space), while retail specialists see the street first and foremost as a commercial space. Architects and planners tend to favor attractive sidewalks and streetscapes that promote interaction and sociability, and most often they are at odds with commercial interests, whose implicit assumption is that whatever nourishes commerce will make people come (Lagerfeld, 1995). As a matter of fact, many commercial dictums govern the arrangement of shops within the strip. For example, shopping centers, coffee shops, and doughnut stores ought to be located on the work-bound side of a main

road; grocery stores and other services on the homebound side. The premise is that “just one left turn will kill you” (Lagerfeld, 1995:116). Clothing stores should never be located on the north side of a street: the colors of clothes displayed in a shop window with a southern exposure begin to fade within hours. Western exposures are bad for restaurants: the setting sun at dinnertime makes customers uncomfortable. Restaurants can prosper on side streets and in other less-desirable locations because they are destinations and do not rely heavily on drop-in business. Conversely, most retail stores count on drawing a lot of impulse shoppers, and thus need to be located in high-traffic areas (Lagerfeld, 1995; Ornstien, 1976).

There are also some design principles to apply. Mall designers know that the average shopper, strolling along at three or four feet per second, walks past a storefront in about eight seconds (24 to 32 feet for an average store frontage). That’s how long a shop owner has to grab the consumer’s attention with an arresting window display. Downtown merchants must obey the same eight-second rule, but they can also sell to passing motorists, although the window of opportunity for attracting motorist attention is just a fraction of a second (Lagerfeld, 1995). Pushkarev and Zupan (1975) found that the average shoppers’ walking speed is about 130 feet per minute at maximum flow. That is, shoppers can browse a storefront in about twelve seconds. Whatever the case, it is a cardinal rule to keep shoppers’ eyes on the merchandise at all times. Window displays send powerful messages to the shopper about lifestyles, through the arrangement and type of goods shown and price-point-to-aperture ratio. The size of the aperture is often used to provide shoppers with clues about what is in the store. Small, enclosed spaces suggest high quality and prices to match, big windows and big displays generally suggest lower prices (Lagerfeld, 1995; Ornstien, 1976).

According to the retail consultant Robert Gibbs, the American shopper’s expectations

have by now been completely conditioned by malls and national advertisers. The shopper wants at the very least, much more choice than the traditional town has ever provided. The same people who tell in focus groups that they are tired of malls complain that many small towns are too small. “Why drive half an hour to browse through only a handful of stores (in Lagerfeld, 1995:120)?”

Experts argue that a town needs at least 200,000 square feet of retail space, about the same amount as in a small mall, to become what retailers call a destination—a place that people are willing to travel to (Lagerfeld, 1995). Many consumers do not want to shop in old-fashioned small-town stores; rather they want a variety of, often contradictory, things. They may like quaint, one-of-a-kind stores that seem to sell unique merchandise, but they also want the comfort and security of national brand names on the goods they buy (Chavez, 2001; Fulmer, 1998; Newman, 1998; Lagerfeld, 1995).

Mall operators and national retailers are moving quickly to give people what they want, and towns should do so to survive and prosper. That still leaves plenty of room for individuality. Each town must build on its unique strengths and its unique markets. What cannot be escaped, however, is the need for a conscious strategy for commercial survival (Chavez, 2001; Fulmer, 1998; Newman, 1998).

Finally, towns must follow the malls’ example in dealing with the public’s fears. That means ensuring a visible police presence, removing or rearranging benches and other features that encourage loitering, and keeping the streets and sidewalks clean. One of the forces working in favor of downtowns today is the erosion of the shopping malls’ image as a safe haven from crime. Uniformed security officers and police patrolling seem reassuring to the shopper (Lagerfeld, 1995).

2.6 Summary of Findings

Part of the literature concentrates on reclaiming streets for public life and the creation of livable communities. This incites rethinking the design of streets to allow for their use as public spaces, where pedestrians are the ultimate consumer of public space and vehicle traffic is reduced to facilitate pedestrian life.

Suburban shopping mall designers have long understood pedestrians as consumers, thus making pedestrians comfortable in the street is a critical design principle for creating vibrant urban environments. Previous scholars conclude that physical elements affect how pedestrian interact with the urban environment, and that there is a need to build a relationship between pedestrians and the physical environment. Several environmental design factors are identified (Ballou, 1978), but it is not clear how these factors interact to produce a vibrant environment, or which one them is more important to provide in order to achieve a minimum level of pedestrian comfort.

Faced with this dilemma pedestrian mall designers have borrowed from the suburban shopping mall and started taking care of the “pedestrian atmosphere” on traditional commercial streets through provision of an uninterrupted sequence of activity, control of storefronts, landscaping features, furniture and branding (or identity). At the same time, the monotony and homogeneity of the shopping mall, and the increasing repopulation of inner cities, has created conditions for the resurgence of old commercial strips which have retained some flavor and variety through independent stores.

Within the retail trade, pedestrianism is often identified as an urban market place, where stores (i.e. comparison, specialty, and convenience shopping) draw pedestrian traffic and activity from market areas of different size, and the location and distribution of stores is important to the

success of shopping area. It is unclear however how much these factors influence pedestrian traffic and how other urban design factors such as store frontages relate to pedestrian traffic and activity. I attempt to answer these questions through the case study of three different pedestrian areas in Los Angeles.

CHAPTER 3: Methodology

This thesis analyzes old commercial strips and studies the relationship between pedestrian activity, business characteristics, physical characteristics of the street and sidewalk environment, and demographic and socioeconomic characteristics of the market area, or neighborhood areas surrounding the strip. The goal is to understand the relationships between:

- Retail and pedestrian activity,
- Demographics and pedestrian activity,
- Demographics and retail, and
- Street and sidewalk design and pedestrian activity.

3.1 Selection of Cases

The investigation was carried out through the analysis of three case studies. There are numerous commercial strips and sections of commercial corridors, around Los Angeles, from where to choose study cases. Thus, I initially selected a larger sample of study cases to represent the highest variety of conditions possible with respect to the built environment and the populations living around each site. Table 1, below, presents an initial sample of tentative sites.

Table 1: Tentative Sites

▪ Downtown Manhattan Beach	▪ Montana Avenue, Santa Monica
▪ Downtown Monrovia	▪ Pacific Boulevard, Huntington Park
▪ Honolulu Avenue, Montrose	▪ San Fernando Boulevard, San Fernando
▪ Main Street, Venice/Santa Monica	▪ Ventura Boulevard, Los Angeles
▪ Melrose Avenue, Los Angeles	▪ Whittier Boulevard, Los Angeles

Drawing from my own collection of city-images, and suggestions about places from others, I compiled a preliminary list of 10 tentative sites (Table 1), which were chosen as to cover and represent different landscapes of Los Angeles based on criteria such as geographic location, strip length, urban form and streetscape characteristics (such as block size, street width, landscaping and urban furniture), population density, area median income, and ethnic mixing. From this group I selected a final sample of three cases considering three basic criteria:

1. Have a consistent and uninterrupted sequence of activity along several blocks, encompassing 5 to 10 blocks that could be experienced on a reasonable walk.
2. Have an assortment of shops that included convenient shopping, comparison shopping, and specialty shopping.
3. Be within rather densely developed neighborhoods or sections of the city.

The three cases selected, Downtown Manhattan Beach, Melrose Avenue, and Pacific Boulevard, represent all together a coastal community, a mid-town community, and an inner-city community—respectively. Figure 1 below, presents the location of the areas. Exhibits 1 through 3 illustrate the urban context around each study area.

Figure 1: Selected Sites Location



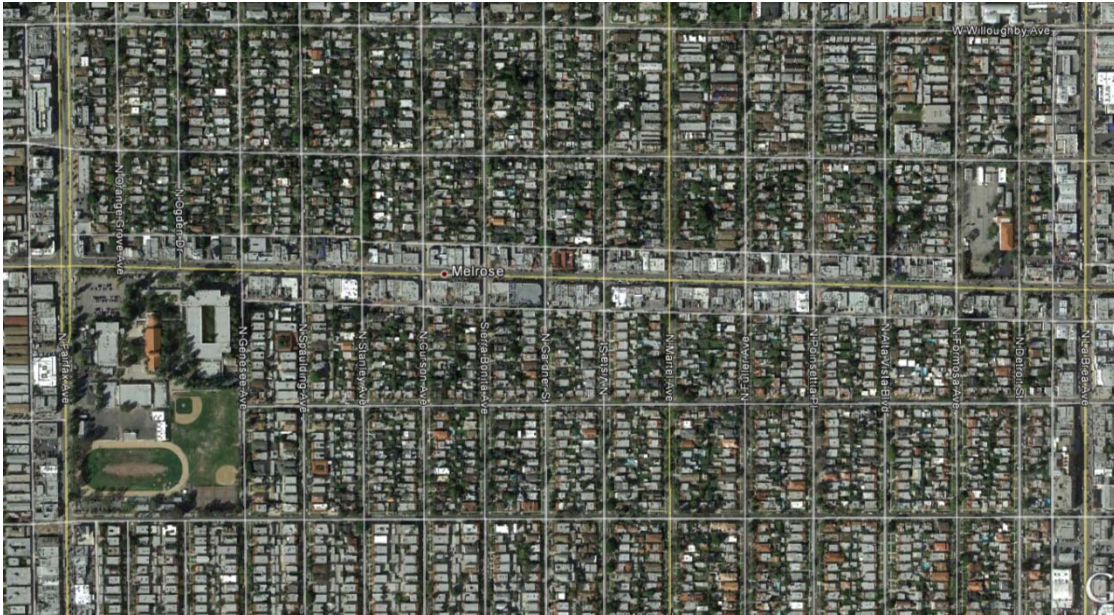
Source: GIS and US Tiger Data.

Exhibit 1: Downtown Manhattan Beach



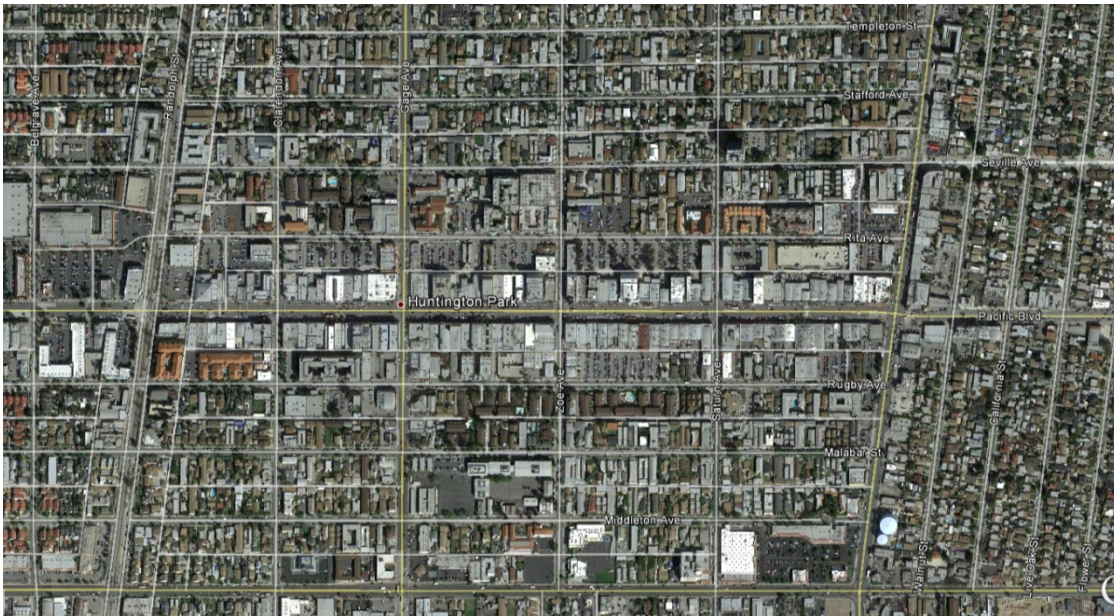
Source: Google Earth Images

Exhibit 2: Melrose Avenue



Source: Google Earth Images

Exhibit 3: Pacific Boulevard



Source: Google Earth Images

The three study cases also represent communities with different income levels, with Manhattan Beach having the highest income (area median income of \$70,300; US Census 2000 blockgroup data), and Pacific Boulevard having the lowest (\$24,800). Finally, the study cases

represent populations of different ethnicities as well, with Manhattan Beach having a largely White community, Melrose Avenue having a mix of races and ethnicities characteristic of the Los Angeles mid-city area, and Pacific Boulevard having a markedly Hispanic clientele (see Table 13, on page 102).

3.2 Selection of Variables

To respond to my research questions (stated in the Scope of Investigation) it was necessary to define, isolate, and measure, the variables that I deemed relevant for explaining observed pedestrian activity levels at each site.

First, I chose pedestrian flow as the dependent variable, and as a proxy for determining the success of the three different sites in attracting pedestrian activity. The traditional equation describing traffic flow is:

$$\text{Flow} = \text{Speed} \times \text{Density}$$

Where, flow represents the number of moving objects crossing a unit of channel width within a unit of time (Pushkarev and Zupan, 1975). Channel width represents, for instance, lanes in a highway or walkway width units in a sidewalk. Since sidewalk widths are not equal among sites, this means that wider sidewalks have more units of walkway width and potentially higher pedestrian traffic. Therefore, it is necessary to translate observed levels of pedestrian traffic into a measure of capacity and/or density of pedestrian use per walkway width unit, such as Pedestrian Time-Space or Walkway Level of Service, which are both based on measuring the space available around each person walking along a sidewalk (Fruin, 1987; Benz, 1986).

Secondly, retail trip attraction rates at one particular site are a function of the relative size (square footage) of the site, in relation to several other shopping centers, and the travel distance

from a particular point to each of these centers. Then, the bigger the site's square footage the larger its gravity over a trade area, or the larger the travel distance people will overcome to shop in this particular area (Sheppard, 1995; Potter, 1982). Given this situation, an important aspect in the attraction of trips will be the provision of parking and its convenience within each site. Convenience is assessed through the compound evaluation of factors such as, price, proximity, accessibility, number of spaces (on-street and off-street), and distribution of spaces with respect to the commercial strip layout.

Also important in explaining pedestrian flow are demographic variables such as the area median income, which is closely correlated with car ownership and purchasing power. Another variable is population density, which presumably facilitates the production of walking trips due to the clustering of origins and destinations (residences and stores) that will be closer together than in low-density areas. However, population density could be a relative measure, because different urban forms could achieve same levels of population density, while providing different levels of friendliness or experience to the pedestrian. For instance, a high rise residential building set back from the street may have the same density than a row of townhouses fronting the street, while providing completely different pedestrian experiences.

Urban design elements are also important to consider within old commercial strips and their surroundings. Spatial variables such as street sections, sidewalk widths, block lengths, and façade penetrability, or the rhythm of store frontages should be taken into account.

Additionally, physical comfort variables should be considered such as walkway space free of impedances, storage capacities near intersections or pedestrian crossings, and buffer zones between sidewalks and roadways; as well as psychological comfort variables such as shelter from canopies, trees and greenery, and signage. Retail aspects such as store concentrations (by

type or shopping category) are considered as well. Also critical for the analysis is the documentation of area socio-demographic characteristics, social behavior, and the use of public space by different groups within each case study.

Pedestrian Vibrancy Index

All these factors are included in the study and analyzed case-by-case for their relationship and influence over pedestrian activity. As a starting point, I developed a basic linear function (or pedestrian vibrancy index) to hypothesize the causal relationship between each factor and pedestrian flow. Causal relationships were defined initially on expectations about factors that would have more relevance in explaining vibrant pedestrian environments; these are described in the following equation:

$$f = GLA + PC \pm AMI + PD - SS + SW - BL - SF + PHC + PSC \pm RC \pm EB$$

Where,

- f* = pedestrian flow
- GLA = gross leasable area (square footage)
- PC = parking convenience (availability and spatial distribution)
- AMI = area median income
- PD = population density
- SS = street section (width)
- SW = sidewalk width
- BL = block length
- SF = store frontage (average length)
- PHC = physical comfort⁵
- PSC = psychological comfort⁶
- RC = retail category (proportion of retail businesses)
- EB = ethnic background (race/ethnicity and household characteristics)

⁵ Physical Comfort is defined as the quality of space provided to develop typical pedestrian activities, and it is measured on a categorical scale: poor, regular, average, good, and excellent.

⁶ Psychological Comfort is defined as a blend of variables such as visual comfort, visual information, and personal buffer-zones. It is measured on a categorical scale: poor, regular, average, good, and excellent.

And,

- + indicates a positive relationship. That is the higher the value of the variable the bigger the pedestrian flow.
- indicates a negative relationship. That is the higher the value of the variable the smaller the pedestrian flow, and
- ± indicates an undetermined relationship between the variable and the level of pedestrian flow.

3.3 Data Collection

The variables comprising this model, pedestrian flow, retail, physical and demographic characteristics, of each study case, were compiled by means of:

- Data collection on the field through direct observations, counts, and measurements, and
- Data collection from secondary sources (US Census 2000 and DataQuick)

There were several ways to collect the data, so some methodological refinement was necessary to assemble variable data appropriately. Pedestrian flows were counted during weekend peak-hours, a period which was defined from 12:00 – 4:00 pm (based on interviews with store attendants). Two counts, staggered in two different weekends (during April 2001), were performed to control for weekly variations regarding weather or specific events. Data were gathered at each site by tracing an imaginary line, or screen line, crossing both sidewalks, in the busiest block of each study area. Screen line counts were assumed as a quantitative indicator of peak pedestrian activity at each site. Time constraints and budget restrictions precluded taking more complete measurements (i.e. at every block) of pedestrian activity levels.

To complement screen line counts, a qualitative approach was used instead, defining sidewalk levels of service based on guidelines provided by Fruin (1987), with regards to pedestrian densities in shopping areas (Table 2, below).

Table 2: Walkway Level of Service (L.O.S.) Description

L.O.S.	Pedestrian Volume feet-minute		Average Area (a)		Description
	pr/ft	pr/m	ft ² /pr	m ² /pr	
A	7 or less	23 or less	35 or more	3.3 or less	Threshold of free-flow, convenient passing, conflicts avoidable.
B	7 – 10	23 – 33	25 – 35	2.3 – 3.3	Minor conflicts, passing and speed restrictions.
C	10 – 15	33 – 49	15 – 25	1.4 – 2.3	Crowded but fluid movement, passing restricted, cross and reverse flows difficult.
D	15 – 20	49 – 66	10 – 15	0.9 – 1.4	Significant conflicts, passing and speed restrictions, intermittent shuffling.
E	20 – 25	66 – 82	5 – 10	0.5 – 0.9	Shuffling walk; reverse, passing and cross flows very difficult; intermittent stopping.
F	Flow variable up to maximum		5 or less	0.5 or less	Critical density, flow sporadic, frequent stops, contacts with others.

Source: Fruin, John J. (1992). Designing for Pedestrians.

For the definition of the strip’s study area, two criteria were applied: (1) a 10-minute walk range (or one-half of a mile) in any direction from a central location (i.e. the screen line location), and (2) an evaluation of stores’ frontage and retail type to determine the continuity and physical extension of the strip, as urban space and retail unit. Both criteria were assessed qualitatively on the field. To define the strip’s trade area, two quantitative criteria were utilized: a half mile buffer around the study area, and a 3 to 5 mile buffer (depending on the strip’s gross leasable area, or GLA). The objective was to analyze the trade area on a neighborhood scale (primary area, 0.5 mile) and in the trade-area’s complete scope (3 to 5 miles), as well as to

analyze the relationships between consumer characteristics and the tenant mix (or retail types) at each site. Data used for population, race/ethnicity, and housing units were gathered at the block level from 2000 US Census Data. All other variables were taken at the tract level from the same source.

Parking stall counts were collected directly on site, at both on-street and off-street locations. Retail square footage, obtained from DataQuick CD ROM publications, was related to parking counts for the definition of parking density parameters. Retail square footage was also utilized to define trade areas (study areas) around each case study, in accordance to ULI guidelines (Table 22, page 124).

Retail categories were defined in relation to the different business activities found at each site. They were grouped into eight categories: entertainment and recreation, comparison-shopping, specialty shopping, convenient shopping or household needs, personal services, professional services, restaurants and bars, and others. Having catalogued all businesses at each case study, it was possible to determine the number of amenities accessible to pedestrians at each site.

Direct field observations documented the activities on sidewalks such as walking behavior, social behavior, people watching, and others. Field observations also documented physical comfort and psychological comfort variables. Finally, a combination of qualitative and quantitative information was collected through hand-drawn sketches and photographs to document urban design and urban form features.

CHAPTER 4: Analysis of Cases

4.1 Downtown Manhattan Beach

Manhattan Beach, located south of El Segundo and the LAX Airport (see Figure 1), is a high-income, densely developed community. Its image is largely defined by a wooden pier, a wide beach and boardwalk, and a 3-story housing strip that stretches along the coastline.

Downtown Manhattan Beach (DMB) is located along the back streets of this housing strip, creating a pedestrian-friendly beach community with upscale shopping (Figure 3, on page 41).

a) Physical Landscape

DMB is configured as a typical main-street-shopping district, where residents satisfy all their community needs. There are two banks, one supermarket, a liquor store, several hairdressers, nail shops and cleaners. Also, there is a post office, a fire station, a branch of the Los Angeles County Public Library, and the City Hall. Professional services are located in the area as well, such as realtors, financial advisors, lawyers, chiropractors, and dentists. Certain trends are indicated by the presence of these professional services. Manhattan Beach is a highly attractive place to live because it is close to the beach and also possesses a unique urban setting. Lawyers and realtors cluster around City Hall, indicating the presence of an active real estate business.

The shops, however, comprise the most important and visible part of the downtown ensemble. Two sorts of shops are the most common: food and beverage stores (restaurants, coffee houses and tropical juice shops), and garment stores (clothes and accessories for adults and kids). Home furnishing, interior decoration, and gift stores, fill up the rest of downtown's

retail space, along with some specialty stores such as surf and bike rental equipment, sunglasses and bikinis, and a pet store.

DMB sidewalks are rather narrow and not able to handle comfortably more than two people walking side-by-side. Sidewalk widths are 6.5 feet only (Figure 2, below), so when someone is staring at a display window, people passing by must squeeze in the remaining sidewalk space. Despite the shortness in space, sidewalks are carefully designed. They are not elegant, but rather austere and simple. A gray tile surface defines the walking area, and strips of cement interrupt the sidewalk monotony. The tile pavement is slippery when wet, however (Exhibit 4, on the next page).

Figure 2: Downtown Manhattan Beach, Street Section Scheme

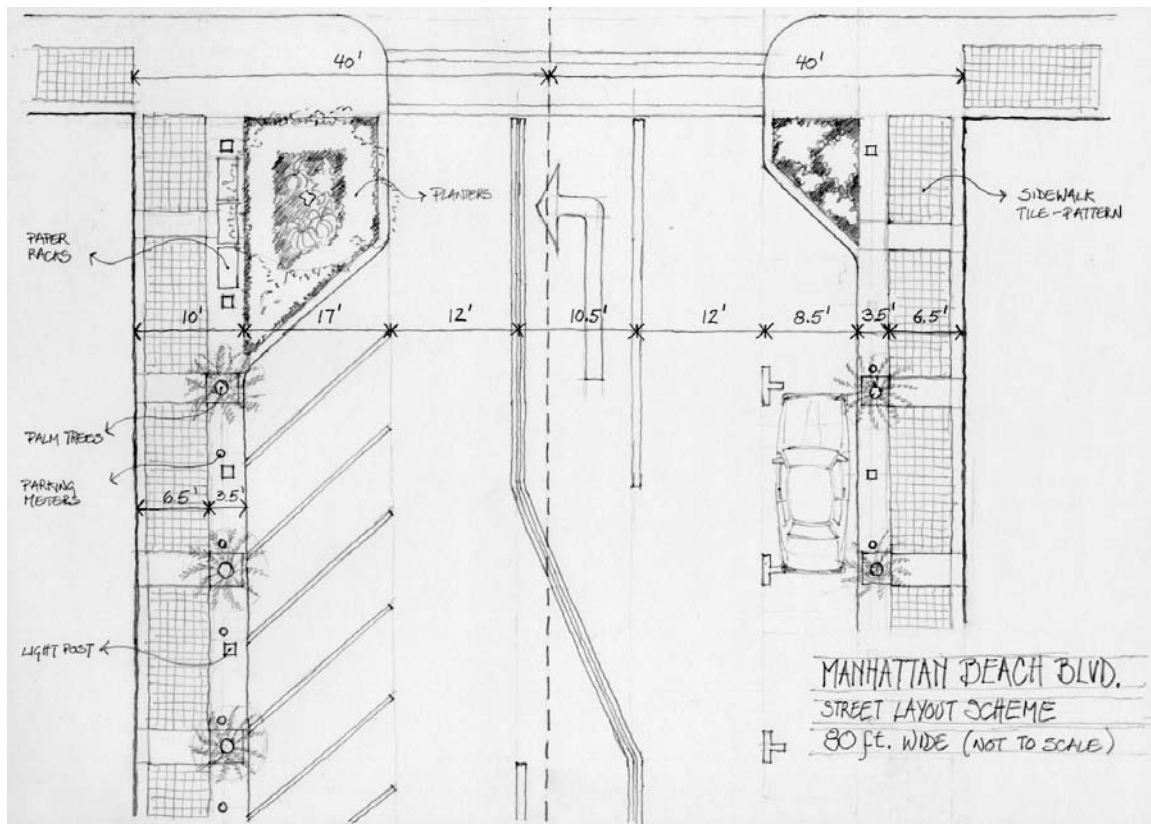


Exhibit 4: Manhattan Beach, parking meters and sidewalk tile-pattern



Usually the sidewalk walking space is bounded by the shops' façade (which very often have colorful canopies covering the sidewalk) and a line of palm trees, street lamps, and parking meters. All these elements, in addition to the on-street parking zone, create a buffer-zone from street traffic to pedestrians (Exhibit 4 and Figure 2).

Sidewalk space is so tight that in some cases it forces bus stops to intrude pedestrian spaces. Close to street-corners, sidewalks adopt a gentle slope, and the tile surface changes color from gray to blue (Exhibit 5). Sometimes they exhibit a "No Skateboarding" message. Skateboarding is not compatible with the sidewalks' tight space, because of the noise that skateboards produce over the tile pavement, and because of their traveling speed. This suggests that kids and young teens, who are the typical skateboarders, are banned from using this public space.

Exhibit 5: Manhattan Beach, sidewalk furniture and streetscape



Palm trees are the main landscaping feature. They are homogeneously distributed along the whole retail area and disappear when land uses change to residential use (in fact, vegetation changes were utilized as one of the criteria to define the study area). The type of palm tree planted in DMB does not obstruct drivers' views to store fronts when they cruise along the street. Other tree species are found in street corners, particularly, in corners where pedestrian streets leading towards the beach meet main traffic collectors (i.e. Manhattan Avenue). Street corners are also the places that concentrate most of the pedestrian furniture. This is comprised of trash bins, shops' directory boards, stone benches, and street name signs. All these elements follow the same furniture design line, and they are in combination with the corner sidewalk tile (see Exhibit 5).

One MTA transit line serves the area (Line 126, Manhattan Beach-Hawthorne Station), providing limited rush-hour trips to/from the Green Line. Parking meters are an important street/sidewalk element, as well, since they help to design the virtual border between pedestrians

and cars. Usually meters are of gray color (1 quarter per 20 minutes, 2 hour maximum), but at certain places (a couple per block on each side) we find green meters, which allow parking for only 24 minutes maximum (Exhibit 4). This responds to the need of having parking spaces for different trip durations (short-term as opposed to long-term), and different shopping trips (convenient shopping as opposed to comparison or specialty shopping). Even though on weekday mornings sidewalks are mostly empty, street parking meters are constantly full, implying that many customers arrive by car (perhaps alone) or that shop owners and employees are occupying them. The result is scarcity of on-street parking, though this may also be a function of pricing it below demand. Surprisingly, there are very few places to park bikes, and it is common to see bikes tied to palm trees or directly to parking meters.

Exhibit 6: Manhattan Beach, benches outside fast food restaurant



Comfortable benches (benches having a seat and backrest) are scarce and the few available are located in front of stores selling fast food, such as pizzas or sandwiches (Exhibit 6). Conversely, stone benches without backrests—which are more uncomfortable—are located in

major traffic corners, and areas catering to a larger list of pedestrian activities, such as people watching, socializing, reading, resting, and/or eating. Also, in major traffic corners other elements of street furniture emerge such as paper racks, pay phones, and traffic lights' controller boxes, which peer into the sidewalk's space, often reducing pedestrian walkway capacity and/or obstructing street views.

According to US Census data, population density in DMB is about the same as the average density for LA County. Urban form, however, is denser. Blocks are smaller (300 ft. × 200 ft.) than the typical LA blocks (700 ft. × 300 ft.), streets are narrower (50 ft.), lot sizes are smaller (3,300 ft²), and houses are larger (2,000 ft²).⁷ Buildings take advantage of the slope housing large square footages, in two or three stories, maximizing ocean views and satisfying high-income households' aspirations.

b) Social Landscape

In general, it appears that shops in Manhattan Beach are intended to attract a high-income young-adult market. US Census 2000 figures show that more than 50 percent of people living around DMB belong to the young-adult market between 20 and 44 years old (see Table 14, on page 103). Even though young-adults comprise the main age group strolling along downtown streets, we see people of all ages, and life-cycles. The latter may be explained by the tourist attraction significance of Manhattan Beach, given its characteristic pier, the beach, and the boardwalk (Manhattan Beach appears in all major L.A. tourist guides).

Beginning at noon, on weekdays and weekends, restaurants and coffee houses start filling up with people. Inside, we find people talking in groups of two or four, and people alone

⁷ Based on aerial photography measurements taken by the author, and DataQuick.

reading, people watching, or just sitting. At coffee houses it is common to see people playing backgammon or chess. The latter are particularly visible on weekends (Exhibit 7).

Exhibit 7: Manhattan Beach, Uncle Bill's Pancake House



According to merchants, Saturday and Sunday afternoons are the most crowded time of the week. During weekends many people go bicycling, jogging, and/or rollerblading on the beach's boardwalk, and use DMB as a refreshing and resting base. It appears that these users come by foot, bicycle, or roller-blades from the surrounding neighborhoods. It appears, as well, that most DMB visitors come by car, judging from the perceptible noise of traffic congestion, the observable vehicle queues at traffic lights, and visible drivers, going around the block, hunting for a parking space.

The epicenter of activity is clearly the corner of Manhattan Beach Boulevard and Highland Avenue (Figure 3, on page 41), where there is a Starbucks coffee shop. Although it does not have tables on the street, many people gather outside—on a front-wide stone bench—to sip their coffee, chat for a while, and do some people watching. At this same corner it is

common to see people greeting each other from car to car, sidewalk to car, and corner to corner, which tells us about the level of neighborliness in the area. It seems that the rather small-scale of the area allows for a heightened sense of community identity. This was also observed inside and around a cocktail bar (at the corner of Manhattan Avenue and 11th Street), where clearly people knew each other very well.

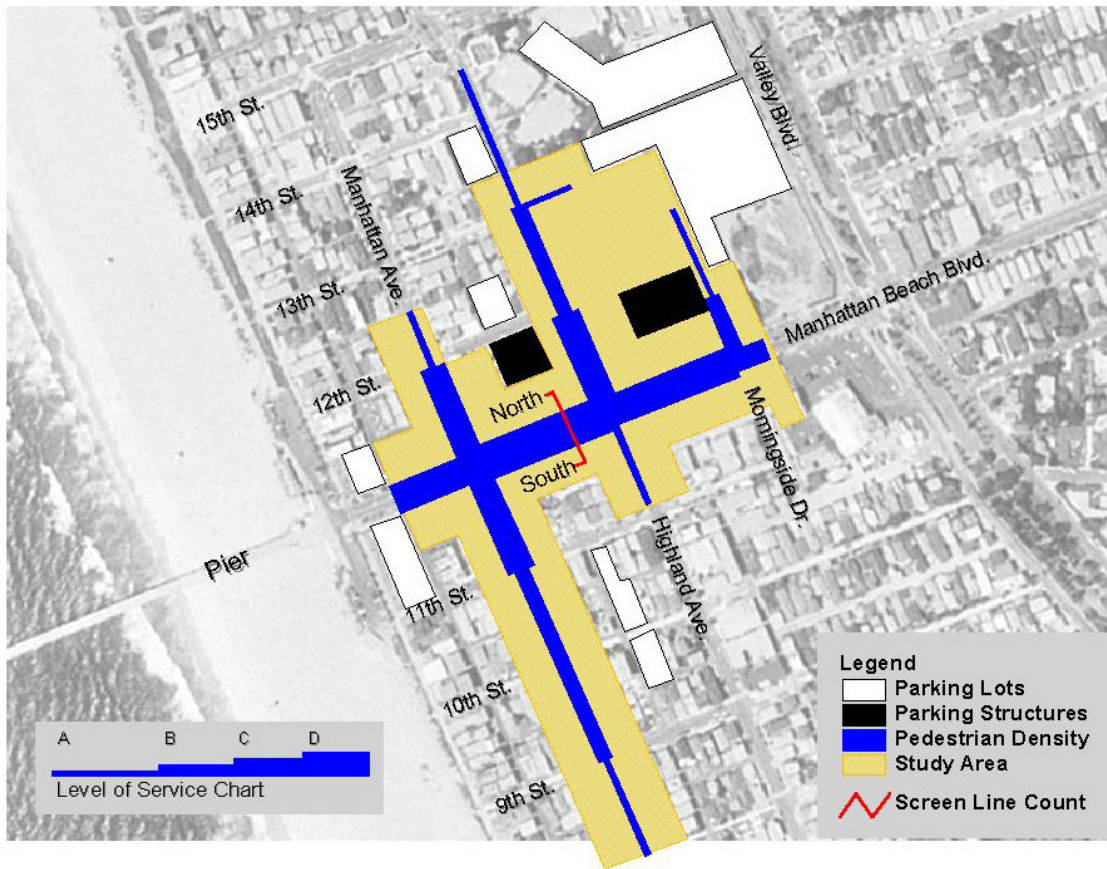
At peak time, on weekends, sidewalks were very lively with people strolling and shopping. Clothes racks—peering into the sidewalk, home furnishing items, and balloons tied to parking meters, made the place look very attractive and festive. A wide variety of groups of people were observed strolling along DMB, including: women alone, women in groups (of two or more), men alone, men in groups, couples (many strolling their babies), and large family groups. Easily distinguishable were people coming from and going to the beach—carrying their chairs, coolers, and umbrellas, and people going to the beach for jogging and bicycling. Particularly common were people walking alone with their dogs. Teen-agers and the elderly were very few, which is not surprising, given that most shops are not focused on any of these groups. Moreover, skateboards are banned on the area and sidewalks are too narrow, too steep, and too crowded for the elderly. In terms of race/ethnicity, users were overwhelmingly white.

c) Evaluation of Urban Form Variables

On-street parking spaces, and parking lots and structures, surrounding the commercial area, suggest that private vehicles are the primary means of getting to and from DMB. Parking lots and structures are behind the commercial frontage and hidden inside blocks. Also, they are unevenly distributed throughout the shopping area (Figure 3, on the next page). It appears that the distribution of parking lots and structures are influencing the pattern of pedestrian

movements within DMB (and vice-versa), since they concentrate most of the parking spaces in the northeastern area of the shopping district. Figure 3 shows that pedestrian movement and activity are particularly concentrated in the same area, by the corner of Manhattan Beach Boulevard and Highland Avenue. Figure 3 also shows that Manhattan Beach Boulevard attracts the biggest pedestrian crowds, followed by Manhattan Avenue and then Highland Avenue.

Figure 3: Layout Scheme and Pedestrian Traffic, Downtown Manhattan Beach

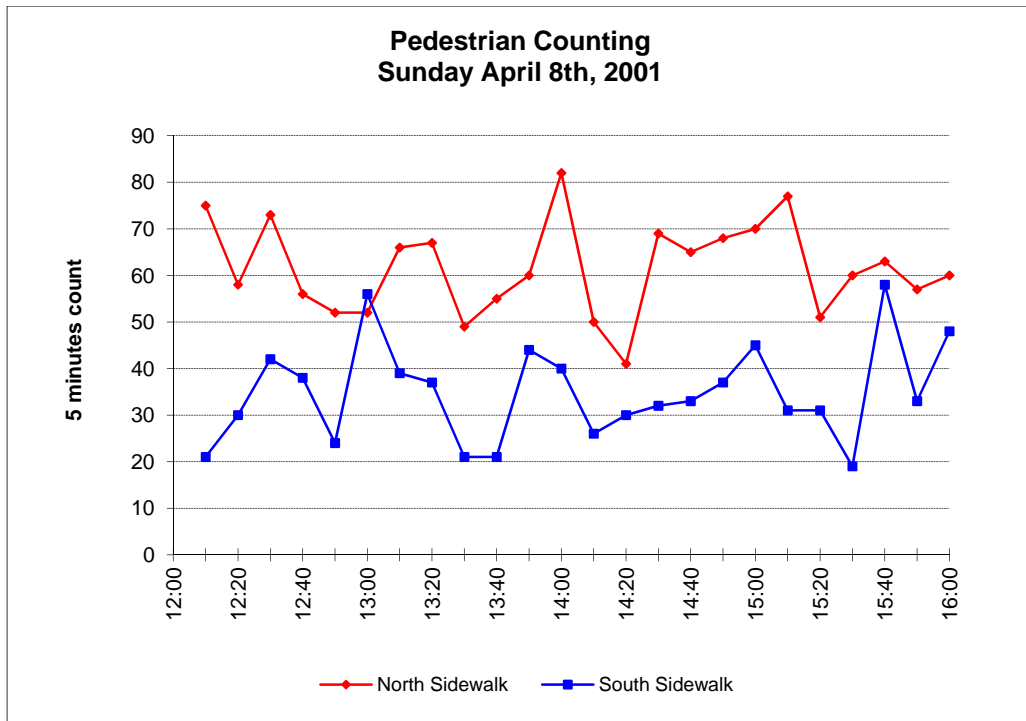


Source: Assembled by author from Microsoft Terraserver and Fruin, John J. (1992)

Pedestrian traffic is closely related to the availability of parking and location of parking lots and structures. Figure 3, above, shows the exact screen line location on Manhattan Beach Boulevard between Highland Avenue and Manhattan Avenue. Figure 4 below shows results of the screen-line counts performed in Manhattan Beach Boulevard. The northern sidewalk of

Manhattan Beach Boulevard, the one closer to the larger parking lots and structures, consistently had bigger pedestrian turnouts during the time-period of study. It appears that the uneven distribution of parking spaces affect the distribution of pedestrian flows within DMB streets and sidewalks.

Figure 4: Sunday Afternoon Pedestrian Counts, Downtown Manhattan Beach



Weekday pedestrian flows are lower than on weekends. Field observations, and feedback from store attendants, indicate that users during the week come mostly from the local area, while users during the weekend come from both local and regional areas. Observations also indicate that weekday and weekend visitors use different sections of downtown. DMB sidewalks that are less congested during weekends (such as Manhattan Avenue and Highland Avenue, Figure 3) correspond to those downtown sections that are livelier during the week. There are also different business concentrations between Manhattan Beach Boulevard and Manhattan and Highland

Avenues. This is shown on Figure 5 (on page 47) where businesses are mapped by retail category. According to Figure 6, service goods (convenient shopping, professional and personal services) are particularly concentrated on Manhattan and Highland Avenues, and away from Manhattan Beach Boulevard. It is clear, then, that people tend to engage in different activities on weekdays and on weekends in DMB.

Figure 6 (on page 48) shows physical environment characteristics on a block-by-block basis at DMB. Comparing these parameters with the pedestrian flow distributions on Figure 3 (on page 41), it appears that the number of stores per block is related to the amount of pedestrians on its sidewalks.

Looking at the average square feet served by parking—per block—it appears, again, that the northeastern area of DMB is better served, explaining its higher pedestrian flows. A detailed evaluation of the environmental factors that interact with the pedestrian, based on Ballou (1978), is offered in Table 2, on the next page.

Table 3: Urban Form and Design Evaluation, Downtown Manhattan Beach

Urban Form	Qualitative Evaluation
<ul style="list-style-type: none"> ▪ Scale: Relationship between façade length, height and street section. 	<ul style="list-style-type: none"> ▪ Oriented to the pedestrian, roadway section is reduced and blocks are short interrupting free flow of traffic and speeds. Buildings, street lamps and palm trees accentuate verticality of street space.
<ul style="list-style-type: none"> ▪ Penetrability: Rhythm of façade openings 	<ul style="list-style-type: none"> ▪ Uneven rhythm due to presence of large blank walls at important locations. Also affected by presence of service businesses, cutting the continuity of window displays.
<ul style="list-style-type: none"> ▪ Climate: Shade, glare, reflection, wind 	<ul style="list-style-type: none"> ▪ Shade from canopies makes sidewalks cozier. East-west streets are windy.
<ul style="list-style-type: none"> ▪ Lighting and Night Illumination: 	<ul style="list-style-type: none"> ▪ Lighting fixtures provided yet sidewalks are not well lit at night.
<ul style="list-style-type: none"> ▪ Visual Comfort: Greenery, design elements, street furniture 	<ul style="list-style-type: none"> ▪ There is an identifiable style on designed elements. Shop names and advertising is regulated and coordinated.
<ul style="list-style-type: none"> ▪ Visual Information: Direction and assurance provided by signage and design elements 	<ul style="list-style-type: none"> ▪ There are directory boards and street signs for specific information. Assurance and direction is provided by pavement texture and overall design of sidewalk elements.
<ul style="list-style-type: none"> ▪ Personal Space Buffer-Zones: 	<ul style="list-style-type: none"> ▪ Trespassed at major corners and sidewalks passing conflicts.
<ul style="list-style-type: none"> ▪ Roadway Buffer-Zones: 	<ul style="list-style-type: none"> ▪ Buffer effectively provided by 45° metered-parking, lamps, and trees (20.5 ft.)
<ul style="list-style-type: none"> ▪ Pedestrian Crossings: 	<ul style="list-style-type: none"> ▪ Regulated and clearly marked on the pavement.
<ul style="list-style-type: none"> ▪ Sidewalk Space for Browsing: 	<ul style="list-style-type: none"> ▪ 2 (1 to 5 scale, with 1 the lowest)
<ul style="list-style-type: none"> ▪ Sidewalk Space for Observing: 	<ul style="list-style-type: none"> ▪ 2 (1 to 5 scale, with 1 the lowest)
<ul style="list-style-type: none"> ▪ Sidewalk Space for Standing: Or sitting at congestion points: 	<ul style="list-style-type: none"> ▪ 1 (1 to 5 scale, with 1 the lowest)
<ul style="list-style-type: none"> ▪ Sidewalk Space Overall Evaluation: Supply versus demand 	<ul style="list-style-type: none"> ▪ Too narrow for sustaining typical pedestrian activities.
<ul style="list-style-type: none"> ▪ Personal Safety and Security: 	<ul style="list-style-type: none"> ▪ There are regular rounds of police patrols and constant parking enforcement.

Finally, and in order to provide the necessary information for building the hypothetical function described in Chapter 3: Methodology, an assessment of the study variables is established in Table 4, on the next page.

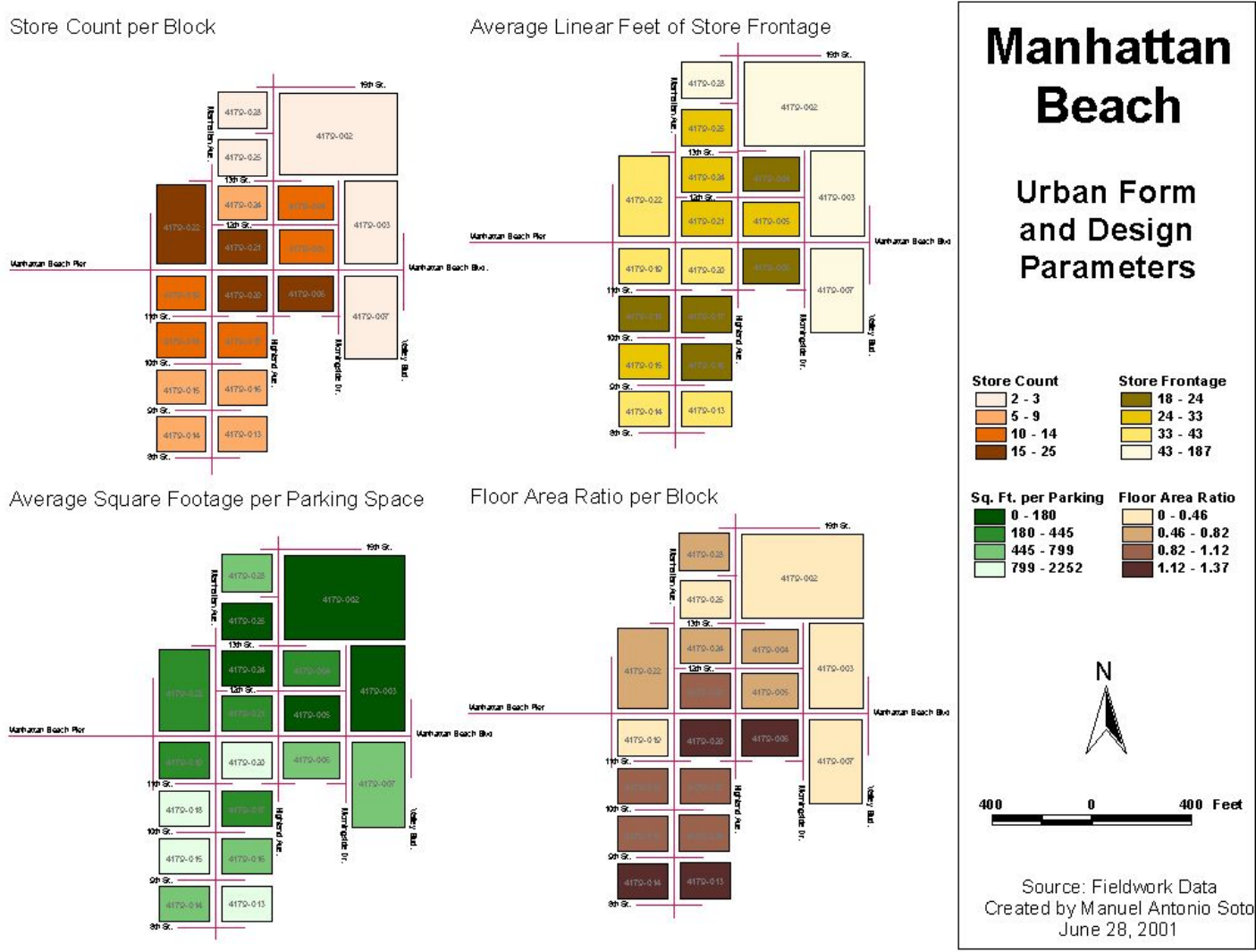
Table 4: Assessment of Study Variables, Downtown Manhattan Beach

Study Variables	Acronym	Definition
Gross Leasable Area	GLA	Community center size (400,000 sq. ft.)
Parking Convenience	PC	About ¾ of parking spaces are off-street and walking distance, though spaces are unevenly distributed on 8 lots/structures.
Area Median Income	AMI	\$70,300. About two times AMI of LA County
Population Density	PD	23.9 persons per acre. Slightly above the mean for LA County
Street Section	SS	80 ft.
Sidewalk Width	SW	10 ft. (Walking area is 6.5 ft.)
Block Length	BL	Between 200 and 250 ft. typically
Store Frontage	SF	About 28 ft. on average
Physical Comfort	PHC	Regular
Psychological Comfort	PSC	Good
Retail Categories	RC	Evenly distributed among comparison shopping, specialty shopping, and convenient shopping.
Ethnicity / Cultural Background	EB	Almost entirely white, majority of young adults, and a minority of households with children.

In summary, Downtown Manhattan Beach is a compactly developed pedestrian area characterized by narrow streets and sidewalks and a diverse mix of retail shops, restaurants, and personal and financial services, that cater to both the neighborhood and regional markets. Although the size and length of the shopping strip is comparable to the other study cases described below; the average size of stores, store frontage widths, and narrow sidewalks appear

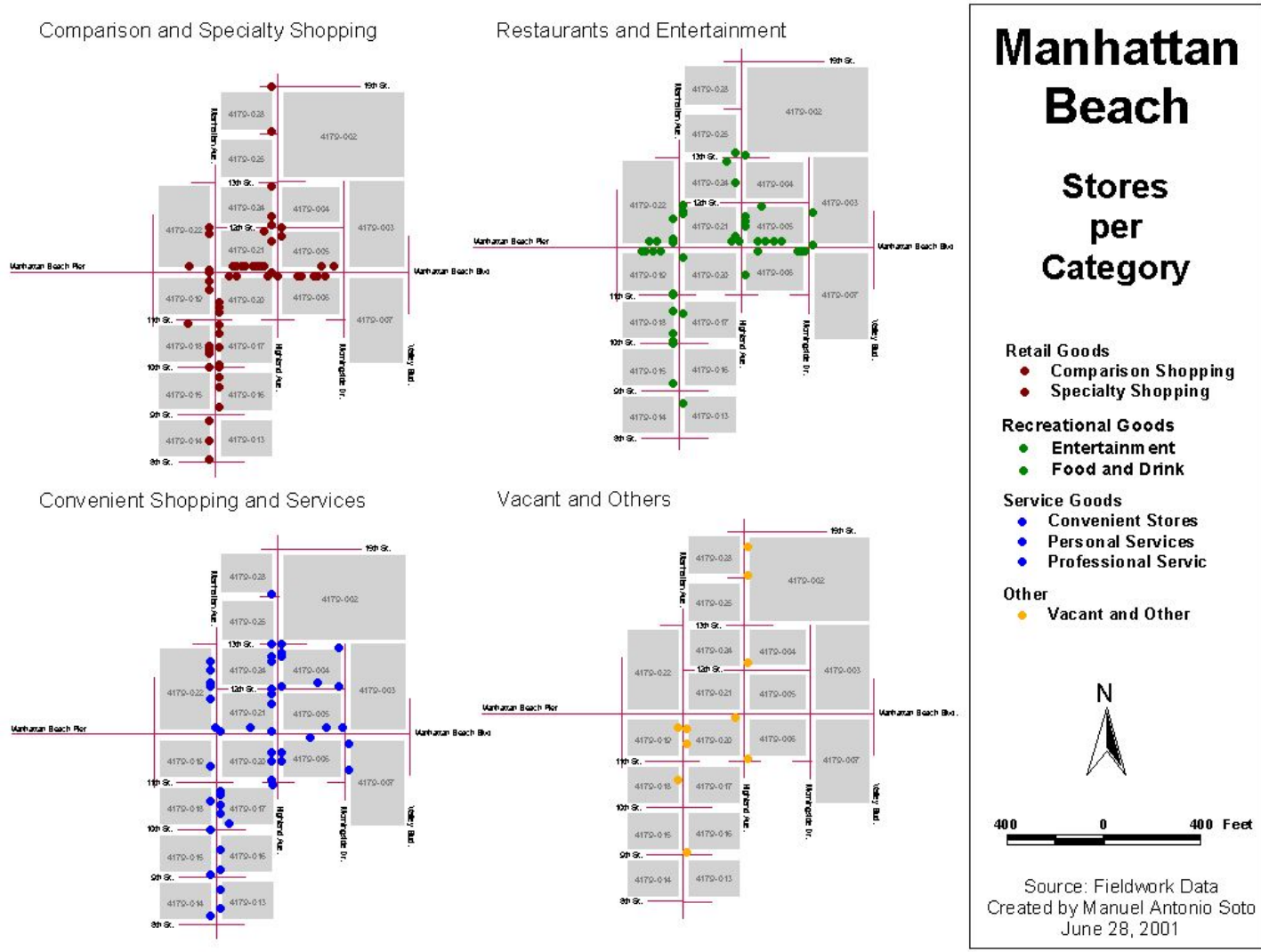
to be discouraging pedestrian activity. Pedestrian traffic is also affected by the uneven distribution of off-street parking, despite the generous buffering from street traffic that is provided by diagonal on-street parking.

Figure 5: Physical Environment Parameters by Block, Downtown Manhattan Beach



Source: Author using Fieldwork Data and DataQuik

Figure 6: Store Location by Business Category, Downtown Manhattan Beach



Source: Author using Fieldwork Data and DataQuick

4.2 Melrose Avenue, Los Angeles

Melrose Avenue is probably the coolest and the hottest place in L.A., a place where eccentric fashions spawned led by the creativity of avant-garde designers (Shulte-Peevers, 1999). Melrose's main attribute is the stark contrast of its colorful and peculiar commercial strip against the homogeneity of its surrounding residential neighborhood, which is comprised of tiny bungalows and Spanish-style cottages, housing an important Orthodox Jewish community (Shulte-Peevers, 1999).

a) Physical Landscape

Melrose Avenue's principal area of interest—from a retail and pedestrian activity perspective—stretches between Fairfax and La Brea Avenues. The specific area of study comprises the blocks between Spaulding Avenue, on the west end, and Formosa Avenue, on the east end (Figure 8, on page 57).

The placement of the commercial corridor—in the mid-city—between Santa Monica and Beverly Boulevards works to its advantage. As a narrower and second tier corridor, Melrose Avenue carries vehicular traffic at slower speeds and is less automobile-oriented in its design than Santa Monica or Beverly Boulevards.

The commercial strip in Melrose is wedged within a residential area of the city that is mainly comprised of single-family detached housing (typically of 1 or 2 stories) and three-story apartment buildings. Commercial uses (2 stories maximum), are separated from residential areas by parallel service streets located at the back of business establishments. These streets accommodate loading activities, trash collection, and employee parking, but do not provide for customer parking. Melrose Avenue is developed within the typical—and homogeneous—

Jeffersonian urban grid that characterizes the Los Angeles mid-city (Figure 8, on page 57).

Retail activity here is primarily comprised of comparison-shopping stores (clothes, shoes, and accessories), and specialty shopping stores such as record stores, vintage clothing, and one-of-a-kind boutiques (e.g. Necromance or Condomania). Tattoo and Body Piercing stores are very common, as well as stores offering collectibles and memorabilia related to sci-fi, comic and Manga (Japanese comics). Nail and hairstyle shops are common too, in particular, towards both ends of the strip.

Exhibit 8: Melrose Avenue, tables over the sidewalk at Antonio's restaurant



Restaurants and coffee places agglomerate at a central location—at the intersection of Gardner Street, spreading tables over the sidewalk and interacting with people window-shopping and cars cruising along the street (Exhibit 8). These places are the best locations for conducting people watching and socializing activities, which in Melrose Avenue appear to reach a high level.

Building façades are continuous and window, displays are themed and eye-catching. Store façades are usually of non-mainstream confection, painted with bright colors and made out of sleek materials, giving the street a fresh and original look. In addition, some store façades have colorful signs and painted images portraying motifs linked to the store names and their audiences.

Exhibit 9: Melrose Avenue, south sidewalk close to Curson Avenue



Melrose's sidewalks, on the contrary, have no attractiveness whatsoever—besides people. Sidewalks are often dirty, narrow, and the pavement—sometimes uneven—is frequently cracked and stained. There are no benches with the exception of brown plastic benches at bus stops (that are commonplace all over Los Angeles), and there is no shade besides a handful of trees, which usually constrict the walking space to half its normal width (from 12 to 6 feet). Parking meters, light posts, traffic light controllers, and paper racks reduce pedestrian walkway space too,

although the slimmest walkway widths (up to 4 feet) are produced when restaurant tables share the sidewalk (Exhibit 8 and Figure 7).

Figure 7: Melrose Avenue, Street Section Scheme

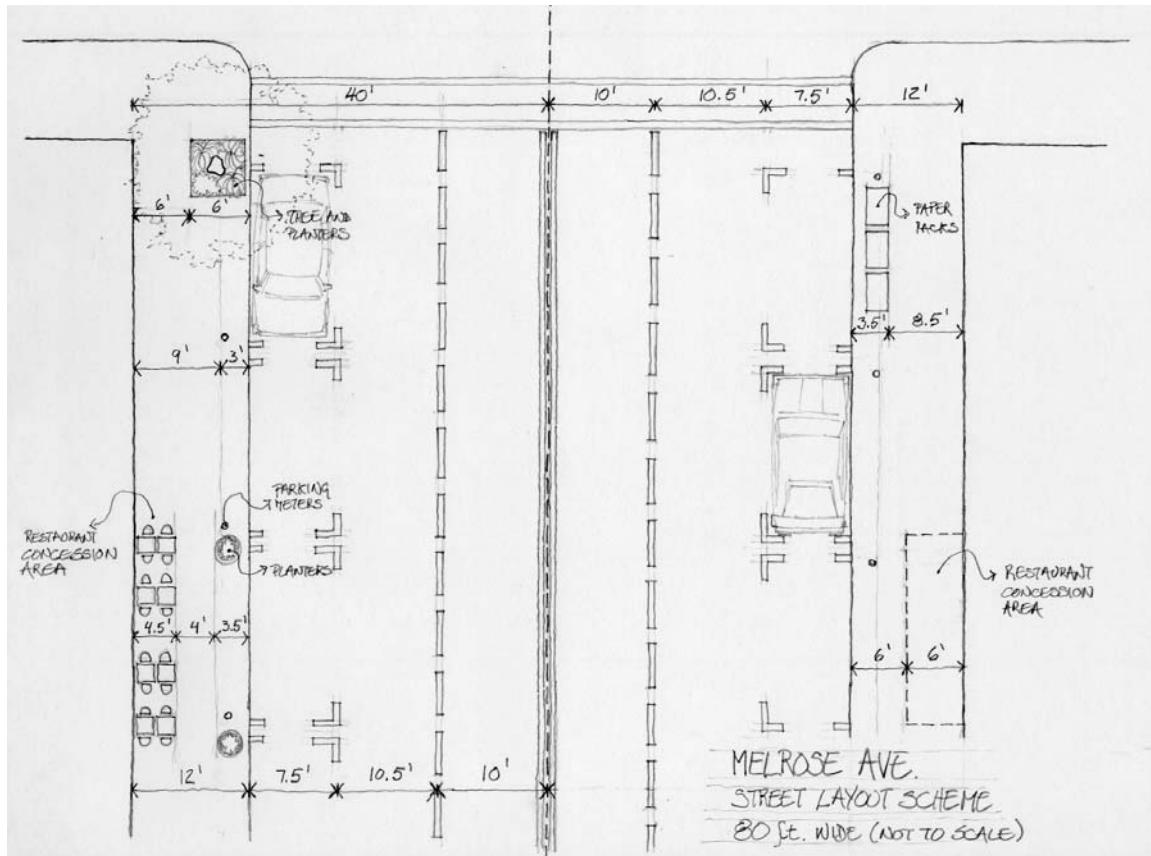


Figure 7, above, shows a typical sidewalk section on Melrose Avenue. The space available for walking, or the walking space that is free of impedances, varies from 9 feet along sections with parking meters to as little as 4 feet in front of restaurant concession areas. In addition, shops' doors peering into the sidewalk also reduce walkway space; however these occur mostly in blocks that do not have restaurants (Exhibit 10).

Exhibit 10: Melrose Avenue, sidewalk reductions caused by shops' doors



One MTA transit line serves the area (Line 10, West Hollywood - Downtown LA) with headways between 10 and 20 minutes. Parking at meters in 2001 cost one quarter every half-hour with a maximum of two hours, and they are spread evenly all along Melrose Avenue, but curbside parking in the residential areas is free. Although some time restrictions apply (1 hour) in certain streets, they never extend more than one block inland. As in Manhattan Beach, curbside parking along Melrose Avenue is almost always full, whether on weekdays or weekends. More likely, shop owners and employees use up most of these spaces. Yet, curbside parking is also scarce, because there are many reserved areas for loading purposes, particularly in front of restaurants, and some reserved areas for tourist buses.

I was not able to determine whether the many people walking to the area simply parked a couple of blocks away—as I did many times – or if they lived nearby. Many of these people walking around, however, were also seen cruising in their cars.

Bicycling appears to be less prevalent as a means of transportation in the area, which

hints to a different social use of this public space than that of Manhattan Beach, for instance. Also, the store mixing is more shopping-mall like than neighborhood oriented. There are, proportionally, fewer convenient stores and more comparison and specialty shopping stores than in Manhattan Beach. As discussed previously, comparison and specialty shopping stores attract people from a larger area than just the surrounding neighborhood. The bicycle, then, does not appear to be the preferred travel mode for these longer and different trip purposes.

Pedestrian crossings are very unsafe in corners without traffic lights, because high vehicle traffic and speed between traffic lights (traffic lights are situated at every other corner) forces people to venture onto the street, and avoid cars, in order to make it onto the other side of the street. In my view the parallel-metered parking along sidewalks does not create enough of a buffer between vehicular traffic and pedestrians. The sound of vehicles, their music, and exhaust pipes are always present on sidewalks. Yet this is as much a nuisance as it is an experience, because cruising both, for seeing and to be seen, comprises a big part of the social interaction here during peak hours. In fact, Harley-Davidson style motorcycles, sports cars, and sometimes luxury and exotic cars passing by are not an uncommon sight.

b) Social Landscape

Melrose Avenue is as much a shopping experience as a social experience. The area's "good atmosphere" attracts huge crowds of people in their 20s or early 30s, as well as teenagers. In fact, most of the people wearing colorful hair pikes are youngsters. Among those aged 18 to 34 strolling along Melrose's sidewalks, people are very diverse in terms of race and style, including the whole range from body-pierced punks and grunge rockers, to Armani-clad urban hypes, to skinhead motorcyclists, and muscle-lovers, showing off their bikes and bodies. Baby-

strollers and kids or the elderly are nowhere to be found, while young inebriates, and possibly drug addicts and homeless, are a small and very identifiable group.

The timing of activities is different here; shops normally open around 11:00 am (weekdays and weekends) and people start filling the sidewalks at 2:00 pm peaking between 4:00 and 6:00 pm. Restaurants are busy all afternoon on weekends, particularly coffee and hamburger shops in the corner of Gardner Street and Melrose Avenue (Figure 8, on page 57). Tables occupy part of the sidewalk reducing the walking space and augmenting pedestrian queuing and crowding perceptions. Even though this could be uncomfortable it simultaneously enhances social interaction by bringing people closer together. Many people sit at tables facing the street to watch other people, while chatting with friends, and also to keep an eye on their bikes or cars, and these, in turn, attract groups of curious people from time to time. Also, during weekends, some street vendors locate in this same corner, which is clearly the busiest one.

In terms of social behavior people, come here to see and to be seen, so they spruce up and dress up to catch as much attention as possible. There are a lot of casual encounters and social interactions along Melrose Avenue's sidewalks (Exhibit 8). This is expected since most shops are trendy fashion boutiques that sell clothes that support this behavior. There is a huge ethnic mixing amid the people strolling along the sidewalks, conferring the area with high degrees of diversity in terms of mood, tastes, and backgrounds. This enriches the social experience overall and probably keeps alive the innumerable clothing options available within walking range.

Exhibit 11: Melrose Avenue, south sidewalk close to Gardner Street



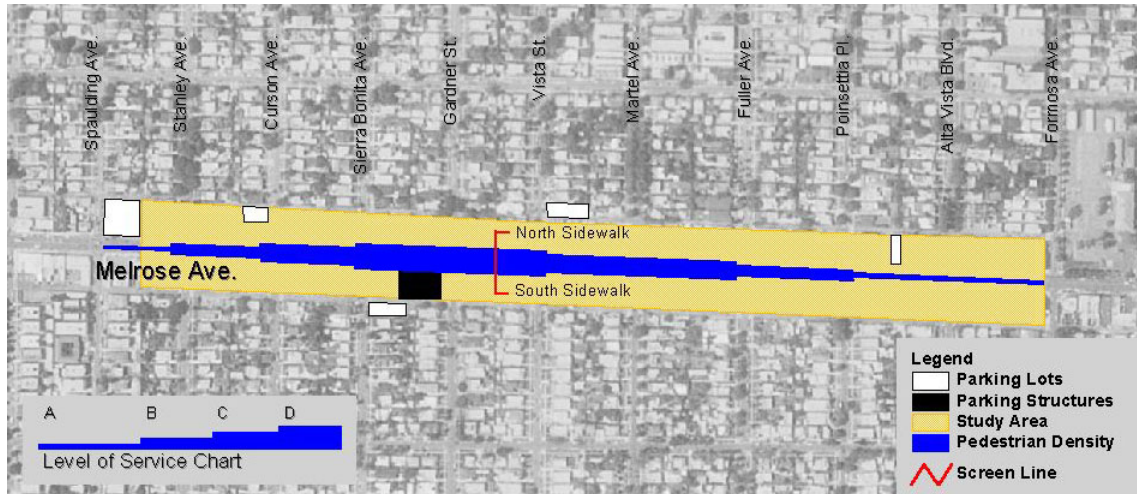
Curiously, there are no street performers on the sidewalks, which is surprising since there are no signs of social control here. It seems that the very pedestrians flocking to Melrose, who are looking for a place to interact and show off, make the street performances. In fact bikers, punks, tattooed and body-pierced types, urban hypes, and other urban tribes cluster together at specific locations showing clubby behaviors. They gather in specific places, they seem to know each other very well, and it appears that they follow certain conventions (in particular to make up their looks). All these group gatherings make sidewalks very lively well into the evening. After stores close around 6:00 pm, people start to leave, and only restaurants keep open stimulating pockets of activity around their tables further into the night.

People usually stroll along in small groups of 3-4 persons. The most common pattern observed was a pair of friends or couples walking around. It is rare seeing people walking their dogs; rather they carry around small dogs in their arms.

c) Evaluation of Urban Form Variables

Pedestrian activity is observed all along the selected study area, but most of the activity concentrates within 3 blocks (between Martel and Sierra Bonita Avenues) in the central part of the strip section, as it is shown on Figure 8, below.

Figure 8: Layout Scheme and Pedestrian Traffic, Melrose Avenue



Source: Author from Microsoft Terraserver and Fruin, John J. (1992)

Both sides of the street appear to be equally filled with pedestrians. Figure 9, on the next page, shows the results of the screen line counts made at Melrose Avenue (the screen line was located between Gardner Street and Vista Street, as shown on Figure 8). During the observation period (12:00-4:00 pm), pedestrian counts peaked at about 4:00 pm. Informal checks performed later in the study showed that the peak-hour time in Melrose lasted until 6:00 pm. This difference in temporal patterns of walking compared to Manhattan Beach (and, as we will see, Pacific Boulevard) confirms the assumptions and field observations that people visiting Melrose Avenue have different habits and belong to a different and specific population segments.

Figure 9: Saturday Afternoon Pedestrian Counts, Melrose Avenue

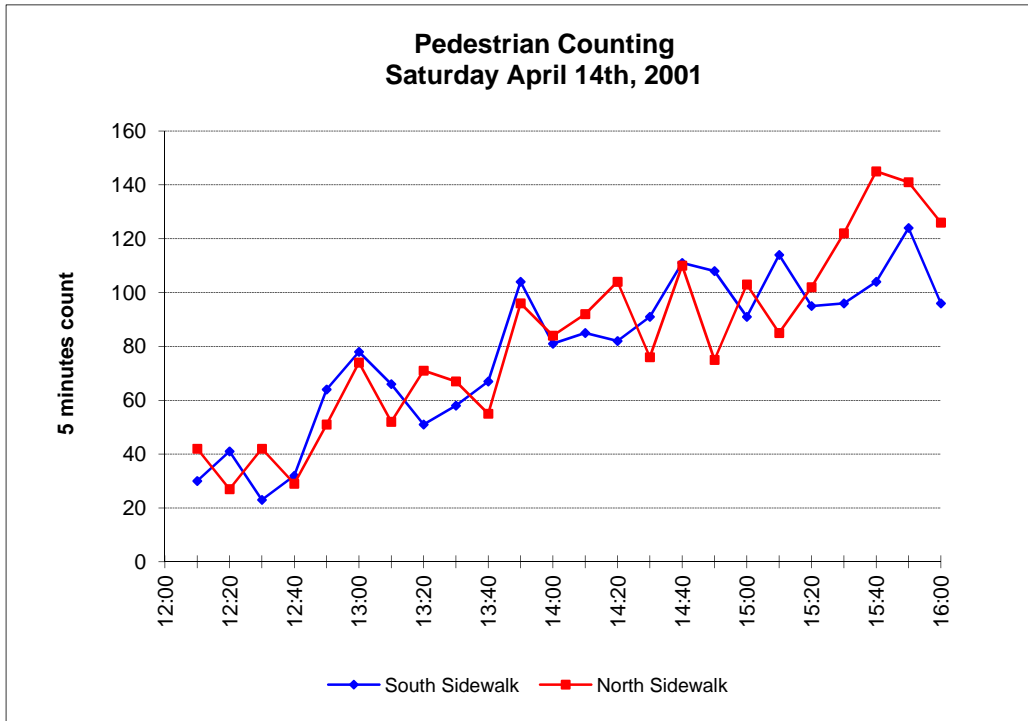


Figure 11 (on page 64) shows a concentration of restaurants and entertainment businesses at the corner of Melrose Avenue and Gardner Street (where the screen line was located), as well as concentrations of comparison and specialty shopping that spread from this central spot towards the two ends of the strip. This is reflected on the pedestrian flows shown in Figure 8, on page 53.

As opposed to Manhattan Beach, parking is more evenly distributed around the shopping strip and, also, the strip achieves a more homogeneous façade continuity (average feet of store frontage), and higher store diversity (store count per block) on both sidewalks (Figure 10, on page 63). Figure 10 summarizes characteristics of the physical environment in Melrose Avenue at the block level. The level of commercial space served per parking space appears to be high (more parking spaces per square foot) around the congested corner of Melrose Avenue and

Gardner Street. It is also high at both ends of the strip. Façade continuity and diversity are much weaker on the west end (Spaulding Avenue), and there are more convenient shopping and service business on the east end (Formosa Avenue) than in the middle of the shopping strip.

Most of the parking happens in the residential areas, so it is very hard to estimate numbers accurately, although some parking is found on service streets, behind businesses, and in parking lots at both ends of the selected strip section. There are also a couple of new multi-story commercial developments boasting shops on the street level and a paid parking garage on the top levels.

Overall, the spread of stores on Melrose is balanced between chain- and independent stores, which makes the area attractive for visitors (especially tourists) since they can find known brands along with independent fashion designs. Though, this influx of chain-stores has been compromising the strip's fashion cutting-edge (Shulte-Peevers, 1999).

Table 4, on the next page, presents a summarized evaluation of urban form and design characteristics on Melrose Avenue.

Table 5: Urban Form and Design Evaluation, Melrose Avenue

Urban Form	Qualitative Evaluation
<ul style="list-style-type: none"> ▪ Scale: Relationship between façade length, height and street section. 	<ul style="list-style-type: none"> ▪ Building heights and street section produce a streetscape of pedestrian scale. Blocks are short and crossing streets are local and of low traffic. Yet, buffering between the roadway and sidewalk space feels insufficient.
<ul style="list-style-type: none"> ▪ Penetrability: Rhythm of façade openings 	<ul style="list-style-type: none"> ▪ Fast paced rhythm, many store fronts per block, window displays are very diverse and façades are highly designed.
<ul style="list-style-type: none"> ▪ Climate: Shade, glare, reflection, wind 	<ul style="list-style-type: none"> ▪ Lack of shade and glare from pavement and cars. East-west orientation does not help in alleviating strong solar radiation.
<ul style="list-style-type: none"> ▪ Lighting and Night Illumination: 	<ul style="list-style-type: none"> ▪ Very dark at night.
<ul style="list-style-type: none"> ▪ Visual Comfort: Greenery, design elements, street furniture 	<ul style="list-style-type: none"> ▪ No greenery and no street furniture. Colorful façades and window displays make up for a kitsch environment.
<ul style="list-style-type: none"> ▪ Visual Information: Direction and assurance provided by signage and design elements 	<ul style="list-style-type: none"> ▪ Not organized, there are no directory boards or signs communicating a particular identity. No indication of parking facilities. Although store names and signs are vivid, high concentrations of them tend to produce clutter.
<ul style="list-style-type: none"> ▪ Personal Space Buffer-Zones: 	<ul style="list-style-type: none"> ▪ Trespassed at congested spots, usually around restaurant concession areas.
<ul style="list-style-type: none"> ▪ Roadway Buffer-Zones: 	<ul style="list-style-type: none"> ▪ Thinly provided by parallel metered parking
<ul style="list-style-type: none"> ▪ Pedestrian Crossings: 	<ul style="list-style-type: none"> ▪ Unregulated and not clearly marked
<ul style="list-style-type: none"> ▪ Sidewalk Space for Browsing: 	<ul style="list-style-type: none"> ▪ 3 (1 to 5 scale, with 1 the lowest)
<ul style="list-style-type: none"> ▪ Sidewalk Space for Observing: 	<ul style="list-style-type: none"> ▪ 3 (1 to 5 scale, with 1 the lowest)
<ul style="list-style-type: none"> ▪ Sidewalk Space for Standing: Or sitting at congestion points: 	<ul style="list-style-type: none"> ▪ 2 (1 to 5 scale, with 1 the lowest)
<ul style="list-style-type: none"> ▪ Sidewalk Space Overall Evaluation: Supply versus demand 	<ul style="list-style-type: none"> ▪ Besides some really congested spots it looks somewhat adequate for developing pedestrian activities.
<ul style="list-style-type: none"> ▪ Personal Safety and Security: 	<ul style="list-style-type: none"> ▪ There are rounds of police patrols, not to frequent though, and some parking enforcement.

Finally, and in order to provide the necessary information for building the hypothetical function described in Chapter 3: Methodology, an assessment of the study variables is established in Table 5, below.

Table 6: Assessment of Study Variables, Melrose Avenue

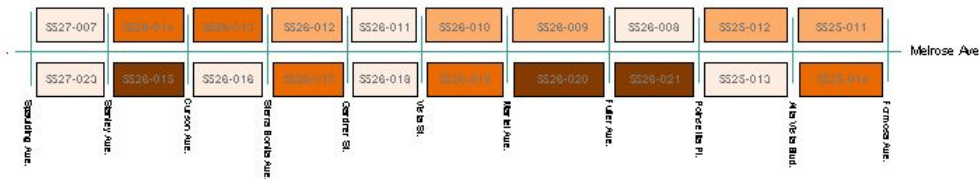
Study Variables	Acronym	Definition
Gross Leasable Area	GLA	Regional center size (500,000 sq. ft.)
Parking Convenience	PC	About 2/3 of parking spaces are off-street and adjacent to the commercial strip, though many spaces are found within the residential neighborhood two blocks away.
Area Median Income	AMI	\$36,400. Around the average for LA County
Population Density	PD	24 persons per acre. Slightly above the mean for LA County
Street Section	SS	80 ft.
Sidewalk Width	SW	12 ft. (Walking area is 9 ft.)
Block Length	BL	Between 250 and 300 ft. typically
Store Frontage	SF	About 21 ft. in average
Physical Comfort ¹	PHC	Regular
Psychological Comfort ²	PSC	Average
Retail Categories	RC	Highly concentrated on comparison and specialty shopping.
Ethnicity / Cultural Background	EB	Majority white, but of many different ethnicities, few households with children and a minority of middle-aged and senior citizens.

In summary, the shopping district along Melrose Avenue is characterized by a high number of independent stores (comparative and specialty shopping) that boast uniquely colorful and provocative store fronts. Its uniqueness appears to be drawing pedestrians from a market area of regional scale which helps in explaining the high level of pedestrian activity on its

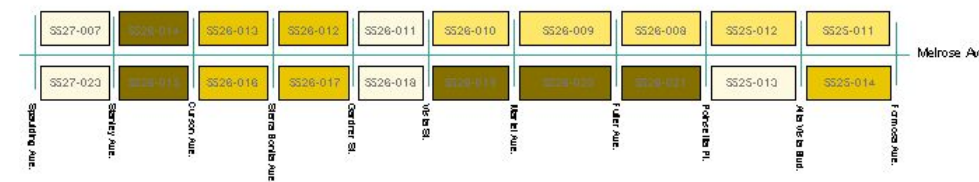
sidewalks. However, design features such as an adequate sidewalk space, an average storefront width that generates a consistent rhythm of stimulus, and the continuity of this stimulus appear to be creating a comfortable environment for pedestrians which also helps in explaining levels of pedestrian activity.

Figure 10: Physical Environment Parameters by Block, Melrose Avenue

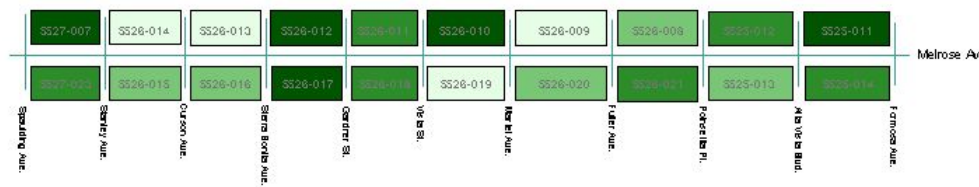
Store Count per Block



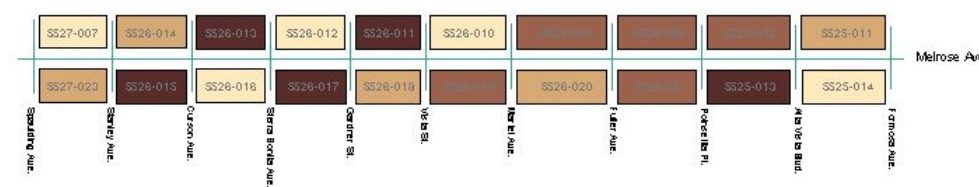
Average Linear Feet of Store Frontage



Average Square Footage per Parking Space



Floor Area Ratio per Block



Melrose

Urban Form and Design Parameters

Store Count

- 6 - 12
- 13
- 14 - 17
- 19 - 20

Average Front

- 12.9 - 17.4
- 17.4 - 21.7
- 21.7 - 25.3
- 25.3 - 42.4

Sq. Ft. per Parking

- 306 - 526
- 526 - 598
- 598 - 958
- 958 - 1277

Floor Area Ratio

- 0.57 - 0.68
- 0.68 - 0.83
- 0.83 - 0.95
- 0.95 - 1.12

N

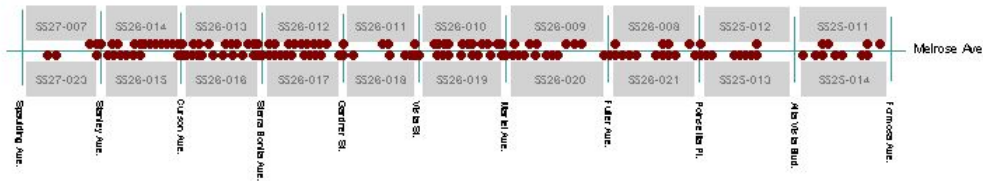
400 0 400 Feet

Source: Fieldwork Data
Created by Manuel Antonio Soto
June 28, 2001

Source: Fieldwork Data and DataQuick

Figure 11: Store Location by Business Category, Melrose Avenue

Comparison and Specialty Shopping



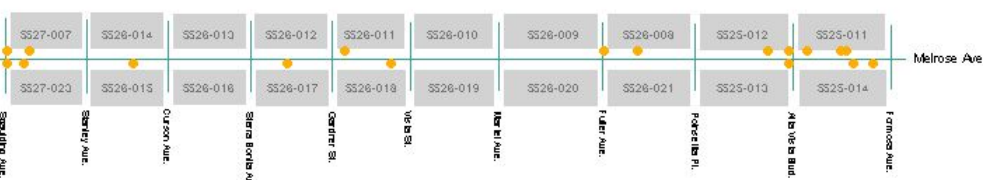
Restaurants and Entertainment



Convenient Shopping and Services



Vacant, Parking Lots and Other



Melrose

Stores per Category

- Retail Goods**
 - Comparison Shopping
 - Specialty Shopping
- Recreational Goods**
 - Entertainment
 - Food and Drink
- Service Goods**
 - Convenient Stores
 - Personal Services
 - Professional Services
- Other**
 - Vacant, Parking Lots, Other





Source: Fieldwork Data
Created by Manuel Antonio Soto
June 28, 2001

Source: Fieldwork Data and DataQuick

4.3 Pacific Boulevard, Huntington Park

Pacific Boulevard, between Randolph Avenue (on the north end) and Florence Avenue (on the south end), turns into a huge outdoor shopping mall that caters to a vast and captive Hispanic market in South-Central Los Angeles, that otherwise has limited access to retail opportunities. The shopping strip spans five long blocks that are interlaced by midblock, and traffic-light controlled, pedestrian crossings (Figure 13, on page 73).

a) Physical Landscape

The streetscape of Pacific Boulevard is remarkably different than that of Manhattan Beach and Melrose Avenue. The roadway and sidewalks are much wider with a total right of way of 120 feet (sidewalks are 15 feet each). Also, blocks are longer (typically 600 feet), the shopping strip is longer, and buildings are taller (up to five-stories high) and bigger than in Manhattan Beach and Melrose. As a consequence, it is much more difficult for the pedestrian to comprehend the place at first sight. Taller buildings, a wider roadway, and wider sidewalks create a public space of bigger scale, which tends to undermine the relationship between the pedestrian and the physical characteristics of the commercial strip, according to Ballou (1978).

However, wider sidewalks in Pacific Boulevard, low awnings and canopies, and a wide buffer-zone provided by angle metered-parking, appear to compensate for the lack of coziness and achieve an adequate pedestrian environment in this urban context (Exhibit 12).

Exhibit 12: Pacific Boulevard, west sidewalk between Zoe and Saturn Avenue



In Pacific Boulevard, the store mixing is different too. There are several home furniture and home appliances stores, and a full-service department store (JC Penney). Also, there are many personal and professional services, particularly health care centers and income tax and immigration services. But the majority of stores are comparison-shopping stores (clothes, boots and shoes, and accessories), along with specialty shopping stores. Among the latter, bridal clothing and clothing for *quinceañeras* are very numerous. These specialty stores highlight the strong Hispanic heritage of customers (many from surrounding neighborhoods) that patronize this commercial strip.

One-of-a-kind stores are also found along Pacific Boulevard. These sell specific products linked to the dominant cultural and religious background, such as medical herbs, images of saints, and stamps for other pagan cults, as well as music stores selling *rancheras* and *corridos* (Exhibit 10). Also noticeable are stores offering electronic goods, such as radios, phones, and cellular phones.

Exhibit 13: Pacific Boulevard, available sidewalk space

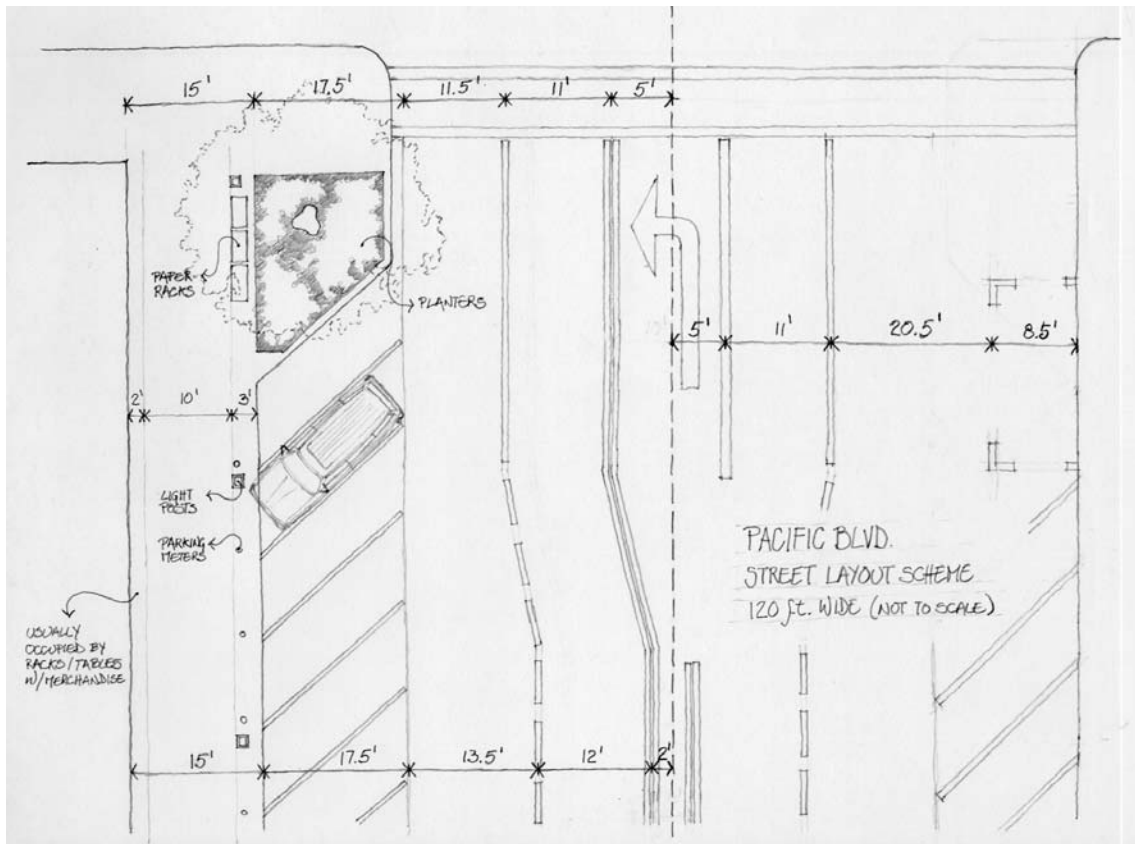


But, one of the biggest trademarks of this shopping area are the calling centers and money-transfer centers to Mexico and Central America, which again describe the nature of the population living around and visiting Pacific Boulevard, mostly immigrants and people who still have strong attachments to their homeland.

In contrast to Manhattan Beach and Melrose Avenue, it is somewhat telling to note the absence of restaurants and tables looking over the sidewalk. Instead, these are replaced by places selling light refreshments, snacks, fast food, and authentic Mexican cuisine.

Sidewalks are wider here (about 15 feet) made out of plain concrete. Angle parking on both sides of the street and parking meters make for a wide buffer zone between the roadway and the sidewalk space (Figure 12, below). This zone plays an important role here—more than in other places—to buffer pedestrians from the street, which is heavily trafficked by transit buses and trucks. The buffer effectively helps to isolate the roadway space from the sidewalk and create a pedestrian-only environment.

Figure 12: Pacific Boulevard, Street Section Scheme



At corners and mid-blocks the sidewalk widens and greenery appears, generally comprised of mature trees that project some needed shade. Clusters of newspaper racks and benches are located in these areas too, taking advantage of an extended sidewalk space and lots of pedestrian traffic (Exhibit 11). Light posts have banners and flags promoting place identity, but the most characteristic and defining feature of the whole boulevard are its bus stops. These are three-sided shelters made out of wrought iron simulating a Spanish fence and topped with a fake Spanish-style shingles roof. Bus stops are located at mid-block crossings. The space provided to on-street parking (angle metered-parking) is replaced and filled up, on both sides, to create a mid-block crossing and bus stop area, by way of bulbing out the sidewalk. These “bulb-

outs” shorten the crossing distance between sidewalks more so than at street intersections, while traffic lights and marked crosswalks stop traffic and give the right of way to pedestrians.

Exhibit 14: Mid-Block Crossing, Bulbed-Out Sidewalk, and Bus Stop Shelter



Source: Google Earth Image

As a result, mid-block crossings not only provide a convenient way for pedestrians to move around both sides of the shopping strip (and are heavily used), but also help with calming traffic along Pacific Boulevard. Parking along Pacific Boulevard and crossing streets is rather expensive for a low-income area like this one (in 2001, 1 quarter every half-hour, 2 hours maximum). Yet at the back of businesses there are municipally owned free-parking lots and some privately operated (for profit) parking structures. Lots and structures are evenly distributed along the strip and on both sides of it (Figure 13, on page 73). As opposed to Melrose Avenue, the blocks flanking Pacific Boulevard are completely commercial; therefore service streets provide access to parking lots and structures, as well as access to loading premises (Figure 13).

Given the block lengths that exist on Pacific Boulevard, access from parking lots to the shopping strip occur through arcades containing small shops, and usually, these coincide with the mid-block bus stop and pedestrian crossing areas. Within the arcades one can find personal and professional services, and in some cases, civic facilities such as a police station and the Huntington Park Business Center.

Free parking at the back of business establishments provides more incentives for storeowners and employees to park their vehicles; so usually there are spare metered-parking spaces for customers on the street. However, this is only observable during weekdays and weekend mornings, because they usually fill up at about noon, on weekends.

The result of this urban form layout makes the commercial strip a hybrid between an outdoor shopping mall and a transit mall. Buildings are bigger and deeper allowing stores to warehouse large amounts of goods in them. Indeed, many shops are nothing other than a warehouse and have wide-open entrances presenting all their rancho-style merchandise over the sidewalk (straw hats, leather boots, and belts are common items). Also, building frontages often boast Mexican, Mayan, and Aztec motifs, and Latin store names, to attract their target-market.

b) Social Landscape

Parents with kids and big extended families are the most common groups of people walking along Pacific Boulevard sidewalks (Exhibit 15). Also common are groups of young women or young men promenading, perhaps looking for a social encounter.

Exhibit 15: Pacific Boulevard, typical family group promenading along the strip



Pacific Boulevard is a shopping area that attracts the general public. Like a regional mall, it caters to all age groups from toddlers to the elderly. Yet, the size of family groups strolling along is particularly noticeable. Family groups are sometimes so big and children are so common that it is normal to witness parents' attempts to control children's behavior (sometimes including a slap or a spank). In contrast to Manhattan Beach and Melrose Avenue, a person alone walking his/her dog would be absolutely out of context here unless the dog were tied to a stroller.

Businesses normally open around 10:00 am. Starting at noon people pack the sidewalks. The peak hour extends throughout the afternoon, especially on weekends. Three MTA transit lines serve the area (Line 60, Downtown LA-Long Beach; Line 107, Inglewood-Southgate; and Line 108, Slauson Avenue), and headways are rather short (between 3 to 10 minutes on Line 60). Parking meters have high turnover rates and car cruising is common even though buffer zones are big. Instead of motorcycles or sports cars, light trucks and SUVs are the more common

cruising options, usually with their windows down and their stereos at full volume playing *corridos* or *rancheras*. Curiously, bicycles are nowhere to be seen.

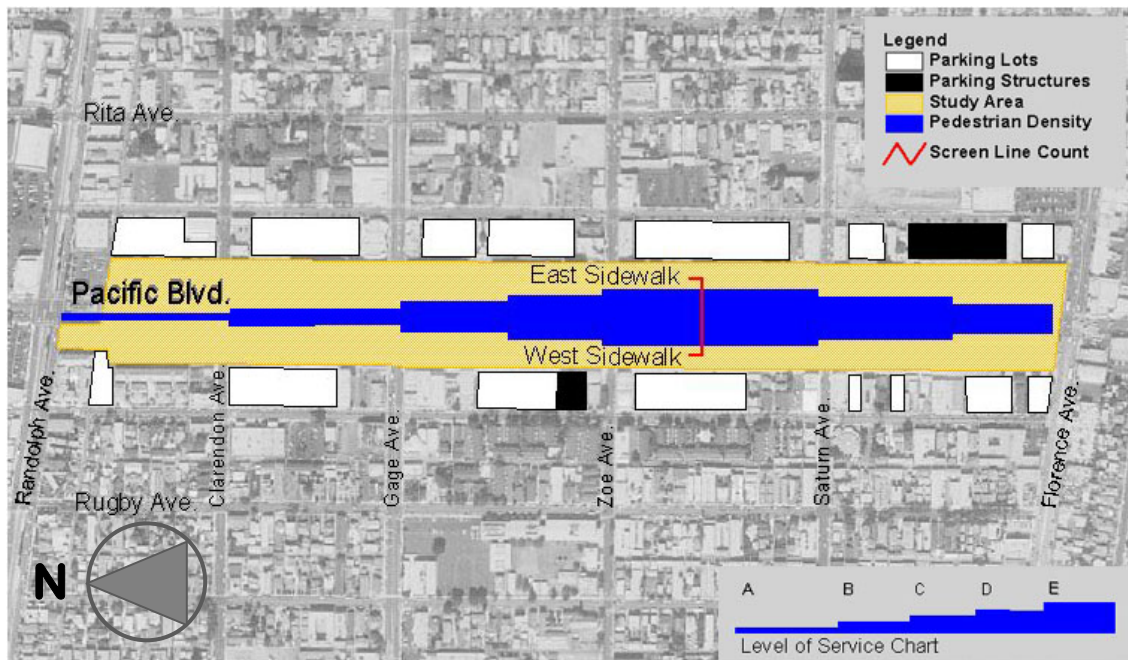
Although sidewalks are wide (about 15 feet), big crowds at peak periods, often produce congestion when large groups of people walking in opposite directions meet (Exhibit 12). Some crowding is also observable at intersections and mid-block crossings. The most congested segment of the commercial strip occurs between the mid-block pedestrian crossing of Gage and Zoe Avenues and the mid-block pedestrian crossing of Saturn and Florence Avenues. This segment of the strip features a large number of clothing, bridal, and shoe stores, while convenient shopping, health services, and home furniture and appliances are mostly located at the northern end of the strip (Randolph Avenue).

Mid-block crossings are also the places that provide most of the facilities for social activities other than shopping and strolling. Bus stops, wide sidewalks, benches and the shade of trees, create a plaza-like space where it is common to see people seating, resting, and/or chatting while people-watching. Given the high pedestrian traffic at these areas, these are also the zones where vendors and preachers locate to attract patrons. Mid-blocks are the most vibrant spaces in Pacific Boulevard.

A substantial majority of people walking along Pacific Boulevard sidewalks are Hispanic, although some African Americans are visible amid the crowd—reflecting the ethnic mix of the surrounding areas that include some traditionally African American neighborhoods.

c) Evaluation of Urban Form Variables

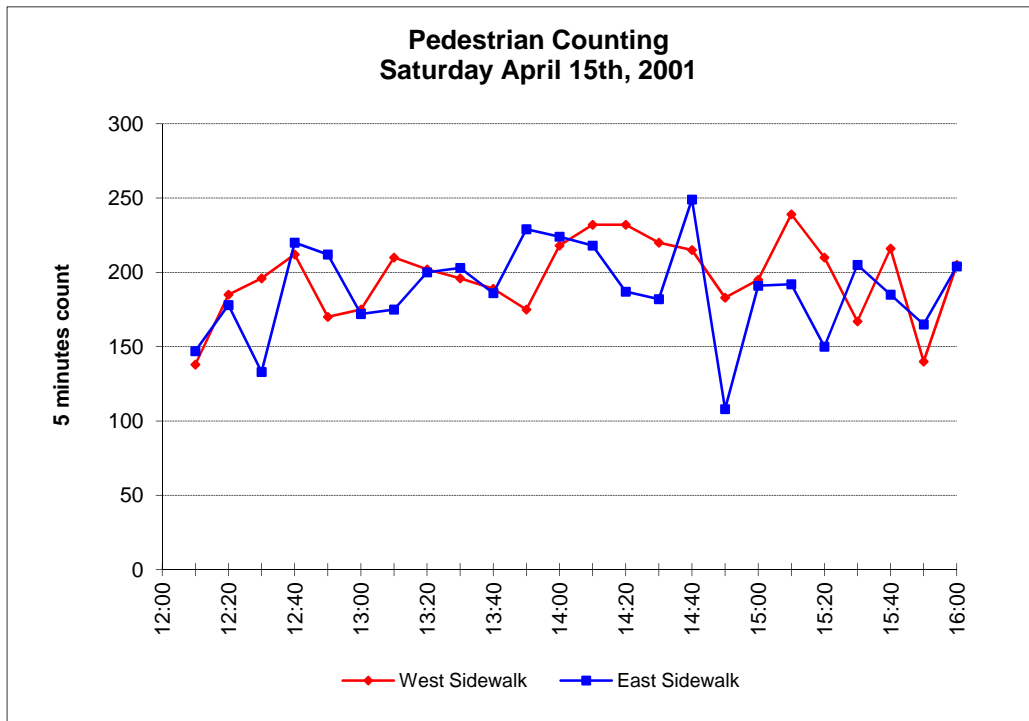
Figure 13: Strip Scheme and Pedestrian Traffic, Pacific Boulevard



Source: Author from Microsoft Terraserver and Fruin, John J. (1992)

According to Figure 13, the most congested section of Pacific Boulevard occurs between the mid-blocks of Gage-Zoe and Saturn-Florence Avenues. Figure 16 shows a correlation between concentrations of comparison shopping and bigger pedestrian flows. It also shows that pockets of convenient shopping, and personal and professional services, occur at both ends of the strip. Figure 13, shows that the north end (Randolph Avenue) gets lower pedestrian turnouts than the east end (Florence Avenue), even though they look similar in terms of retail mix. Differences between both ends are explained by the strip physical characteristics at each point. Figure 15 shows that façade continuity (average feet of store frontage) and façade diversity (store count per block) have lower indicators in the north end, thus showing a direct relationship of these variables with pedestrian flow. Figure 15, also, shows a positive correlation between the number of parking spaces available per square feet and pedestrian flows.

Figure 14: Saturday Afternoon Pedestrian Counts, Pacific Boulevard



Pedestrian counts (Figure 14, above) were consistently higher in Pacific Boulevard than in Manhattan Beach and Melrose Avenue, and based on field observations, they seemed to be distributed over a larger time period than the peak-hour period defined in the study, although no field checks were performed to corroborate this assertion. Figure 14 also shows that both sidewalks were equally filled during the observation period, and that pedestrian flows had an uneven rhythm, which is explained by observed conflicts between large groups of people passing one another, creating some congestion, and platooning at mid-blocks and intersections. Equal pedestrian volumes on both sidewalks appear to be related to the similar number of stores available on each side of the strip that create a consistent rhythm of window displays, along different blocks, and on both sides of the commercial strip (average feet of store frontage, Figure 15, on page 78).

Table 7: Urban Form and Design Evaluation, Pacific Boulevard

Urban Form	Qualitative Evaluation
<ul style="list-style-type: none"> ▪ Scale: Relationship between façade length, height and street section. 	<ul style="list-style-type: none"> ▪ Wide street section, long blocks, and tall buildings produce a streetscape that dwarfs the pedestrian. However, wide sidewalks, broad buffering zones, awnings and canopies scale back the pedestrian.
<ul style="list-style-type: none"> ▪ Penetrability: Rhythm of façade openings 	<ul style="list-style-type: none"> ▪ Store fronts are well tuned to the walking speed and vision range of pedestrians. Narrower stores have interesting window displays and wider ones are warehouses open to the sidewalk. Long blocks allow for a huge diversity of stores and window displays.
<ul style="list-style-type: none"> ▪ Climate: Shade, glare, reflection, wind 	<ul style="list-style-type: none"> ▪ Lots of shade from awnings and canopies. Also the strip north-south orientation makes buildings to project shade over the sidewalk.
<ul style="list-style-type: none"> ▪ Lighting and Night Illumination: 	<ul style="list-style-type: none"> ▪ Provided but insufficient.
<ul style="list-style-type: none"> ▪ Visual Comfort: Greenery, design elements, street furniture 	<ul style="list-style-type: none"> ▪ Greenery and street furniture are provided at corners and mid-block crossings. A branding of the strip is provided through banners on light posts. Store façades are cluttered with goods.
<ul style="list-style-type: none"> ▪ Visual Information: Direction and assurance provided by signage and design elements 	<ul style="list-style-type: none"> ▪ Few signs at parking lots and no store directory. Lots of information on building façades, in particular, about businesses within arcades and upper stories. Low differentiation in color and store type between blocks.
<ul style="list-style-type: none"> ▪ Personal Space Buffer-Zones: 	<ul style="list-style-type: none"> ▪ Trespassed constantly, there are numerous passing conflicts on sidewalk stretches and corners. Pedestrians walk in large groups.
<ul style="list-style-type: none"> ▪ Roadway Buffer-Zones: 	<ul style="list-style-type: none"> ▪ Generously provided by 45° metered-parking, light posts, trees, and “bulbed out” sidewalk areas at mid-blocks.
<ul style="list-style-type: none"> ▪ Pedestrian Crossings: 	<ul style="list-style-type: none"> ▪ Regulated and clearly marked on the pavement.
<ul style="list-style-type: none"> ▪ Sidewalk Space for Browsing: 	<ul style="list-style-type: none"> ▪ 4 (1 to 5 scale, with 1 the lowest)
<ul style="list-style-type: none"> ▪ Sidewalk Space for Observing: 	<ul style="list-style-type: none"> ▪ 4 (1 to 5 scale, with 1 the lowest)
<ul style="list-style-type: none"> ▪ Sidewalk Space for Standing: Or sitting at congestion points: 	<ul style="list-style-type: none"> ▪ 3 (1 to 5 scale, with 1 the lowest)

Urban Form	Qualitative Evaluation
<ul style="list-style-type: none"> ▪ Sidewalk Space Overall Evaluation: Supply versus demand 	<ul style="list-style-type: none"> ▪ Although the space provided is wide enough to support typical pedestrian activities, big pedestrian turnouts produce sidewalk congestion at peak times.
<ul style="list-style-type: none"> ▪ Personal Safety and Security: 	<ul style="list-style-type: none"> ▪ Infrequent rounds of police patrols, but constant parking enforcement.

Finally, and in order to provide the necessary information for building the hypothetical function described in Chapter 3:Methodology, an assessment of the study variables is established in Table 8, below.

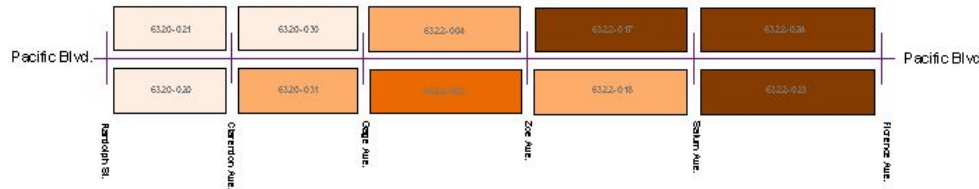
Table 8: Assessment of Study Variables, Pacific Boulevard

Study Variables	Acronym	Definition
Gross Leasable Area	GLA	Mega-Regional center size (1,800,000 sq. ft.)
Parking Convenience	PC	About ¾ of parking spaces are off-street and within walking distance. Lots are evenly distributed along the commercial strip.
Area Median Income	AMI	\$24,800. About 30% below AMI for LA County
Population Density	PD	41.5 persons per acre. About two times the average for LA County
Street Section	SS	120 ft.
Sidewalk Width	SW	15 ft. (Walking space is 12 ft.)
Block Length	BL	Between 600 and 900 ft. Broken down to 450 feet by mid-block crossings.
Store Frontage	SF	About 21 ft. in average
Physical Comfort ¹	PHC	Good
Psychological Comfort ²	PSC	Average
Retail Categories	RC	Highly concentrated on comparison and specialty shopping, with important pockets of personal and professional services.
Ethnicity / Cultural Background	EB	Majority Hispanic, young adults, and family households with children.

Pacific Boulevard as a whole reproduces an ethnic Latino cultural image, within an American streetscape. This implies that there has been a process of assimilation and blending of different urban experiences to redefine this urban space into a new version of the old model. Though the success of the area as a pedestrian environment is mostly due to the cultural fit between stores and their patrons, and the design features of the public space that allow for a wider number of social activities happening along its sidewalks.

Figure 15: Physical Environment Parameters by Block, Pacific Boulevard

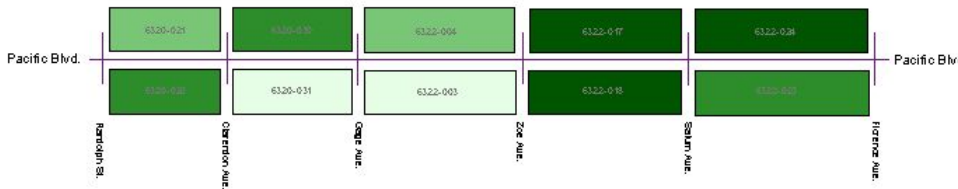
Store Count per Block



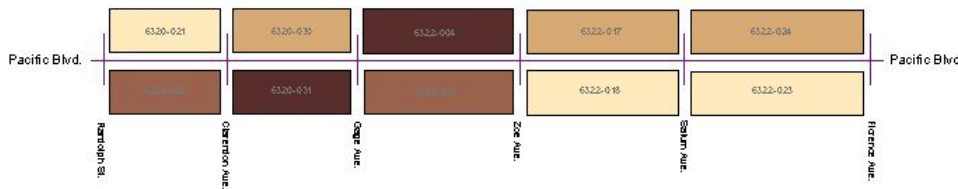
Average Linear Feet of Store Frontage



Average Square Footage per Parking Space



Floor Area Ratio per Block



Pacific

Urban Form and Design Parameters

Store Count

- 11 - 28
- 31 - 36
- 38
- 41 - 50

Average Front

- 17.6 - 19.5
- 19.5 - 21.9
- 21.9 - 22.5
- 22.5 - 36.8

Sq. Ft. per Parking

- 466 - 528
- 528 - 817
- 817 - 941
- 941 - 4365

Floor Area Ratio

- 0.59 - 0.68
- 0.68 - 0.8
- 0.8 - 0.98
- 0.98 - 1.48

N

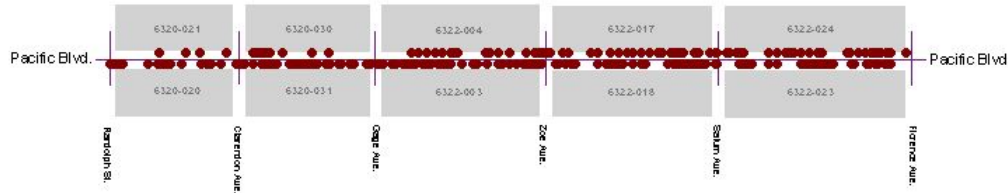
500 0 500 Feet

Source: Fieldwork Data
Created by Manuel Antonio Soto
June 28, 2001

Source: Fieldwork data and DataQuick

Figure 16: Store Location by Business Category, Pacific Boulevard

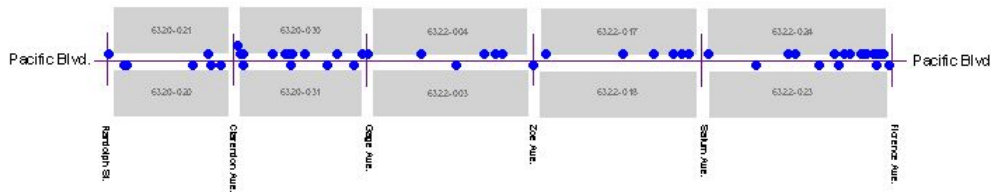
Comparison and Specialty Shopping



Restaurants and Entertainment



Convenient Shopping and Services



Vacant, Parking Lots and Other



Pacific Stores per Category

- Retail Goods**
 - Comparison Shopping
 - Specialty Shopping
- Recreational Goods**
 - Entertainment
 - Food and Drink
- Service Goods**
 - Convenient Stores
 - Personal Services
 - Professional Services
- Other**
 - Vacant and Other





Source: Fieldwork Data
Created by Manuel Antonio Soto
June 28, 2001

Source: Author using Fieldwork data and DataQuick

CHAPTER 5: Comparative Analysis

This chapter identifies and discusses the effect of factors and variables that influence pedestrian activity—and ultimately pedestrian flow, in the older commercial strips examined in this study. These factors include: retail characteristics, urban form and street design, and demographic characteristics.

5.1 Retail Characteristics

a) Gross Leasable Area

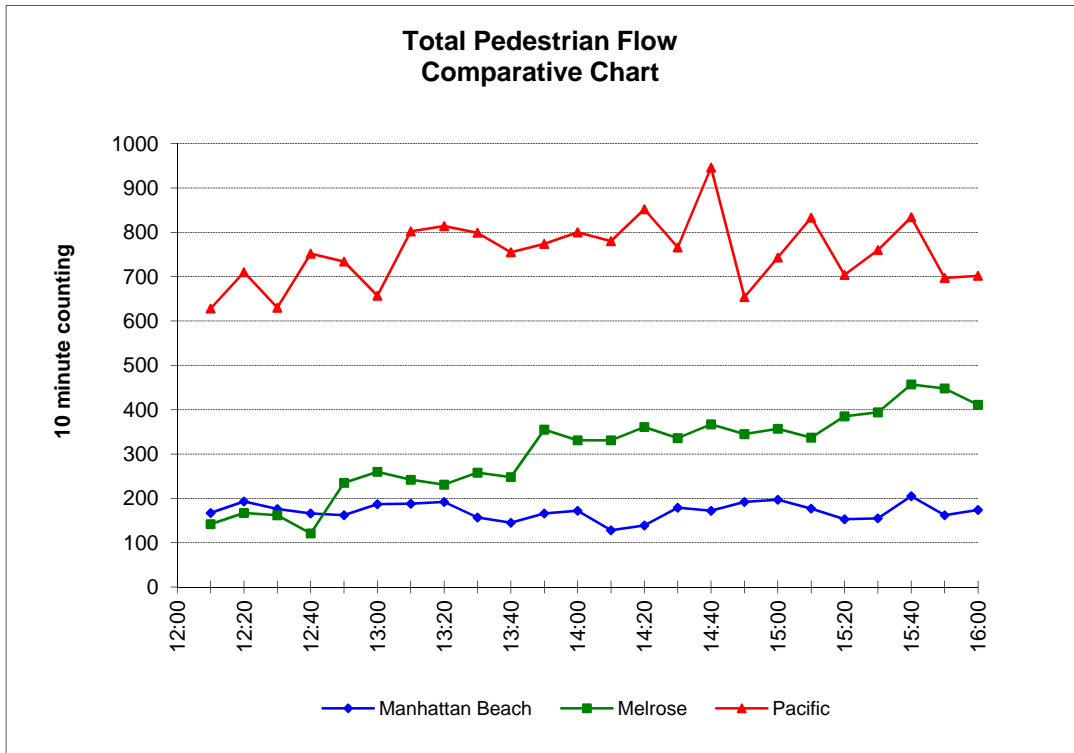
Pedestrian flow varied widely across the three study cases in terms of both number of persons and time of day. Figure 17 shows that peak pedestrian flows on Pacific Boulevard (i.e. total number of persons passing through the screen-line in a five-minute period, and on both sidewalks) were about 800 persons on average; peak pedestrian flows on Melrose Avenue were about 400 persons on average; while they were about 200 persons on Manhattan Beach. The nominal peak period (12:00 – 4:00 pm) varied across locations with Pacific Boulevard having the longest peak, between 1:00 – 4:00 pm, and Melrose Avenue having the shortest peak, between 2:00 – 4:00 pm.

Potential explanations for the observed differences in pedestrian flows might be uncovered through several layers of analysis. One major factor explaining differences in the number of persons across the case studies is the relative gross leasable area or the overall size of the shopping area. Another factor has to do with the ethnic background and demographic characteristics of area residents—acknowledging that people relate to urban form differently depending on their cultural traditions, tastes, or life-styles.

From the cases analyzed, Downtown Manhattan Beach and Pacific Boulevard appear to

be at opposite ends of the spectrum. Manhattan Beach, whose users are mostly White and high-income had the lowest pedestrian turnout, while Pacific Boulevard, whose users are largely Hispanic and low-income, had the highest turnout.

Figure 17: Pedestrian Counting Comparative Chart



Source: Fieldwork Data.

Table 9 compares the gross leasable area (GLA) at each location with total pedestrian counts per hour, as well as with other sidewalk measurements. Screen-line pedestrian counts on Pacific Boulevard outnumber those of Manhattan Beach by about 4.5 times (4,500 to 1,000 persons per hour). In terms of GLA, Pacific Boulevard also outnumbers Manhattan Beach by about 4.5 times—1.8 to 0.4 million square feet. Based on the gravity model concept and retail theory standards (ULI, 1985), Pacific Boulevard is likely attracting more people than Manhattan Beach due to its larger size, thus GLA alone would be explain the higher pedestrian turnouts at

this location; and hypothetically reducing the weight of other factors such as cultural background or population density.

If this were the case, and factors other than GLA were largely irrelevant, Melrose Avenue should have a pedestrian turnout of about 1.3 times that of Manhattan Beach, and Pacific Boulevard should have a turnout of 3.5 times that of Melrose Avenue. However, pedestrian counts on Melrose Avenue were about 1,800 persons per hour, or 1.8 times that of Manhattan Beach Boulevard, and the turnout on Pacific Boulevard was only 2.5 times higher. Even though there is an apparent relationship between GLA and pedestrian traffic, pedestrian volumes within the study areas cannot be explained by total GLA alone.

Table 9: Gross Leasable Area and Sidewalk Traffic Counts

Location	Total GLA (square feet)	Façade Length (feet)	Sidewalk Width (feet)	Unimpeded Walkway Width	Pedestrian Count (per hour)
Manhattan Beach	388,152	5,791	10.0	6.5	1,026
Melrose Avenue	513,577	5,600	12.0	8.5	1,821
Pacific Boulevard	1,815,507	7,265	15.0	11.5	4,532

Source: Author Fieldwork data and DataQuick.

Table 9, also compares pedestrian counts for all areas with regards to total façade length (both street sides), sidewalk widths, and unimpeded walkway width. Manhattan Beach and Melrose Avenue have similar façade lengths (about 1 mile total), but different sidewalk widths (10 feet and 12 feet respectively). Melrose Avenue’s total façade length is slightly shorter and its sidewalks are 20 percent wider, yet pedestrian turnouts are 80 percent larger than Manhattan Beach. At the same time, Pacific Boulevard’s total façade length is 25 and 30 percent longer than Manhattan Beach and Melrose respectively, and its sidewalks are 50 and 25 percent wider respectively. Therefore, longer and wider sidewalks on Pacific Boulevard may also relate to the

larger pedestrian turnouts observed at this location. However, bigger sidewalks on Pacific Boulevard do not appear to be enough to explain pedestrian turnouts 2.5 times bigger than those on Melrose Avenue and 4.5 times bigger than those on Manhattan Beach.

b) Retail Mixing

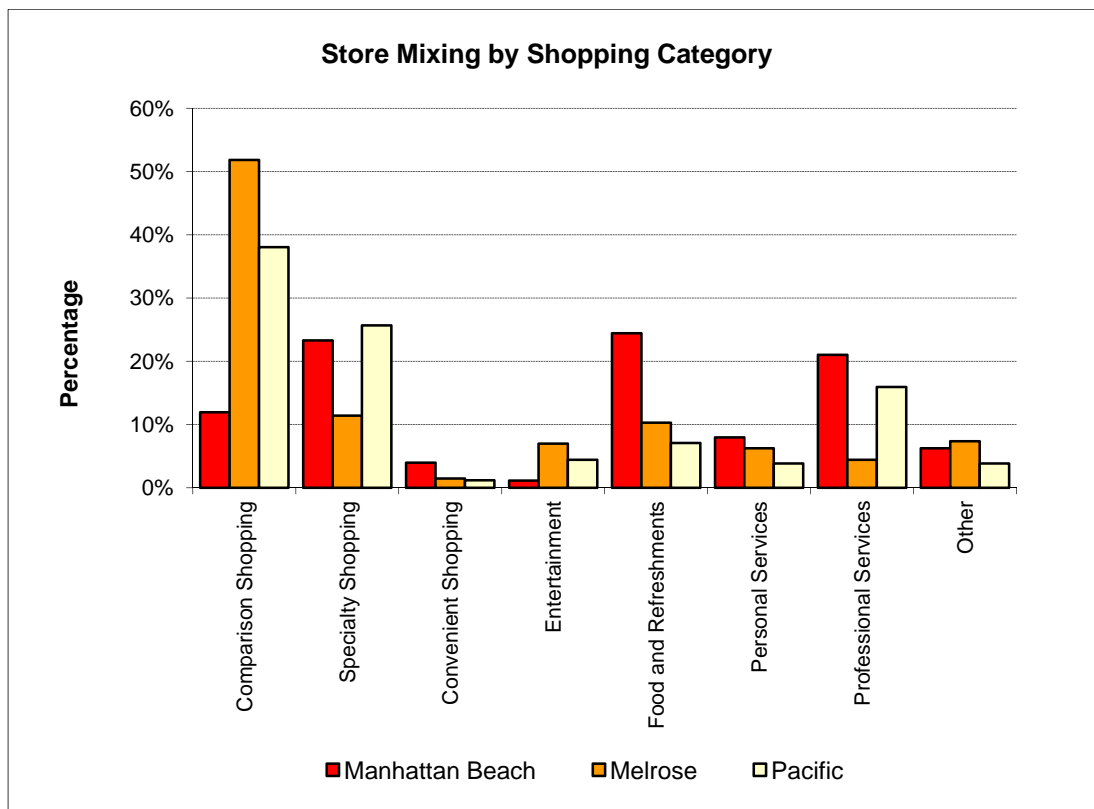
Pedestrian flows may also relate to the retail mixing (or store categories) that are found in each location, assuming that stores and businesses are related to supporting-population areas (or trade areas) of different size. Businesses such as convenient stores or personal and professional services are geared towards local areas of neighborhood scale, while other categories, such as clothing shops are oriented to larger regional areas (ULI, 1985). This means that concentrations of comparison shopping and specialty shopping stores should attract a larger number of customers than convenient shopping stores. Therefore, the store mixing found among sites should partly explain differences in pedestrian turnout, or flow, at each location. Based on ULI standards, store types were grouped into eight different business categories, these include:

- Comparison Shopping – clothing, shoes, and accessories
- Specialty Shopping – jewelry, toy and gift shops, interior design, etc.
- Convenient Shopping – cleaners, drugstores, markets, etc.
- Entertainment Business – theatres, arcades, bookstores, etc.
- Food and Refreshment – restaurants, coffeehouses, fast food, etc.
- Personal Services – hair salons, nails, spa, etc.
- Professional Services – real estate, attorneys, dentists, health, etc.
- Others – parking, vacant, or other.

The bar chart in Figure 18 below compares the store mixing at each site that results from

grouping stores by shopping category (percentages are based on number of stores per category over total number of stores). There is a wide variation in store mixing among sites. Presumably, store mixing variation reflects the different retail specialization levels found at each location. Variations are strongly correlated with the market opportunities that exist around each site, which are determined by the purchasing powers and characteristics of consumers in the trade area (ULI, 1985).

Figure 18: Store Mixing Comparative Chart



Source: Field data collection.

Figure 18 shows that Pacific Boulevard has a large concentration of comparison shopping stores (close to 40 percent), specialty shopping stores (about 25 percent), and a very small proportion of convenient shopping stores (about one percent). Professional services (namely

health and dental clinics, income tax and immigration services) that are also targeted to the overall trade area, make the next major category (over 15 percent).

On Melrose Avenue the large majority of stores are also comparison shopping (over 50 percent) and specialty shopping (about 10 percent). The next major business category is food and refreshments (about 10 percent as well), followed by entertainment, and personal services (about 7 percent each).

In contrast, Manhattan Beach has businesses spread more evenly across several categories. Comparison and specialty shopping make about 35 percent only (or one-third), with comparison shopping at just about 12 percent. The next largest categories are food and refreshments (about 25 percent), and professional services (about 20 percent). Specialty shopping (mostly home and interior decoration) and professional services (mostly real estate and legal services) in Manhattan Beach are mostly targeted to the local area, while food and refreshment cater to a larger trade area.

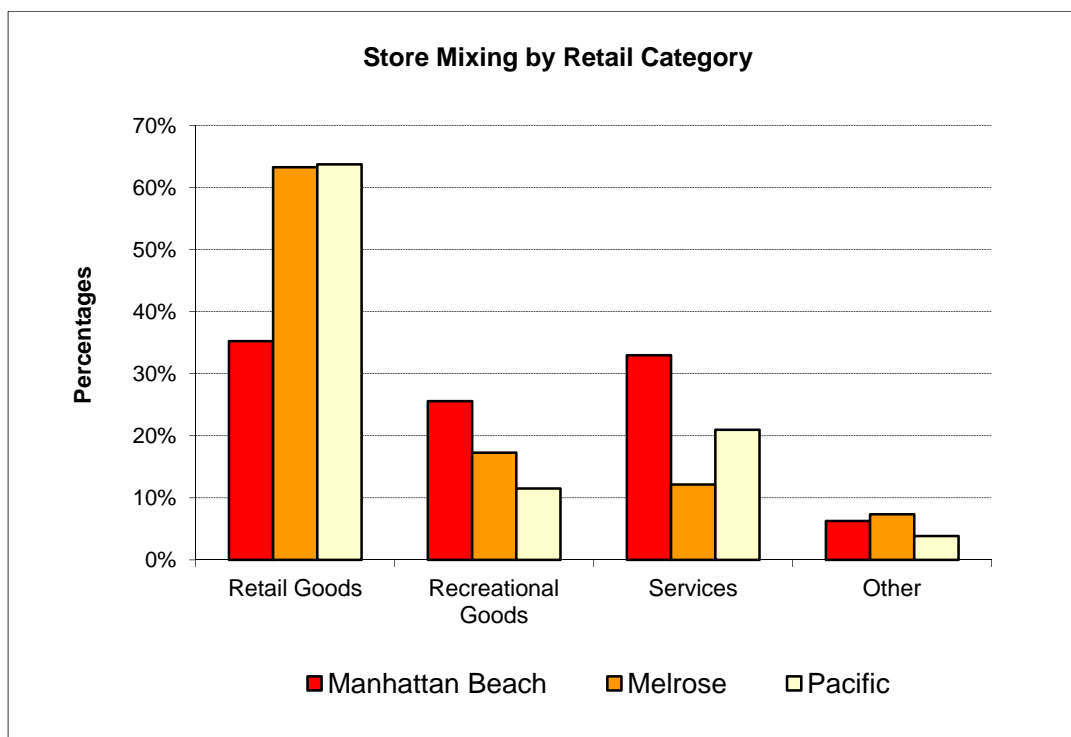
Based on my survey of three study cases, the store mixing found in each location appears to confirm the differences in pedestrian turnouts observed in each case. Areas that have larger proportions of comparison and specialty shopping, like Pacific and Melrose, attract larger numbers of pedestrians. While areas that have larger proportions of professional and personal services, as well as convenient shopping, such as Manhattan Beach, attract smaller numbers of pedestrians, because they cater mostly to a local and smaller trade area.

Also, the amount of comparison shopping alone appears to influence pedestrian flow. Thus, Melrose Avenue with more comparison shopping than Manhattan Beach has higher pedestrian flows, despite similar façade length and sidewalk widths. The same factor helps to explain the lower than expected difference between Melrose Avenue and Pacific Boulevard,

which has a longer façade length and much wider sidewalks, but lower concentration of comparison shopping than Melrose.

All three areas examined had a relatively small share of convenient shopping and services such as dry cleaning, hairdressers, and local markets. This is not surprising since none of the cases qualifies strictly as a neighborhood shopping area according to ULI standards (Table 21, on page 124).

Figure 19: Shopping Categories Comparative Chart



Source: Author’s field data collection.

Figure 19 presents the store mixing data that result from aggregating stores into larger groups of businesses, according to the kind of goods and services provided. This summarized version offers a clearer picture of the differences among sites. Retail goods (comparison and specialty shopping) make more than 60 percent of stores at Melrose Avenue and Pacific Boulevard. The main difference between these two shopping areas is manifested on the second

largest retail category, which on Melrose Avenue is comprised of recreational goods (restaurants and entertainment), and on Pacific Boulevard is comprised of services (convenient shopping, personal and professional services). Manhattan Beach has a more balanced distribution of businesses across retail types, with retail goods and services making more than 30 percent of its stores, and closely followed by recreational goods with about 25 percent of stores.

So, it appears that pedestrian activity and flow are influenced by the store mixing that is available at each shopping district. Taking into consideration the similar façade lengths that exist on Melrose Avenue and Manhattan Beach, the differences found in store mixing help explain the differences observed in pedestrian flow, which were 80 percent larger on Melrose Avenue. At the same time, the differences in comparison shopping and food and refreshment that exist between Melrose Avenue and Pacific Boulevard help explain the smaller difference in pedestrian flow, despite a much larger GLA, façade length and sidewalks along Pacific Boulevard.

c) Store Distribution

Also important for understanding the connection between store type and pedestrian traffic is the distribution of businesses along the shopping corridors. Using the same aggregation of stores by retail type analyzed in Figure 19, and mapping out stores for all areas of study (store location by business category: Figure 6, Figure 11, and Figure 16), it is possible to observe that retail goods concentrate around the segments of the strip where the biggest pedestrian crowds are found (Figure 3, Figure 8, and Figure 13). Also, retail goods stores appear to constitute the backbone of the selected areas of study, and are complemented with recreational goods, such as restaurants and entertainment businesses, to form the main structure of the shopping strip, while

convenient shopping and services tend to concentrate toward the strip ends or around less trafficked locations.

For example, Melrose Avenue shows a concentration of service businesses towards the east end of the strip, as well as other types (mainly vacant and parking lots) in both ends of the strip. The relationship between retail type distribution and pedestrian traffic is better observed along Melrose Avenue (comparing Figures 8 and 11), confirming the positive correlation found between retail and recreational goods and pedestrian traffic.

Stores along Pacific Boulevard (Figure 16) show a distribution pattern similar to Melrose Avenue differing only in the unambiguous concentration of convenient shopping and service businesses in two clusters towards both ends of the strip. Most remarkably, pedestrian traffic reaches higher levels of congestion on the sidewalk stretch between these two clusters (see Figure 13).

Manhattan Beach (Figure 6), instead, shows a more complex distribution pattern of stores given its grid form, which is emulated by pedestrian traffic flows (Figure 3). By and large, the two main axes Manhattan Beach Boulevard and Manhattan Avenue—primary and secondary axes respectively—concentrate the majority of retail goods, restaurants, and entertainment businesses. The biggest difference is the transitional role played by Manhattan Avenue, which simultaneously concentrates a big number of convenient shopping and services, while Highland Avenue, the tertiary axis, is devoted primarily to services.

It is possible to conclude, then, that store type distribution and pedestrian traffic are correlated, confirming the assumption that retail and pedestrians look for each other.

d) Average Store Size

Gross leasable area, store mixing, and distribution patterns offer substantive explanations for pedestrian traffic variations across study cases, as well as variations within each site; however they do not appear able to explain all of the differences in pedestrian traffic, for example, between Pacific Boulevard and Melrose Avenue.

Another explanatory variable may be found in the quality of retail goods available within each shopping district. The quality of retail goods is reflected in the price-point to aperture ratio (mainly window-display width or store frontage), according to Lagerfeld (1995). Table 10, below, presents a comparative analysis of the study cases with regards to store size and store frontage.

Table 10: Average Store Size and Frontage Width

Location	Number of Stores	GLA (sq. feet)	Average Shop (sq. feet)	Floor Area Ratio	Façade Length (feet)	Average Shop Frontage
Manhattan Beach	176	388,152	2,205	0.83	5,791	33.9
Melrose Avenue	272	513,577	1,888	0.84	5,600	22.0
Pacific Boulevard	339	1,815,507	5,355	0.87	7,265	22.7

Source: Author from fieldwork data and DataQuick.

Table 10 shows that on average the stores in Manhattan Beach are wider than those in Melrose Avenue (34 versus 22 feet respectively). However, it is not possible to assert that the price-point to aperture ratio in Manhattan Beach is lower than in Melrose Avenue, because non-retail businesses (such as banks, restaurants, and realtor offices) drive up the average façade width there. Although Melrose Avenue has a greater variety of stores and, on average, a shorter walking distance between window displays than Manhattan Beach, because at similar total façade length and store sizes, there are more stores to browse on Melrose Avenue than in

Manhattan Beach. There is a greater variety of stores on Melrose Avenue, and this may also be responsible for its higher pedestrian flows, compared to Manhattan Beach.

It can be asserted that price-point to aperture ratios are lower in Pacific Boulevard than in Melrose Avenue, because, at similar façade widths on average, stores on Pacific Boulevard are three times bigger in size than stores on Melrose Avenue. A larger number of stores, a larger GLA, bigger stores on average, and comparable shop façade widths make Pacific Boulevard an attractive place for pedestrians, because there is a great variety of stores and retail opportunities, as well as lower prices.

In conclusion, it appears that average shop frontage (store façade width or window display width) and number of shopping opportunities (number of stores) help explain the relative differences in pedestrian activity at each location, where Melrose Avenue has 50 percent more stores and a more dynamic sequence of window displays than Manhattan Beach, while Pacific Boulevard has twice the number of stores than Manhattan Beach, but only 25 percent more stores than Melrose Avenue and similar shop frontages.

5.2 Urban Form and Design

a) Building Size and Frontage

The next step is to analyze the implications of form and design in relation to pedestrian traffic or activity. Table 10 shows that average store sizes are more similar in Manhattan Beach and Melrose Avenue (about 2,000 square feet each) than stores in Pacific Boulevard (about 5,400 square feet). Pacific Boulevard stores are about 2.5 times larger on average. Floor area ratios (building square footage over parcel square footage) are similar for all cases, ranging between 0.83 to 0.87. This means that, proportionally, building masses are alike on Manhattan Beach and

Melrose Avenue, while on Pacific Boulevard they are much larger, because the footprint of buildings (and parcels) is much larger. Larger parcels and a similar FAR allow for larger buildings on Pacific Boulevard, a much larger GLA, and larger store sizes on average.

Total façade length, on the other hand, is similar on Manhattan Beach and Melrose Avenue but only 25 percent larger on Pacific Boulevard. Figure 16 shows that Pacific Boulevard has fewer blocks than Manhattan Beach or Melrose Avenue, and that they are particularly long (between 600 and 900 feet). However average shop widths are similar on Melrose Avenue and Pacific Boulevard (22 and 23 feet respectively), while on Manhattan Beach they are 50 percent times longer (about 34 feet). This means that out of the total sample analyzed, Manhattan Beach has small businesses (in terms of size or square footage) with relatively wide façades on average. Melrose Avenue has small businesses with relatively short façade widths, and Pacific Boulevard has large businesses with relatively short façade widths.

In other words, within the same walking length (one-half of a mile, for instance) Melrose Avenue has more business opportunities (or store façades) than Manhattan Beach, while Pacific Boulevard has about the same business opportunities as Melrose Avenue. This offers an alternative explanation for bigger pedestrian flows on Melrose Avenue and Pacific Boulevard than on Manhattan Beach, while the differences in pedestrian activity between Melrose Avenue and Pacific Boulevard seemed better explained by other factors such as wider sidewalks and a much longer shopping strip (which results in a larger GLA, overall façade length and total number of stores).

b) Parking Availability and Convenience

My field observations suggest that people travel to commercial strips primarily by car, which makes parking an important variable of analysis. Table 11 presents parking figures, for all three cases of study, broken down by on-street (metered) parking and off-street (free) parking. Melrose Avenue has the least number of total parking spaces as a result of less curb parking availability (mostly due to parallel parking), shorter blocks, and a compact urban fabric that does not leave much room for off-street parking development. Presumably, most off-street parking on Melrose Avenue occurs within the adjacent residential streets; thus I have likely underestimated Melrose Avenue’s parking. Manhattan Beach and Pacific Boulevard provide larger quantities of off-street parking, inside commercial blocks, or on adjacent blocks behind businesses.

Table 11: On-Street and Off-Street Parking Counts

Location	Number of Stores	GLA (sq. feet)	On Street Parking	Off Street Parking	Total Parking
Manhattan Beach	176	388,152	348	914	1,262
Melrose Avenue	272	513,577	261	559	820
Pacific Boulevard	339	1,815,507	534	1,834	2,368

Source: Fieldwork data.

From Table 11 it is possible to estimate the ratio of on-street parking per shop. This is 1.97 on Manhattan Beach, 0.96 on Melrose Avenue, and 1.58 on Pacific Boulevard. This shows that on average there is more on-street parking per shop on Manhattan Beach than on Melrose Avenue and Pacific Boulevard. This suggest that the quantity of on-street parking is not strongly related with pedestrian traffic, given that pedestrian traffic is 80 percent larger in Melrose Avenue than in Manhattan Beach, despite Manhattan Beach having twice the supply of on-street

parking. At the same time, Pacific Boulevard has a much bigger pedestrian turnout and a slightly lower ratio of on-street parking per store.

Table 11 also shows that Manhattan Beach has a large supply of off-street parking per store at 5.2 spaces per store (914 off-street stalls over 176 stores). This same ratio is only 2.1 on Melrose Avenue pointing out a relative lack of off-street parking, and it is 5.4 on Pacific Boulevard showing a relative abundance of parking on the back streets.

In general, total parking spaces are only twice as great in Pacific Boulevard than in Manhattan Beach, while pedestrian traffic in Pacific Boulevard is more than four times higher than that of Manhattan Beach. It seems that there are more pedestrians in Pacific Boulevard coming by foot, bus or other transportation modes. Also, groups of people walking along Pacific Boulevard are larger than those on Manhattan Beach, so it appears that more solo driving is going on at Manhattan Beach and more ridesharing at Pacific Boulevard. This is consistent with the store mixing found at Manhattan Beach, where convenient shopping, personal services, and professional services (which are assumed to require more on-street parking than comparison and specialty shopping) make a larger share of all businesses. At the same time, it provides evidence that more parking spaces per store (as a measure of access) is not necessarily better for pedestrian activity, and makes the case for areas with limited on-street and off-street parking such as Melrose Avenue, which result in a more vibrant pedestrian experience, keeping all other things equal (façade length, average shop size, floor area ratio, and similar sidewalk width).

Table 12 compares the ratio of parking stalls per shop and square footage served, with the supply of parking on a block-by-block basis and for the whole commercial area. Based on the overall number of spaces per shop, Melrose Avenue appears to have the lowest quantity of parking per shop (about 3 spaces per shop), and less than half the number of parking spaces per

shop that exists at Manhattan Beach and Pacific Boulevard (7 spaces per shop each). It is possible to assert that the average amount of parking per shop does not appear to account for the differences in pedestrian traffic observed between locations.

An alternative is to link the amount of parking with the number of shops that are available on each block. Averaging parking supply at the block level shows that Melrose Avenue and Pacific Boulevard have a more homogeneous distribution of parking and shops along the shopping strip. In contrast, Manhattan Beach, due to its urban form constraints and grid layout, has an uneven parking supply concentrating large amounts of parking at its northeast end where there are fewer businesses (see Figure 3). Averaging the parking supply by block drives up the standard ratios to 15 spaces per shop, since there are 4 blocks out of 19 that concentrate the majority of the parking supply. This undoubtedly affects the strip’s parking accessibility and convenience favoring some sections (Manhattan Beach Boulevard) and neglecting others (Manhattan Avenue). It seems clear, at least, that the distribution of parking spaces plays a role in making some blocks or strip sections more accessible than others.

Table 12: Observed Parking Standards or Ratios

Location	Spaces per Shop		Square Feet per Parking Space	
	Block Average	Total Average	Block Average	Total Average
Manhattan Beach	15.2	7.2	620.7	307.6
Melrose Avenue	3.3	3.0	709.5	626.3
Pacific Boulevard	7.2	7.0	1,082.8	766.7

Source: Author from fieldwork data, Data Quick.

Another alternative is to analyze the gross leasable area (square footage) served by parking space across locations. Table 12 shows that on Manhattan Beach, the GLA served by each parking space is on average about 300 square feet. The average GLA served by parking

space is more than 750 square feet on Pacific Boulevard, and more than 600 square feet on Melrose Avenue. These figures show that there are more parking stalls per commercial square foot in Manhattan Beach than in Melrose Avenue or Pacific Boulevard (2.0 and 2.5 times more parking respectively), and again, suggests that parking quantity is less important than convenience (easy access and distribution).

In summary, Manhattan Beach has more parking spaces per square foot than either other case, providing a good fit with the area user's profile: high-income, majority White, and high auto-ownership rates, which most likely makes the automobile the predominant mode choice. Conversely, Pacific Boulevard has the lowest square footage service rate, which is equally consistent with its users' profile: lower-income, majority Hispanic, lower auto-ownership rates, and high transit dependency.

It was observed from field observations that finding parking on Manhattan Beach was a hard task, while on Pacific Boulevard it was rather easy. These observations appear to be related with access mode differences at the two locations. Pacific Boulevard may have a relatively larger parking supply in relation to the amount of driving and parking demand of its users, while Manhattan Beach may experience shortages of parking supply since it is more likely that the majority of its visitors drive to get there, and finding parking is difficult because of street design issues. Melrose Avenue stands somewhat in between, since its parking supply is rather undetermined—extending inside the residential area. However it is not easy to find parking there and in my experience often requires hunting for a while. At the same time, many people access the area on foot or share a ride. Most importantly, it appears that the relative shortage of parking in Melrose Avenue does not affect access and instead creates a more vibrant pedestrian environment.

c) Physical Comfort

New Urbanists call for narrower streets and traffic calming devices in order to slow down vehicle traffic and reclaim the street environment for the pedestrian (Appleyard 1981, Katz 1994). The analysis of case studies shows that Downtown Manhattan Beach has incorporated a complete landscape design in its sidewalks and has reduced its roadway width to 43 percent of the right-of-way (34.5 feet). There have been some improvements to the Pacific Boulevard sidewalks (mainly bus shelters, benches and greenery at intersections) and has reduced its roadway to 45 percent of the right-of-way (55 feet). In contrast, Melrose Avenue has not done any sidewalk improvements (besides adding restaurant concession areas) and has more than 50 percent of the street section dedicated to roadway (41 feet).

All case studies have developed some form of buffering between the roadway and the sidewalk, which normally is dedicated to metered parking (parallel or 45-degree), street furniture, and vegetation. Pacific Boulevard has the wider street section (120 feet), the widest buffering zone (20.5 feet), and experiences the largest pedestrian traffic of all study cases. Melrose Avenue and Downtown Manhattan Beach have street sections of 80 feet, and buffering zones of 10.5 and 20.5 feet respectively. As it has been observed previously, Melrose Avenue and Pacific Boulevard have more pedestrian traffic than Manhattan Beach, despite the fact that Manhattan Beach has a narrower roadway space and, proportionally, a larger buffering zone (as a ratio of roadway space). It appears that buffering the sidewalk from vehicle traffic is important to develop protected pedestrian environments, but it is not as clearly related to pedestrian traffic as it is the width sidewalk or the gross leasable area.

Reducing traffic speed appears to be a major objective of the street design in commercial strips in order to produce a more suitable environment for pedestrians. Forty-five degree parking

seems to work well in reducing traffic speed, because any vehicle trying to pull out of a parking stall must stop traffic (it also allows drivers to more efficiently pull into the spot without the maneuvering required for parallel parking). The first car in traffic usually takes the empty spot delaying traffic for a fraction of second. Also, many drivers cruising along the strips have been hunting for parking and are eager to park quickly; so many times they stop traffic as soon as they see a potential driver getting back to his/her car, thus adding more delay.

In principle, the longer the blocks, the faster traffic will move. One design tool for reducing traffic speed is to create mid-block crossings (in a commercial strip with long blocks such as Pacific Boulevard), or add traffic lights and left-turn delays onto the traffic stream (in commercial strip with short blocks such as Manhattan Beach and Melrose Avenue). Traffic congestion and reduced traffic speeds are, in the end, an outcome of the street design features built into the place. Indeed, the roadway width does not appear to preclude commercial strips from achieving speed reductions, as it has been observed in Pacific Boulevard. An important feature perhaps is that roadway sections in all three case studies were relatively narrow (one lane of traffic and turn lane in the case of Downtown Manhattan Beach, two lanes of traffic in Melrose Avenue, and two lanes of traffic and turn lane in Pacific Boulevard, which was reduced to two lanes at mid-block pedestrian crossings), as opposed to a typical suburban arterial street with three lanes of traffic, thus allowing for a relatively easy and safe pedestrian crossing, especially in Manhattan Beach and on Pacific Boulevard, where all pedestrian crossings are signalized and clearly marked on the pavement.

Sidewalk Space

Adequate allocation of space for walking, waiting, browsing, and observing are deemed

as the main pedestrian functions in public spaces (Ballou, 1978). As a complement to reduced roadway space and buffer zones, comfortable sidewalks are important for producing attractive pedestrian environments. A comfortable sidewalk combines an appropriate walkway space (that is free of obstacles and has enough space to walk, stop, and look at window displays), with the provision of controlled places to socialize (usually benches comfortable enough for people watching, or tables to have a bite or a sip, in highly- trafficked strip sections). Sidewalk width should be determined by the size of pedestrian flows. For instance, the available walkway space on Downtown Manhattan Beach sidewalks is only 6.5 feet, and is too narrow to handle simultaneous pedestrian activities (such as walking, waiting/observing, and browsing), generating numerous passing conflicts. The available walkway space on Melrose Avenue is 8.5 feet, and is to be about right to handle simultaneous pedestrian activities, except for those locations where the walkway is reduced by restaurant concession areas, street vendors, and/or tree planters. The available walkway space on Pacific Boulevard is 11.5 feet and, in contrast to Manhattan Beach, appears to be wide enough to handle simultaneously all types of pedestrian activity.

There appears to be a direct connection between sidewalk width, or unimpeded walkway space, and pedestrian traffic (see Table 9, on page 82). On one end, Pacific Boulevard has the widest sidewalks and the heaviest pedestrian flow, and on the other end Downtown Manhattan Beach has the narrowest unimpeded walkway space and the lightest pedestrian flow. Melrose Avenue stands in between these two in terms of both unimpeded sidewalk space and pedestrian traffic. Calculating the pedestrian counts per hour by width unit (or by foot of unimpeded sidewalk), Table 9 shows that Manhattan Beach has a pedestrian flow of 158 persons per hour, Melrose Avenue has a flow of 214 persons per hour, and Pacific Boulevard has a flow of 394

persons per hour. It appears that a wider sidewalk, and unimpeded walkway space, not only generates a larger pedestrian traffic, because of its larger sidewalk capacity (or width), but also it generates a larger flow of pedestrians per unit of width.

It has been found previously that GLA, store mixing (comparison and specialty shopping), store distribution, and parking convenience have an impact on pedestrian traffic. But pedestrian flows appear to be also greatly affected by the unimpeded walkway space, or sidewalk width that is available to conduct pedestrian activities. The walkway space width thus appears to explain the differences in flow across locations that were not accounted for by retail characteristics alone.

d) Psychological Comfort

Presumably the psychological comfort at shopping locations affects pedestrian activity. Psychological comfort includes the provision of personal buffer zones sufficient to avoid physical contact with others and feel comfortable, the provision of trees, planting, and other elements that give visual comfort, and the provision of visual clues that give information, direction, and assurance to pedestrians (such as appropriate signage or coherence in the design of façades and street elements).

Appropriate personal buffer zones are a function of the amount of walkway space, or sidewalk width that is provided at locations. As discussed in the Physical Comfort section, locations such as Manhattan Beach where the unimpeded sidewalk width is too narrow do not offer appropriate personal buffer zones, even in non-congested situations; Pacific Boulevard, by contrast, has personal buffer zones that appear to be appropriate and are only reduced, or trespassed, under congestion circumstances.

The provision of visual comfort in the form of trees, greenery, and other street design elements (i.e. street lights), such as those provided in Downtown Manhattan Beach, does not appear to have a relevant connection with pedestrian traffic in my three case studies. Other factors have more weight in explaining pedestrian activity across locations, and it appears that visual comfort elements are mostly subordinated to the visual clues and information present at each location, or the location theme. Melrose Avenue has a vibrant pedestrian environment despite the lack of greenery and street design elements found in Manhattan Beach.

Visual information and assurance elements appear to provide most of the psychological comfort needed by pedestrians in the shopping districts analyzed. This is provided not only by the coherence in the design of façades, but also by the consistency and continuity of the shopping strip. Analyses of data gathered at the block level shows that sidewalks attracting larger pedestrian crowds, on all locations, are those that have store façade widths of 20 to 30 feet on average (store façade widths ranged from 13 to 43 feet wide, with the typical store façade ranging roughly between 20 to 30 feet wide).

According to Lagerfeld (1995), the façade width and the openness of the window display are linked to the walking pace of pedestrian-shoppers and the price-point to aperture ratio of shops, respectively. The cardinal rule is to keep shoppers' eyes on the merchandise at all times (Lagerfeld, 1995). By this principle, narrower store façades (less than 20 feet wide) do not offer enough time to catch the attention of shoppers' eyes, and could pass unnoticed by pedestrians walking at a normal pace. Conversely, wide store façades (more than 30 feet wide) do not keep an appropriate façade-variety rhythm and break the continuity of stimulus.

The analysis of stores at the block level shows that blocks having wider shop façades, on average, tend to have business types other than retail, such as banks, groceries stores, drugstores,

or department stores, which often have uninteresting window displays and sometimes just a blank wall facing the sidewalk, thus, breaking the continuity of stimulus and the rhythm of shops along the sidewalk. This is observed in Manhattan Beach and towards the ends of the shopping strip in Melrose Avenue and Pacific Boulevard where pedestrian traffic is lower. Research has shown that pedestrians value the continuity and variety of store façades along commercial strips: color, evocative displays, and brand names are important factors enhancing people's attraction to shops. They provide reassurance in relation to their lifestyles and cultural background.

The analysis also shows that blocks having façade continuity, in all cases, are more crowded than blocks having empty lots or walls. Also, the blocks that concentrate major traffic generators, such as restaurants, retail chain stores, and/or brand name stores, are the ones with pedestrian traffic across locations.

5.3 Demographics

a) Ethnic Background

Demographic and cultural issues presumably influence the levels of activity found across locations. Table 13 compares the total population and its breakdown by race and ethnicity within the neighborhood area (0.5-mile radius) and the total trade area around each shopping district (3-mile and 5-mile radius). Trade areas are defined, based on Urban Land Institute standards, as shown in Table 22: Primary Trade Areas General Guidelines (ULI, 1985). Supporting populations available within a 0.5-mile radius vary widely between places, with Downtown Manhattan Beach having the smallest (9,201 persons) and Pacific Boulevard having the largest one (31,570). Differences are explained, in part, by the coastal location of Manhattan Beach, which has the Pacific Ocean accounting for a sizable portion of its 0.5-mile radius area, as well

as its total trade area, thus reducing its overall supporting population. But also, the differences are also explained by differences in population density, which are about 75 percent higher around Pacific Boulevard than Manhattan Beach, on the neighborhood area, and 50 percent larger on the total trade area.

Total trade areas (3-mile radius) on Melrose Avenue and Pacific Boulevard attracted similar population figures, however given its GLA and number of stores Pacific Boulevard gravitates over a larger trade area according to ULI standards (5-mile radius), and therefore over a bigger population figure. Thus, observed differences in pedestrian traffic could be well explained by the trade area’s size and density, where Pacific Boulevard has a bigger and denser trade area, and Manhattan Beach has a smaller and less dense trade area.

Table 13: Population Race and Ethnicity Characteristics

Race and Ethnicity	Manhattan Beach		Melrose Avenue		Pacific Boulevard	
	0.5 Miles	3 Miles	0.5 Miles	3 Miles	0.5 Miles	5 Miles
White	95.8%	90.1%	91.3%	68.5%	31.3%	27.1%
Black	0.3%	1.1%	2.1%	12.2%	1.2%	22.3%
American Indian	0.3%	0.4%	0.2%	0.4%	0.5%	0.5%
Asian	2.5%	5.4%	3.8%	9.1%	2.0%	1.6%
Hispanic	4.5%	8.5%	7.9%	22.2%	92.4%	73.4%
Population	9,201	95,903	19,749	301,311	31,570	887,829

Source: 2000 US Census data by block.

Table 13 confirms field observations with regards to the race/ethnicity mix across the case studies. Manhattan Beach is a predominantly White area (more than 90 percent) in both its neighborhood and overall trade areas. Melrose Avenue has a predominantly White population at the neighborhood scale, but has a larger mix of Hispanics, Blacks, and Asians in its total trade area (which matches field observations). Pacific Boulevard, in contrast, has a predominantly

Hispanic population within its neighborhood area (more than 90 percent), but includes a larger mix of Blacks (~22 percent) and Whites (~27 percent) in its total trade area. This suggests that differences in race and ethnicity play a role in attracting more or less traffic to pedestrian areas, at least in these three case studies, where heavily Hispanic areas produce more pedestrian traffic and heavily White areas produce less traffic. However, other factors could be at play, which are often present with race, such as income or household characteristics.

b) Age Group and Household Characteristics

As total population influences the many scores of pedestrians who visit each shopping district, race and ethnicity influence the people mix on the sidewalks. Table 14 compares the population broken down by age group within the three areas of study, by both the neighborhood scale (0.5-mile radius) and the total trade area (3-mile/5-mile radius). All areas are characterized by larger proportions of young adults in the 20-44 years old segment (42 to 55 percent of the population), and varying proportions of middle-aged persons (45 to 65 years old), teenagers (10 to 19 years old), seniors (over 65 years old), and children (under 9 years old).

Table 14: Population Breakdown by Age Group

Age Group	Manhattan Beach		Melrose Avenue		Pacific Boulevard	
	0.5 Miles	3 Miles	0.5 Miles	3 Miles	0.5 Miles	5 Miles
Under 9	9%	11%	8%	11%	21%	21%
10 to 19	7%	9%	6%	9%	18%	18%
20 to 44	55%	53%	50%	49%	45%	42%
45 to 65	21%	20%	16%	17%	11%	12%
Over 65	8%	8%	20%	14%	5%	7%

Source: Author’s calculations of 2000 US Census data by tract.

Young-adults comprise more than 50 percent of the population living around Manhattan Beach, followed by 20 percent of middle-age persons, and roughly similar proportions of children, teenagers, and seniors (about 8 percent each). On Melrose Avenue, young adults are 50 percent of the population, followed by 20 percent of seniors and about 15 percent of middle-age persons; teenagers and children make about 7 percent each. On Pacific Boulevard, young adults make only 45 percent of the population, followed by children and teenagers with about 20 percent each; middle age and seniors make 10 and 5 percent respectively.

Thus, Manhattan Beach has a larger population of young adults and middle age persons (more than 75 percent), but few families with children. Melrose Avenue has a similar population mix, except for a larger senior population (20 percent) and fewer children and teenagers. While Pacific Boulevard has a large population of children and teenagers (about 40 percent combined), fewer seniors and middle-age persons, and a large presence of young families.

Table 15: Household Characteristics

Household Type	Manhattan Beach		Melrose Avenue		Pacific Boulevard	
	0.5 Miles	3 Miles	0.5 Miles	3 Miles	0.5 Miles	5 Miles
One Person HH	38%	34%	56%	48%	14%	19%
Married with children	19%	21%	12%	16%	43%	35%
Married no children	32%	31%	21%	20%	14%	13%
Single with children	4%	7%	4%	8%	20%	23%
Single no children	6%	8%	7%	8%	9%	10%

Source: Author's calculations of 2000 US Census data by tract.

It appears that population age-group differences are rooted in the average household size or type of household present around each area; Table 15 shows dramatic differences in household characteristics among the case studies. Within a 0.5-mile radius there are more than 75 percent of households without children in Manhattan Beach and Melrose Avenue (One Person

HH, Married no Children, and Single no Children), while on Pacific Boulevard more than 60 percent of households are families with children (married with children and single with children).

In addition, the biggest proportion of households within Manhattan Beach and Melrose Avenue is the one person household, which in Melrose Avenue comprises more than 50 percent of all households. It appears that household type and the resulting average household size influences the pedestrian mix and traffic levels that are observed on commercial strips. A larger population base in the trade area, plus larger family groups promenading on sidewalks account for bigger pedestrian flows on Pacific Boulevard. A larger population in the trade area, and a larger proportion of young adult households without children, explain larger traffic levels on Melrose Avenue as compared to Manhattan Beach.

c) Population Density and Urban Development Density

New Urbanists have asserted the importance of more compact urban form and higher population densities for the development of better pedestrian environments. Table 16 presents comparative residential population density figures (persons per acre) at the neighborhood scale and by total trade area, for all case studies. Downtown Manhattan Beach and Melrose Avenue present similar population density levels (24 persons per acre) at the neighborhood scale, and slightly different densities on the overall trade area; Melrose Avenue is 20 percent denser (26 versus 22 persons per acre). Population densities on Pacific Boulevard are, in contrast, much higher on both the neighborhood scale and the overall trade area (42 and 31 persons per acre, respectively). The higher population densities on Pacific Boulevard and larger population residing in its neighborhood and overall trade area, would explain the larger pedestrian traffic observed on its sidewalks.

Table 16: Urban Development and Population Density

Population & Urban Density	Manhattan Beach		Melrose Avenue		Pacific Boulevard	
	0.5 Miles	3 Miles	0.5 Miles	3 Miles	0.5 Miles	5 Miles
Population	9,201	95,903	19,749	301,311	31,570	887,829
Housing Units	4,619	45,067	10,326	154,053	8,483	230,575
Average Parcel	3,624	4,285	3,474	3,286	3,902	5,351
Persons per Unit	2.0	2.1	1.9	2.0	3.7	3.9
Persons per Acre	23.9	21.6	24.0	25.9	41.5	31.4

Source: Author's calculations of 2000 US Census data by block and LA County Assessors Maps.

Supposedly, higher population densities lead to more use of public spaces because there are a larger number of people living within the trade area with a relative lack of private space. This is better illustrated by the average population density per housing unit or persons per housing unit factor, on Table 16, where Pacific Boulevard has roughly twice the number of people per unit than in Manhattan Beach or Melrose Avenue (3.9 versus 2.0 persons per acre). It appears that the neighborhoods around Pacific Boulevard not only have more persons per acre, but also have a higher number of persons per housing unit. Thus, housing units around Pacific Boulevard are relatively more crowded than those around other places and would have lower levels of private space available per person.

In terms of urban development compactness, Melrose Avenue appears to have the smallest parcel size on average, on both the neighborhood scale and the trade area (roughly 3,500 and 3,300 square feet respectively), while Pacific Boulevard has the largest parcels on average. Urban development density may affect the walking attractiveness of residential areas surrounding commercial strips. Smaller parcels bring buildings closer together and result also in smaller fronts, introducing more variety in the pedestrian-path and a higher sense of sheltering, or a more contained streetscape.

In Downtown Manhattan Beach, development compactness is expressed on small blocks, narrow streets, and relatively small parcels, with short fronts, and multi-level houses that try to maximize ocean views, creating a neighborhood of mostly single-family detached homes that are supportive of a beach-like urban setting. On Melrose Avenue, development compactness is expressed on relatively small parcels that have been developed overtime with nearby low-rise multi-family housing, creating amenable residential sidewalks with continuous façades leading to major thoroughfares. While on Pacific Boulevard, development density is expressed mostly on larger parcels that house large multi-family apartment complexes, as well as detached single-family housing with additional standalone units, that accommodate larger household sizes on average.

The comparison of housing types across case studies (Table 17) offers supporting evidence with respect to differences in population density and urban development density across locations. Apartment complexes make up 70 percent of all housing around Melrose Avenue, while on Manhattan Beach detached single-family housing makes up more than 60 percent of housing units. On Pacific Boulevard there is a mix of apartment complexes and detached single-family housing, with about 45 and 35 percent respectively on the neighborhood area, and 35 and 50 percent respectively on the overall trade area.

Table 17: Housing Type

Housing Type	Manhattan Beach		Melrose Avenue		Pacific Boulevard	
	0.5 Miles	3 Miles	0.5 Miles	3 Miles	0.5 Miles	5 Miles
Detached	62%	54%	17%	22%	35%	49%
Attached	7%	10%	4%	4%	14%	12%
Duplex	15%	7%	8%	5%	5%	6%
Apartment	16%	30%	70%	69%	46%	34%

Source: 2000 US Census data by block.

I find from these case studies that development density and population density, especially larger household sizes, results in lower rates of personal space and may be driving a demand for spending time outdoors and on the street. Differences in pedestrian volumes are explained by development density (mostly apartments) and population density (household size). Melrose Avenue and Manhattan Beach have similar average household sizes, however Melrose has much denser development, comprised mostly of apartment buildings, and thus less personal space. While Pacific Boulevard has slightly less dense development, but a much larger average household size, population density, and reduced personal space.

d) Median Income and Vehicle Ownership

Housing types are also related to home ownership ratios, and these are in turn related to median income levels. Higher home ownership ratios are found in areas with higher income and higher proportions of detached single-family housing, such as Manhattan Beach. Table 18 compares the area median income and home ownership ratios across the case studies. Area median income on Manhattan Beach is about two times higher than on Melrose Avenue and about three times higher than on Pacific Boulevard. Home ownership levels are also much higher on Manhattan Beach, more than 50 percent of all housing units, while on Melrose Avenue and Pacific Boulevard rentals comprise more than 75 percent of all housing units. Housing types, and ultimately population density, are then directly correlated to income and home ownership levels and they appear to have a negative correlation with pedestrian activity, where the higher the income level and amount of single-family housing the lower the traffic of pedestrians. Income per capita was, in fact, six times higher on Manhattan Beach than on Pacific Boulevard for year 2000.

Table 18: Area Median Income and Home Ownership Ratios

Median Income & Home Ownership	Manhattan Beach		Melrose Avenue		Pacific Boulevard	
	0.5 Miles	3 Miles	0.5 Miles	3 Miles	0.5 Miles	5 Miles
Median Income	\$70,250	\$54,192	\$36,360	\$35,804	\$24,815	\$20,504
Per Capita Income	\$41,956	\$28,275	\$23,861	\$24,893	\$7,138	\$6,859
By Owner	52%	51%	21%	25%	22%	33%
By Renter	48%	49%	79%	75%	78%	67%

Source: Author's calculations from 2000 US Census data by block.

Vehicle ownership is also correlated with income as it is shown in Table 19. About two-thirds of households (67 percent) on Manhattan Beach are households with two or more vehicles, and 97 percent of households have at least one vehicle. On Melrose Avenue the largest group is comprised of one-vehicle households (50 percent). Households with two or more vehicles account for only one-third of all households (32 percent), while less than 20 percent of households are zero-vehicle households. On Pacific Boulevard the largest group is also comprised of one-vehicle households; however these are only 38 percent of all households. Over 20 percent of households are zero-vehicle households and, not surprisingly, Pacific Boulevard households with two or more vehicles are a larger proportion of households than in Melrose (40 percent versus 32 percent). The larger proportion of families with children, and larger average household size explain some of the differences in vehicle ownership near Pacific Boulevard compared to the other two cases, but although there are more vehicles available per household than in Melrose Avenue, there are fewer vehicles available per capita, and a higher dependence on other modes of transportation such as walking in Pacific Boulevard.

Table 19: Households Vehicle Ownership Ratios

Vehicles per Household	Manhattan Beach		Melrose Avenue		Pacific Boulevard	
	0.5 Miles	3 Miles	0.5 Miles	3 Miles	0.5 Miles	5 Miles
No Vehicle	3%	4%	19%	18%	22%	24%
1 Vehicle	31%	31%	50%	48%	38%	39%
2 Vehicles	45%	45%	26%	26%	27%	25%
2 Vehicles or more	22%	20%	6%	8%	13%	13%

Source: Author's calculations of 2000 US Census data by block.

There appears to be a correspondence between the retail type mix found across study cases and the home ownership ratios in their trade areas (Table 18). It appears that home-ownership levels are shaping the retail mixing within shopping areas. At the neighborhood scale, Manhattan Beach shows high home-ownership levels (about 50 percent) while Melrose Avenue and Pacific Boulevard show remarkably high proportions of renters (about 80 percent). As it was observed previously, Manhattan Beach has a more balanced distribution of businesses across business types, with a remarkably higher share of professional and personal services, as well as interior decoration and home furnishing stores, which presumably are linked to specific home-ownership needs. In contrast, Melrose Avenue and Pacific Boulevard have much larger concentrations of comparison and specialty shopping, which presumably are linked to supporting populations larger than the neighborhood scale. While Manhattan Beach provides a distinctive shopping area that caters mostly to specific neighborhood needs, Melrose and Pacific provide a distinctive shopping area that caters mostly to a wider audience, but specific market segments.

In summary median income appears to have a direct effect on pedestrian activity, but a negative correlation, in which the higher the income level the lower the pedestrian traffic. The relationship between median income and pedestrian traffic is better explained by looking into other variables that vary with income (or that are an outcome of income levels) such as vehicle

ownership and housing ownership rates, the predominant type of housing, and development density in the trade area; higher income areas are characterized by detached single-family housing and higher rates of ownership, and lower income areas are characterized by multi-family apartment buildings and higher rates of renters.

CHAPTER 6: Findings and Recommendations

6.1 Summary of Findings

Retail Characteristics

The gross leasable area (GLA) available at each of the three Los Angeles area locations I examined in this thesis has a positive correlation with the relative level of pedestrian activity, and walking levels appear to be largely explained by this variable alone (although this cannot be established without more careful multivariate statistical analysis of a larger, more fully representative sample). Other variables such as the length of the shopping strip (or total façade length) and sidewalk width also appear to affect observed pedestrian flows. The length of the shopping strip appears closely correlated to GLA, however the sidewalk width shows a positive and more independent correlation with pedestrian activity and also helps in explaining relative pedestrian flow levels across the three locations studied.

The retail mix that makes up the total GLA also appears to be important. Larger pedestrian flows were observed in areas comprised primarily of comparison shopping and secondarily of specialty shopping stores and restaurants. Differences in retail categories thus appear to explain differences in observed pedestrian activity across case studies, where the larger the size of comparison shopping businesses the larger the pedestrian flow. Also, the distribution of retail stores and its clustering along shopping strips appears correlated with observed pedestrian traffic; in my selected sample of walking districts, retail and pedestrians are clearly looking for one another.

The number of stores and the average store size across locations are also correlated with GLA in my sample. The average store façade width (or store frontage), however, shows some

independence from GLA. In my observations, walking districts that pack a larger number of stores per block have shorter façade widths on average, offering a more dynamic rhythm of window displays, and a more vibrant environment that attracts more pedestrians, because there are more shopping opportunities per unit of length (yard or mile).

The price-point to aperture ratios or the pricing of goods is also related to pedestrian traffic in Manhattan Beach, Melrose Avenue, and Pacific Boulevard. Shopping areas that offer wider façade openings and lower prices were observed to have higher numbers of pedestrians, while areas offering narrower façade openings and higher prices have fewer pedestrians, on average.

Urban Form and Design Characteristics

Parking convenience, availability, and distribution throughout the shopping strip were observed to be positively correlated with pedestrian traffic. In my three case studies, pedestrian activity is higher in places where parking is easier to find and available. Places where parking is conveniently provided get better pedestrian turnouts. And places where parking presents accessibility issues get lower turnouts.

Overall parking supply ratios differ across the cases studied, on a per-shop and on a per-square-foot or GLA basis. There are also differences in the provision of on-street versus off-street parking ratios. Areas with higher proportions of non-retail businesses (services and convenient shopping) were observed to provide more on-street parking, while areas with higher proportions of comparison and specialty shopping provide more off-street parking. On-street parking in the three walking districts studied appears to fulfill short-term parking needs, while off-street parking is used for long-term parking needs.

In regard to pedestrian flow, it appears that well distributed and conveniently located (or easily accessible) parking is more important than the amount of parking itself. Areas in my study with limited parking but evenly distributed and easily accessible parking, such as Melrose Avenue, have higher pedestrian flows than areas, such as Manhattan Beach, where parking is abundant, but unevenly distributed and not easily accessible. In particular the amount of on-street parking appears to have a lower influence on pedestrian traffic than the amount of off-street parking. The most important functions of on-street parking appear to be providing direct access to shops, buffering from street traffic and slowing down traffic.

In terms of physical comfort, reductions of roadway space and ample buffering between the sidewalk and the roadway appear to be beneficial for pedestrian activity. In the three case studies reductions in traffic speed and vehicle congestion appear to be desirable outcomes in the street design of shopping strips. Reductions in roadway space result in shorter crossing distances, giving priority to pedestrians on street crossings and intersections, and creating a friendlier environment for pedestrians. Reductions in vehicle traffic speed and increases in pedestrian priority allow for higher interaction between people and between people and vehicles. They allow for more eye-to-eye contact on the street and spur social interaction.

Comfortable sidewalks, however, seem to be an important design element for producing attractive pedestrian environments. The sidewalk width and unimpeded walkway space have a positive correlation with pedestrian traffic in the three cases studied. My analysis finds that wider sidewalks not only generate higher traffic due to higher capacity, but also they generate (or accommodate) larger pedestrian flows per unit of width (i.e. one yard or one mile). This is probably the result of having bigger personal buffer zones and more space to conduct activities other than shopping, such as standing, talking, sitting, and people watching.

Visual comfort (mostly greenery and landscaping) does not seem relevant in explaining pedestrian flow, at least in these LA walking districts, and is mostly subordinated to the overall visual information and place's clues. Coherence in façade design, consistency and continuity of the shopping strip appear to be more important. Research has found that pedestrians value the continuity and variety of store façades, and the messages they get via window displays, storefronts and building fronts. Additionally, brand names are reassuring to them. In the study sample, there is more traffic along blocks that have continuity and a more consistent rhythm of window displays (typically between 20 and 30 feet wide) than blocks that have blank walls, voids, or excessively long store façades.

Demographic Characteristics

Across my three case studies, trade area size and supporting population within the trade area are related to higher pedestrian traffic. Larger trade areas and densely populated areas are positively correlated with higher pedestrian flow. Race and ethnicity are reflected in the people patronizing the shopping districts and influence the retail type found within areas. Cultural background may explain larger pedestrian activity across study areas as well; however income, household type, household size, and availability of private space seem to provide better explanations for differences in pedestrian activity.

Average household size, household type and tenant status have a positive correlation with pedestrian activity levels across the study areas. Larger proportions of family households with children and multi-family housing (or rental housing units) explain larger pedestrian turnouts and larger groups of people strolling along sidewalks.

Population density is positively correlated with pedestrian traffic across the three study

cases and greatly explains differences in average household size and household type. A larger number of housing units, and a larger number of persons per unit, in the trade area, suggest higher levels of crowding and may explain a higher use of public space and activity along shopping districts. Urban development densities also appear to play a role defining type of housing and availability of private space. Larger amounts of apartments and development density are related to more population and higher pedestrian traffic.

Similarly, my case studies suggest that housing types are also correlated with income and home-ownership ratios as well as vehicle-ownership ratios. Home-ownership is higher in areas with larger proportions of detached-single family homes. Rentals are higher in areas with larger proportions of apartment units. More vehicles are available to areas with higher home-ownership ratios and vice-versa. I found in my study that pedestrian traffic is larger in areas of lower income and lower vehicle ownership, and pedestrian traffic is lower in areas of higher income and higher vehicle ownership.

Overall Conclusion

My analysis of these three very different Los Angeles area walking districts finds factors that appear to have a direct and positive influence on pedestrian flow and vibrancy along sidewalks (e.g., the gross leasable area and population density in the neighborhood area), while other factors have a direct and negative influence on pedestrian traffic (e.g., wide store fronts, and high number of convenient shopping and personal and professional services). At the same time, other features identified in the literature as important factors, such as the provision of ample parking, greenery, landscaping, and street furniture were found to have an indirect or ambiguous influence on pedestrian traffic.

Table 20 below summarizes each of the variables initially included in the Pedestrian Vibrancy Index and categorizes their relationship with pedestrian activity, whether direct (positive and negative) or ambiguous.

Table 20: Definition of Influence of Factors affecting Pedestrian Flow

Study Variables	Acronym	Relationship to Pedestrian Flow
Gross Leasable Area	GLA	Direct and positive relationship. A larger GLA is related to higher pedestrian flows in all study cases.
Population Density	PD	Direct and positive relationship. A higher population density (persons per acre) in the trade area is also related to higher pedestrian flows in all study cases.
Retail Categories	RC	Direct and positive relationship. A high proportion of comparison and specialty shopping stores (more than 40%) is related to higher pedestrian flow in all study cases. Conversely, a high number of convenient shopping and services (more than 30%) is related to lower pedestrian flows.
Parking Convenience	PC	Direct and positive relationship. Ease of access and even distribution of both on-street and off-street parking in the commercial area are related with high pedestrian traffic. The provision of on-street parking appears more important for short-term stays; while off-street parking seems more important for long-term stays.
Sidewalk Width	SW	Direct and positive relationship. Wider sidewalks (over 12 feet) are related to higher pedestrian traffic in all study areas. The width of the unimpeded walkway space that is available for pedestrian activities appears as an important variable in determining pedestrian flow.
Block Length	BL	Direct and negative relationship. Longer blocks (over 500 feet) are related to lower pedestrian flows. Pedestrians crossing opportunities every 250-300 feet (that result from shorter blocks) are preferred and related with higher pedestrian traffic.

Study Variables	Acronym	Relationship to Pedestrian Flow
Store Frontage	SF	<p>Direct and negative relationship. Wider store frontages (over 30 feet) are related with lower pedestrian traffic.</p> <p>Conversely, store frontages between 20-25 feet are preferred and related to higher pedestrian traffic.</p>
Area Median Income	AMI	<p>Direct and negative relationship. Areas with a higher median income are related to lower pedestrian traffic in all study cases.</p> <p>Conversely, areas with a lower median income are related to higher pedestrian flows.</p>
Ethnicity / Cultural Background	EB	<p>Ambiguous relationship. Race, ethnicity, and cultural background have an ambiguous or indirect relationship with pedestrian traffic. Mostly, because they are reflected in other demographic characteristics such as age group, household type, and average household size. Race and ethnicity are also correlated with income.</p> <p>Pedestrian traffic appears directly correlated with areas that have a large proportion of families and young adults. This is reflected in a larger average household size, and ultimately in a higher population density.</p> <p>Ethnicity and cultural background do seem to influence the type of businesses (or store mixing) and the retail goods sold in the commercial area.</p>
Street Section	SS	<p>Ambiguous relationship. The case studies show that the width of the roadway space (number of lanes and distance that pedestrians need to traverse when crossing), and the buffering provided by on-street parking and landscaping elements are relevant elements to generate physical comfort.</p> <p>However, both roadway and buffering widths can differ and still provide the desired outcomes.</p> <p>A wide buffer (angle parking or 20 feet minimum) and narrow roadway space (less than 50 feet or 4 lanes maximum) appear as the minimum conditions to generate high pedestrian traffic.</p>

Study Variables	Acronym	Relationship to Pedestrian Flow
Physical Comfort	PHC	Ambiguous relationship. Physical comfort seems mostly defined by the sidewalk width, block length, store façade width, buffering from traffic, and walkway space available to perform pedestrian activities. Thus, it is more an outcome of the design than a causal variable in itself. However, the analyses show that a higher physical comfort results in higher pedestrian traffic.
Psychological Comfort	PSC	Ambiguous relationship. In the same fashion, psychological comfort is mostly defined by other elements such as the provision of visual information, greenery, and landscaping elements. However, the analysis found that provision of visual information and clues related to market segment and type of goods offered is more relevant than greenery and landscaping treatments to generate higher pedestrian traffic.

Perhaps more importantly, observations across the three case studies show that these variables interact in different ways to produce at least three design outcomes that attract pedestrians: (1) a business mix that respond to the neighborhood trade area’s preferences and tastes, (2) slower vehicle traffic speeds and frequent opportunities for crossing the street, and (3) physical and psychological comfort conditions along sidewalks; the result of providing adequate space for walking, adequate buffering from traffic, and coherence, consistency and continuity along the shopping strip.

Given these conditions and based on the comparative analysis of cases, I conclude that pedestrian traffic will be high if the GLA is larger than that of a neighborhood center; residential population density is high and there is a high proportion of renters and families with children in the neighborhood area; there is a high proportion of comparison and specialty shopping stores; parking is conveniently distributed throughout the commercial area; sidewalks are wide enough for groups of people to walk side-by-side (12 foot minimum); average store frontages are 20-30

feet wide; pedestrian crossings are not separated by more than 500 feet; and the roadway is not wider than 50 feet.

The findings from my three cases studies are for the most part consistent with the literature. This suggests that they may be generalizable and applicable to other places, though additional research will be required to confirm this.

Additionally my analysis cannot establish how much higher or lower pedestrian traffic will be if one or more of these variables are present in a different quantity or not present at all. Their relative weight and importance will need to be determined with advanced statistical analyses, over a larger sample of case studies, and testing alternative formulations of each variable. This would be topic for further research.

What the analyses can identify though are the variables that seem to have a direct influence on pedestrian traffic and the direction of this relationship. This is summarized in the revised function for the pedestrian vibrancy index:

$$f = GLA + PD + HS + CSS + PC + SW - RW - BL - SF - AMI$$

Where,

f	= Pedestrian Flow
GLA	= Gross Leasable Area
PD	= Population Density
HS	= Household Size
CSS	= Comparison and Specialty Shopping
PC	= Parking Convenience
SW	= Sidewalk Width
RW	= Roadway Width
BL	= Block Length
SF	= Store Frontage
AMI	= Area Median Income

And,

- + Indicates a positive relationship. That is the higher the value of the variable the bigger the pedestrian flow, and
- Indicates a negative relationship. That is the higher the value of the variable the smaller the pedestrian flow.

Acknowledgement:

This thesis was originally developed in the spring and summer of 2001, but left unfinished, thus the analysis and data included in the case studies are for the most part a decade old. Some sidewalk and street design features, as well as social and economic conditions may have changed in the interim period, which may affect the analysis developed for each case study and the overall conclusions of the study. I have, however, followed this topic as a planning professional over the past decade and believe that conditions analyzed have likely changed only marginally over the past decade and the conclusions I draw here are as valid today (in 2012) as they would have been in 2002.

6.2 Recommendations for Further Research

Pedestrian planning is a long neglected topic within the transportation-planning field. Although there has been progress over the last decade, mostly through the work of the New Urbanism movement, any attempt at augmenting the body of research—relating walking trips to urban design and land use features – helps to expand our knowledge of pedestrian behavior, pedestrian needs, and walking as an alternative mode of transportation. Policy objectives should include ways to increase and manage the production of walking trips. Several population groups,

especially the elderly, have limited mobility in the current auto-oriented suburban environment that characterizes most of our cities.

Numerous opportunities for further research depart from this study of old-commercial strips. Neo-traditional urban form trends represent the production of a post-suburban environment where retail industry, real estate industry, population changes and nostalgia for authentic urban experiences meet. More extensive comparative studies of old commercial corridors and centers and advanced statistical analysis, controlling and testing for different variables representing urban form and street design features, population density, income variation, and economic opportunities should produce valuable findings for describing causal relationships between urban design, travel behavior, and pedestrian activity and travel. An important focus of inquiry will also be understanding the role of parking in managing and reducing automobile trips within commercial areas, and whether urban form and street design features alone will be enough to convert automobile trips into pedestrian trips, or even bicycle trips, to maintain and increase mobility, and enhance the quality of life in these communities.

APPENDIX

1. Definition of Terms

Trade Area: the area containing people who are likely to purchase a given class of goods or services from a particular firm or group of firms. The size of the trade area will vary based on the shopping center type, retail categories, and tenant mixing (ULI, 1985).

Convenience Goods: those that are needed immediately and purchased where it is most convenient for the shopper, near home, near work, or near temporary residence when traveling (ULI, 1985).

Specialty Goods: those that shoppers will take more care and spend greater effort to purchase. Such merchandise has no clear trade area (ULI, 1985).

Shopping Goods: those on which shoppers spend the most effort, and for which they have the greatest desire to do comparison-shopping. Trade area will vary depending on the amount of comparison-shopping available (ULI, 1985).

Impulse Goods: those that shoppers do not actively or consciously seek. They are carefully positioned in relation to shopping goods within stores, and central positions—within shopping centers—where they can feed from the traffic generated by stores selling shopping, specialty, and convenience goods (ULI, 1985).

Gross Leasable Area (GLA): the total floor area designed for the tenants occupancy and exclusive use expressed in square feet and measured from the centerline of joint partitions and from outside wall faces. It is the space for which tenants pay rent, including sales areas and integral stock areas (ULI, 1985).

2. Trade Area Definitions

Table 21: Characteristics of Shopping Centers (ULI)

Center Type	Leading Tenant	Typical GLA (square feet)	General GLA Range (square feet)	Minimum Site Area (acres)	Minimum Population Support Needed
Neighborhood Center	Supermarket	50,000	30,000 - 100,000	3-10	3,000 - 40,000
Community Center	Large variety of stores	150,000	100,000 - 300,000	10-30	40,000 - 150,000
Regional Center	One or more full-line dept. store	400,000	300,000 - 900,000	10-60	150,000 or more

Source: Urban Land Institute (1985). Shopping Center Development Handbook.

Table 22: Primary Trade Area General Guidelines (ULI)

Center Type	Minimum Population Support Needed	Radius	Driving Time
Neighborhood Center	3,000 – 40,000	1½ Miles	5 – 10 minutes
Community Center	40,000 – 150,000	3 – 5 Miles	10 – 20 minutes
Regional Center	150,000 or more	8 Miles	20 minutes

Source: Urban Land Institute (1985). Shopping Center Development Handbook.

Typical feasibility analyses for developing a shopping center include (ULI, 1985; Rubenstein, 1978):

- Traffic impact analysis (studying street traffic volumes, turning movements, trips origins and destinations, and roadway capacity),
- Public transit analysis (documenting bus routes, bus stops, levels of service, and taxi services),

- Parking (addition, location or relocation of spaces at a convenient walking distance),
- Pedestrian trips characteristics (terminal trips, functional trips, or recreational trips),
and
- Pedestrian counts (screen-line counts, density, aerial surveys, or math modeling).

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