



Mixed-Use Centers In The South Bay: How Do They Function And Do They Change Travel Demand?

A Report to the South Bay Cities Council of Governments

From Solimar Research Group

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Executive Summary

ES-1: Introduction

After more than a century of rapid suburban growth, the South Bay subregion is now almost completely built out. More than 1 million people live in the South Bay, and another 500,000 people work here every day. Virtually no undeveloped land remains in the South Bay, but forecasts from the Southern California Association of Governments suggest that the subregion will add another 170,000 residents and 80,000 jobs by 2025. Most of this additional growth is expected to come by recycling and intensifying land in older shopping centers and arterial corridors with the use of mixed-use development.

The goal of this report is to obtain more empirical knowledge about the South Bay specifically – not by advocating a different development pattern or assuming that a different pattern will change people’s travel patterns, but by *examining mixed-use centers that already exist in the South Bay and determining whether travel behavior in those centers differs from travel behavior elsewhere in the South Bay.*

In approaching this project, the Solimar team undertook a multi-faceted effort in conjunction with the COG and the Livable Communities Working Group. The work effort was divided into four overall components which together provide a vivid and useful picture of mixed-use centers and the housing opportunities within them. These four components were:

- 1. Characterization of the South Bay's Urban Form and Selection of Study Areas*
- 2. Detailed GIS Analysis and Field Survey of the Three Centers*
- 3. Understanding of Travel Behavior in the Centers and in a Control Area*
- 4. Possible Design Improvements and Transportation Alternatives Within the Centers*

ES-2 The South Bay's Urban Form

The South Bay is similar to many other older suburban areas in the Los Angeles area in the sense that it grew rapidly in the postwar era and is now almost out of raw land. However, more than many other older suburbs – northern Orange County, for example – the South Bay's development pattern was fixed in part prior to World War II.

Many of the South Bay's older towns were originally developed between 1887 (the year of L.A.'s first real estate boom) and World War I, when Los Angeles's interurban and streetcar system were developed. In the postwar era, the South Bay developed in a suburban pattern similar to other growing areas in Southern California. The South Bay developed a critical mass of employment in certain critical industries, especially aerospace and automobiles, with jobs concentrated in many employment centers that were developed in conjunction with adjacent residential areas. Meanwhile, new single-family subdivisions were developed on the farmland in between the older town centers.

The result of this history is that the South Bay's urban form, while predominantly suburban in nature, is more varied than the form of suburban areas that developed entirely during one era such as north Orange County, which was developed predominantly during the 1950s, or the Santa Clarita Valley, which was developed mostly during the 1970s and '80s.

This variation has blessed the South Bay with a large number of village-scale town centers, as well as a large number of arterial strips and intersections. Generally speaking, these have not evolved into large regional entertainment or employment centers; rather, they have tended to remain local centers. But they do represent a significant and varied set of opportunities on which the next generation of development in the South Bay may be built – opportunities that could help to implement the 2% strategy.

ES-3 Selecting the Mixed-Use Centers to Study

Given the scattered landscape of both housing and jobs, we concluded that the best way to identify possible mixed-use centers is to show where high-density job centers and high-density residential neighborhoods overlap. The locations where this overlap occurs number more than 70 of these “jobs-housing” areas. Most are small in area and they are scattered across the subregion.

Seeking to make more sense of this data, we selected 19 (areas that had either (1) several green areas) or (2) green areas surrounded by blue and yellow areas). We later added two more centers that did not exactly fit our parameters but seemed to be potentially significant from a subregional perspective (Cal State Dominguez Hills and Douglass Green Line Stop), giving us a total of 21.

We ranked each of the 21 areas in each category and then aggregated the rankings (without weighting the different factors).

After evaluating the 21 centers it was clear that many would not serve as effective candidates for the final three that will be analyzed in detail as part of this study. We found that in many cases, an area might appear to be a center in statistical terms, but it did not contain a dense and accessible mix of uses.

In cutting the field to seven, we were left with four beach communities and three older downtowns, all of which were initially developed prior to the postwar suburban era. Unfortunately, one consequence of this analysis was that many areas with ethnic and income diversity, especially those in inland cities, were dropped. In general, these populations are located in strip-commercial areas developed during the suburban era.

In the second round, we used Census Sample Level 3 data to obtain a more fine-grained understanding of demographics, housing, transportation, and economic patterns. In consultation with the COG and the COG’s Livable Communities Working Group, we selected the following three centers for in-depth analysis:

1. Downtown Inglewood, a more traditional “downtown” and also the only center with a large non-white population;
2. Downtown Torrance, which had a large employment base adjacent to a commercial core and a residential area with a variety of housing types; and
3. Riviera Village, located mostly in Redondo Beach but partly in Torrance, which appeared to be the most “neighborhood-oriented” of the four beach communities.

ES-4: Analysis of the Three Mixed-Use Centers

Each of the three study areas reflected a different kind of center with its own lessons for mixed-use development in the South Bay and Southern California. All have roots in Los Angeles's vast interurban system of the early 20th Century, which was often used to promote real estate development in undeveloped areas, although the actual development of Riviera Village took place much later than the other areas and was never really a "transit village".

Downtown Inglewood represents what might best be described as an *arterial downtown*. Its focal point is the intersection of two arterial streets, Manchester Boulevard and La Brea Boulevard, which carry considerable through traffic.

Riviera Village represents more of a *classic village*, with a neighborhood-oriented commercial core surrounded by a variety of residential neighborhoods with different densities.

Downtown Torrance represents a classic Los Angeles *planned industrial suburb*, with employment centers, a commercial core, and residential areas all located in close proximity to one another.

For analytical purposes we divided all three centers into an inner area (60 to 100 acres) and an outer area (200 to 600 acres). The inner area included the commercial core; the outer area included a variety of residential and employment areas. For the purposes of the pedestrian study, a strip-oriented "control area" in the vicinity of Pacific Coast Highway and Hawthorne Boulevard was selected.

Demographic Characteristics: Inglewood is mostly African-American; Riviera Village is mostly white; and while Torrance is also mostly white there is a significant Asian and Hispanic population. All have small household sizes (usually 2.0 persons per household and below), although household size in outer Inglewood was 2.6, suggesting the presence of many families.

The population and housing patterns are also different from center to center. In all three cases, the inner boundary – representing a radius of approximately ¼ mile from the centerpoint of the area – is mostly a business and commercial center, but the presence of housing and population varies.

The three centers differ significantly in the more detailed demographic characteristics that were derived from the Census sample data, which is drawn from slightly different boundaries than the study area boundaries. Not surprisingly, Riviera Village is more affluent than the county as a whole, while Inglewood is well below the average and Torrance is fairly close to the average, skewing slightly above it. All three areas are below the county average in using alternative transportation modes to get to work.

Economic Characteristics: Both Inglewood and Torrance have lots of jobs and economic activity in the outer areas – the areas located from ¼ to ½ mile away from the core. As was noted above, in Inglewood this activity is driven largely by the medical sector, especially Daniel Freeman Hospital, whereas in Torrance it is driven mostly by Honda. Riviera Village has no jobs base to speak out in the outer area except from retail and service businesses along Pacific Coast Highway.

Because of their large business bases, Inglewood and Torrance have very large sales volumes in the outer area compared to the inner area. Only Riviera Village, with its strong business base in the core and its residential areas on the outskirts, has more business activity in the inner area than in the outer area.

All three centers have almost a full complement of neighborhood services, especially in the area of personal care shops, medical and dental offices, and restaurants. However, it is clear that in almost all cases these neighborhood businesses depend on a larger market area for survival.

Urban Design Characteristics: Downtown Inglewood comes the closest to being a citywide center due to the government center and transit center. Riviera Village and Torrance are truly “urban villages” in the grid urban fabric of the South Bay. Both of these places have a unique way of distinguishing themselves in terms of identity and use. Downtown Inglewood follows a different model, namely retaining the urban grid and adapting this to create uniqueness and identity.

Riviera Village has the strongest adjoining residential neighborhoods. In Torrance, provision of additional residential uses in the midst of downtown is a valuable addition to build in a market for local goods and services. As a neighborhood center, Riviera Village is not bounded by regional connecting streets and therefore has a better integration with its surrounding residential neighborhoods.

As urban villages, Riviera Village and Old Town, Torrance utilize urban design concepts that focus attention inward and away from the outside landscape. This is very effective to maintaining a sense of identity and place. Downtown Inglewood has a much harder job doing this largely due to its grid character, which is by definition one that expands views and perceptions outward.

Pedestrian Activity : Overall, however, Torrance and Inglewood – the two centers with large employment bases adjacent – have more pedestrian activity on weekdays, whereas Riviera Village – the center surrounded by residential areas – has more pedestrian activity on weekends. The most startling result, however, is the contrast between pedestrian activity in the three centers and pedestrian activity in the control area around PCH and Hawthorne. In the three centers, weekday pedestrian activity was 6 to 12 times greater in the centers than in the control area.

ES-5: Surveys of Travel Behavior

Seeking to learn more about travel behavior directly from these “center users,” we undertook three separate surveys – one each for residents, employees, and visitors – and a series of focus groups (one in each center).

The resident survey and the employee survey were extensive surveys that sought “travel diary” information as well as demographic information about the respondents. The visitor survey was a one-page document with only nine questions so that visitors could fill it out “on the fly” when approached by Solimar’s field survey team. We received almost 700 valid responses on the resident survey, as well as approximately 120 responses for the employee survey and approximately 270 responses for the visitor survey.

Based on this research, we reached six conclusions

- 1. People who live and work near mixed-use centers visit those centers frequently, and they walk more and drive less when they do so.*
- 2. Living near a mixed-use center seems to have little effect on commute mode, although the presence of major employment may make a minor difference.*
- 3. The design and layout of the center may play some role in travel behavior*
- 4. Travel behavior around the centers is extremely sensitive to the presence or absence of certain types of businesses, and trips to the center would increase if certain types of businesses or activities were added.*
- 5. It is unclear what type of transportation alternatives would be attractive to people who live or work near the centers, but this area would benefit from further study.*
- 6. If properly designed and managed, mixed-use centers may reduce overall vehicle trips.*

ES-6: Conclusions

Four Major Conclusions

Based on all of the research, including the surveys of residents, employees, and visitors, we can state the following conclusions with some confidence:

- 1. People who live or work near a mixed-use center will travel to that center more frequently.*
- 2. People who live or work near a mixed-use center are more likely to walk to the center rather than drive.*
- 3. People who live near mixed-use centers are likely to take fewer trips overall and fewer auto trips in particular.*
- 4. The centers appear to have more potential to minimize traffic on non-work trips than on commuting trips.*

These conclusions suggest that more housing (and, indeed, more jobs) could be added to mixed-use centers in the South Bay in a way that might create less overall travel demand – and therefore less travel impact – than if that housing were added in other locations.

It is important not to overstate this conclusion. Based on current travel behavior, it is unlikely that adding more housing in mixed-use centers would lessen rush-hour auto commuting, either on the arterial highways or on the freeways. Furthermore, these results would suggest that concentrating housing in the centers would not decrease traffic in those centers; obvious, traffic would increase over current levels.

But it seems very likely that adding more housing to mixed-use centers would decrease overall travel than if that housing were located elsewhere, and would decrease auto traffic associated with off-work personal trips. It also seems likely that adding more jobs to the mixed-use centers would decrease auto trips during the workday for meals and personal errands than would be the case if those jobs were located far from these centers.

However, our research also suggests that simply adding new housing (or new jobs) in a concentrate fashion will not create the desired outcome unless other factors are taken into account. Simply put, if the South Bay cities are going to absorb more housing and more jobs in older arterial strip areas and shopping centers, they must pay attention to three other factors in making those centers work:

1. The physical design of the centers.
2. The mix of businesses and activities within the center.
3. Neighborhood-level transportation alternatives to driving and walking.

1. Introduction

After more than a century of rapid suburban growth, the South Bay subregion is now almost completely built out. More than 1 million people live in the South Bay, and another 500,000 people work here every day. Virtually no undeveloped land remains in the South Bay, but forecasts from the Southern California Association of Governments suggest that the subregion will add another 170,000 residents and 80,000 jobs by 2025.

Although this growth is fairly modest compared to previous decades, clearly the South Bay cannot accommodate it using traditional suburban development patterns. In addition to the lack of land on which to construct new housing and other built space, traffic congestion is a major impediment to both the efficient functioning of the subregion and political acceptance of future growth. Previous work by the South Bay Cities COG also found that the subregion is lacking in many areas of infrastructure required to sustain future growth, including affordable housing for seniors, child care, hospital emergency rooms, and parks and open space in some areas. Aging water and sewer infrastructure are also a concern.¹

SCAG's "2% Strategy" for growth management – which emerged from the regionwide Compass growth visioning exercise – recommends adding housing to each subregion in the form of compact, mixed-use development projects, preferably in existing centers and along significant corridors (which make up perhaps 2% of the SCAG region's land mass).² The underlying assumption is that people who live in or very near compact mixed-use centers will conduct much of their business (shopping, entertainment, education, health care, work) in those centers, and will walk or take public transit to get there. If this assumption is true, it could mean that these different development patterns actually increase the capacity of existing centers and corridors to absorb additional growth, especially housing, by reducing the overall demand for travel and/or encouraging people to shift travel modes.

Many of these concepts have been widely discussed and advocated throughout the SCAG region and the South Bay subregion. For example, the South Bay Cities COG's "Livable Communities Handbook," prepared in 2000 by Jack Faucett Associates, discusses strategies to make better use of arterial strip and light industrial property and proposes a variety of implementation strategies, including flexible parking standards.³

However, as Marlon G. Boarnet and Randall Crane concluded in their well-known academic book *Travel By Design*, there are relatively few valid statistical studies on which to

¹ "South Bay Cities Infrastructure and Services Capacity Assessment," <http://www.southbaycities.org/ISCA/Vol1/Vol1>.

² <http://www.socalcompass.org/2percent/>

³ <http://southbaycities.org/Committees/Livable/reports.htm>

make the case one way or the other.⁴ Another recent academic review of the literature concluded that “empirical evidence is surprisingly mixed” and “leaves plenty of room for debate”.⁵ And Crane has even speculated that alternative development patterns might actually induce more travel by making short trips easier to make, either in a car or by another mode.⁶

The goal of this report is to obtain more empirical knowledge about the South Bay specifically – not by advocating a different development pattern or assuming that a different pattern will change people’s travel patterns, but by *examining mixed-use centers that already exist in the South Bay and determining whether travel behavior in those centers differs from travel behavior elsewhere in the South Bay.*

In addition, this report also seeks to dig deeper and examine how travel behavior in such centers might be further altered with future changes. What businesses or activities would such centers need to offer in order to capture a greater number of trips taken by adjacent residents – presumably reducing travel to other locations. And are there other transportation alternatives – either public transit or other neighborhood transportation options – that would increase travel to the center by adjacent residents?

This knowledge will help to provide South Bay cities with a realistic understanding of the potential of mixed-use centers. To what extent can these centers accommodate more housing while increasing the quality of life in these centers and minimizing additional automobile traffic throughout the subregion?

In approaching this project, the Solimar team undertook a multi-faceted effort in conjunction with the COG and the Livable Communities Working Group. The work effort was divided into four overall components which together provide a vivid and useful picture of mixed-use centers and the housing opportunities within them. These four components were:

⁴ Boarnet, Marlon G., and Randall Crane, *Travel By Design: The Influence of Urban Form on Travel*, New York: Oxford University Press (2001).

⁵ Handy, Susan, “Smart Growth and The Transportation-Land Use Connection: What Does the Research Tell Us?”, Prepared for “New Urbanism and Smart Growth: A Research Symposium,” National Center for Smart Growth Research and Education, University of Maryland, May 3, 2002

⁶ Crane, Randall, “On Form versus Function: Will the New Urbanism Reduce Traffic, or Increase it?” *Journal of Planning Education and Research* 15, pp. 117-126, Winter 1996.

1. Characterization of the South Bay's Urban Form and Selection of Study Areas

The first component was to characterize the South Bay's urban form with particular focus on dense concentrations of housing and employment. This effort had two purposes: First, to provide a clear understanding of how people and jobs are distributed across the South Bay landscape; and, second, to identify potential mixed-use centers for further analysis. In practical terms, this was a two-step, GIS-based analysis that first identified 21 concentrations of jobs and housing and then engaged in a more detailed analysis of 7 mixed-use centers as the COG moved toward selecting three specific study areas. Eventually the COG selected three mixed-use centers for detailed analysis: Downtown Inglewood, Downtown Torrance, and Riviera Village, which is located mostly in Redondo Beach.

2. Detailed GIS Analysis and Field Survey of the Three Centers

The second step was to conduct a quantitative and qualitative analysis of the attributes of the three centers. The quantitative analysis was mostly GIS-based and involved describing and mapping such patterns as housing, population, age of the buildings, companies and employment, neighborhood-serving businesses, and patterns of pedestrian activity and bus transit ridership. The qualitative analysis consisted of a field survey of the urban design aspects of the three centers, which was conducted by Marc Futterman of Civic Technologies Inc.

3. Understanding of Travel Behavior in the Centers and in a Control Area

Once the three study areas were selected and the qualitative and quantitative analyses were underway, Solimar and the COG worked cooperatively with Dr. Marlon Boarnet of the University of California, Irvine, and Dr. Mai Nguyen of San Francisco State University to document and understand travel behavior in the centers and in a control area. This effort included:

1. An extensive and scientifically valid survey of residents in the three mixed-use centers and in a control area around Pacific Coast Highway and Hawthorne Boulevard in Torrance.
2. A similarly extensive survey of employees in the three mixed-use centers.
3. A brief but informative survey of visitors to the three mixed-use centers.
4. Focus group discussions in each of the three mixed-use centers.

The purpose of the survey and the focus groups was to gain insight into how and why people use the centers as they do. The mere concentration of jobs and housing may or may not mean that residents and employees are using the centers for multiple purposes.

4. Possible Design Improvements and Transportation Alternatives Within the Centers

With both quantitative and qualitative assessments of the physical environment in the centers - in addition to the survey results - the consultant team then turned to the question of how the centers might capture more of trips from adjacent residents and employees. This analysis, conducted mostly by Marc Futterman of Civic Technologies, included an analysis of design improvements, changes in the business mix, and neighborhood transportation alternatives.

2. The South Bay's Urban Form

Over a span of two generations, the South Bay has been transformed from an area of newly constructed suburbs to a mature set of communities with virtually no raw land remaining for new development. Yet the South Bay is expected to experience more population and job growth in the future.

2.1 Recent Growth Patterns and Growth Forecasts

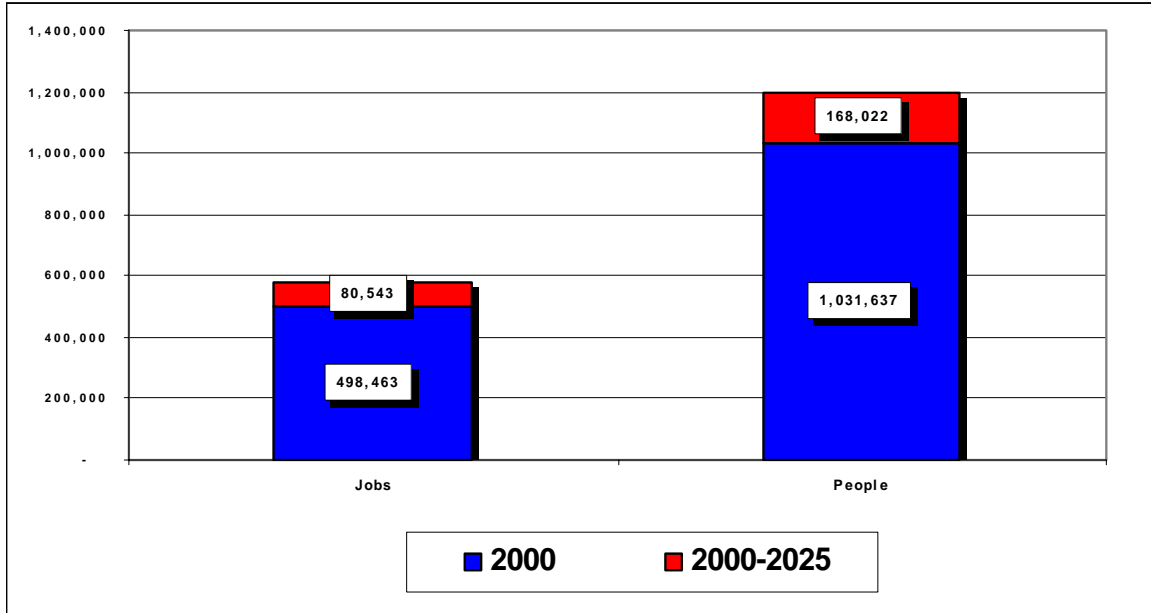
As defined by the South Bay Cities COG, the South Bay includes a land area of about 140 square miles. It stretches from El Segundo and Inglewood in the north, near Los Angeles International Airport, to the Palos Verdes Peninsula in the South, and from the Pacific Ocean on the west to cities such as Carson, Gardena, and Hawthorne to the east.

In 2000, this area had a population of slightly more than 1 million residents and an employment base of approximately 500,000 jobs. Since about half of the subregion's residents are classified as "non-workers," the daytime population of the subregion is about 1 million workers and residents - about the same as the night-time population of residents.

The subregion is divided into 17 different jurisdictions, 15 of which are entirely contained within the South Bay. In terms of population, the largest "city" is the section of Los Angeles located in the South Bay, which in 2000 had approximately 193,000 persons. The largest cities entirely encompassed by the South Bay are Torrance (137,000) and Inglewood (112,000). The unincorporated sections of Los Angeles County had about 106,000 residents in 2000. Torrance had by far the most jobs in 2000 (109,000), followed by the South Bay sections of Los Angeles (63,000), Carson (58,000), and El Segundo (57,000).

SCAG's 2001 forecast projected that the both the population and the employment base in the South Bay would increase by about 16% between 2000 and 2025. Population would rise from slightly over 1 million to about 1.2 million, while jobs would increase from about 500,000 to about 580,000. (Figure 2.1.)

Figure 2.1: SCAG Forecast of Population and Job Growth, 2000-2025



2.2 History of Development Patterns in the South Bay

The South Bay is similar to many other older suburban areas in the Los Angeles area in the sense that it grew rapidly in the postwar era and is now almost out of raw land. However, more than many other older suburbs – northern Orange County, for example – the South Bay’s development pattern was fixed in part prior to World War II.

Many of the South Bay’s older towns were originally developed between 1887 (the year of L.A.’s first real estate boom) and World War I, when Los Angeles’s interurban and streetcar system were developed. Many of the beach towns were laid out and populated during this era. Manhattan Beach, for example, grew by 800% in population between 1920 and 1950; then doubled again by 1960; and has remained constant ever since. Several inland communities, including both Inglewood and Torrance, were laid out during this period as part of the interurban system. Thus, even before World War II, the South Bay had a network of town and village centers connected by the interurban system, but separated by farmland and undeveloped property.

In the postwar era, the South Bay developed in a suburban pattern similar to other growing areas in Southern California. The South Bay developed a critical mass of employment in certain critical industries, especially aerospace and automobiles, with jobs concentrated in many employment centers that were developed in conjunction with adjacent residential

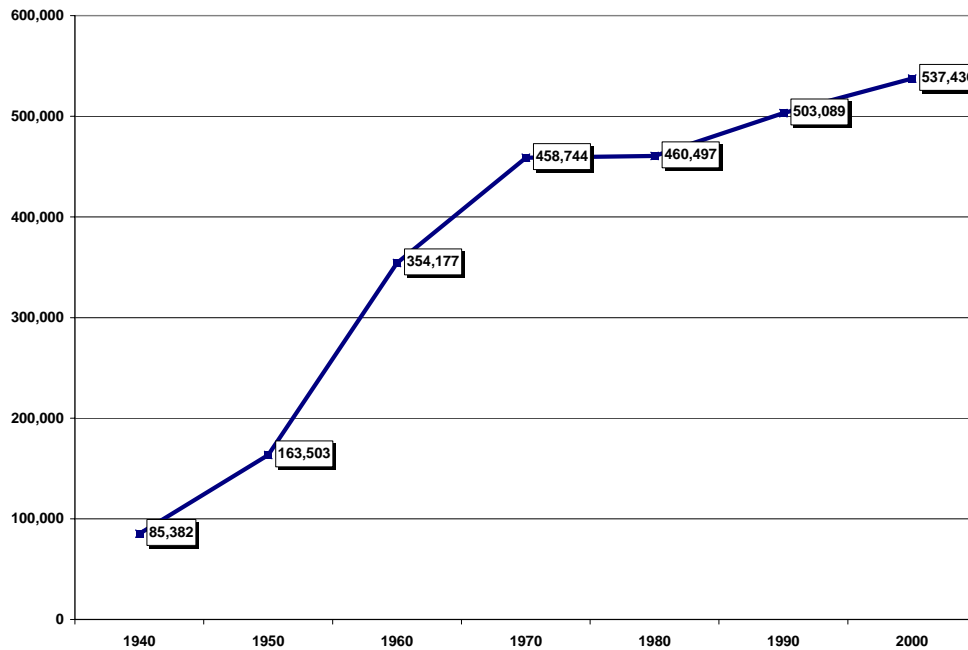
areas. Meanwhile, new single-family subdivisions were developed on the farmland in between the older town centers.

The population growth during World War II and in the immediate postwar era was rapid. At the beginning of World War II, the nine South Bay cities that were incorporated as of 1940⁷ had a combined population of 85,000; Inglewood was by far the largest, with a population of 30,000. Thirty years later, in 1970, these same cities had a population of more than 450,000, an increase of about 435%. Torrance had emerged as the largest city, with 135,000 people – a 1,256% increase in the 30 years.⁸

But after 1970, the South Bay’s population growth began to slow dramatically. The same original nine cities that had grown 435% in the previous 30 years grew by only 17% between 1970 and 2000. Torrance was still the largest city, but its population grew by only 2.2% during this period, to 137,000. Only Gardena, Hawthorne, Inglewood, and Lawndale – all inland cities experiencing an influx of Latinos – have grown substantially in the last 30 years. (Figure 2.2)

Figure 2.2: Population of 9 Original South Bay Cities[1], 1940-2000

[1] These are the nine cities that were already incorporated as municipalities in 1940: El Segundo, Hawthorne, Gardena, Hermosa Beach, Inglewood, Manhattan Beach, Palos Verdes Estates, Redondo Beach, and Torrance. Today they represent slightly over half of the South Bay’s population.



⁷ El Segundo, Hawthorne, Gardena, Hermosa Beach, Inglewood, Manhattan Beach, Palos Verdes Estates, Redondo Beach, and Torrance

⁸ Most of this population growth occurred in the 1950s, when Torrance’s population quintupled from 22,000 to 100,000.

The result of this history is that the South Bay's urban form, while predominantly suburban in nature, is more varied than the form of suburban areas that developed entirely during one era such as north Orange County, which was developed predominantly during the 1950s, or the Santa Clarita Valley, which was developed mostly during the 1970s and '80s.

The decades have left a patchwork legacy of older town centers, some well-planned pre-war residential areas, much strip commercial development, a few large shopping-only and employment-only centers, many conventional postwar subdivisions, and, increasingly, multi-family residential development. Unlike Santa Clarita, the suburban-style development – though auto-oriented – revolves around a subregional system of arterial strips, rather than freeways. (The only major freeways in the South Bay are the San Diego Freeway, which was completed between 1957 and 1965, and the Century Freeway, which opened in 1992; the Harbor Freeway skirts the edge.) But unlike north Orange County, the suburban development was not built all at once; rather, it was superimposed on top of an existing system of towns created during the interurban era.

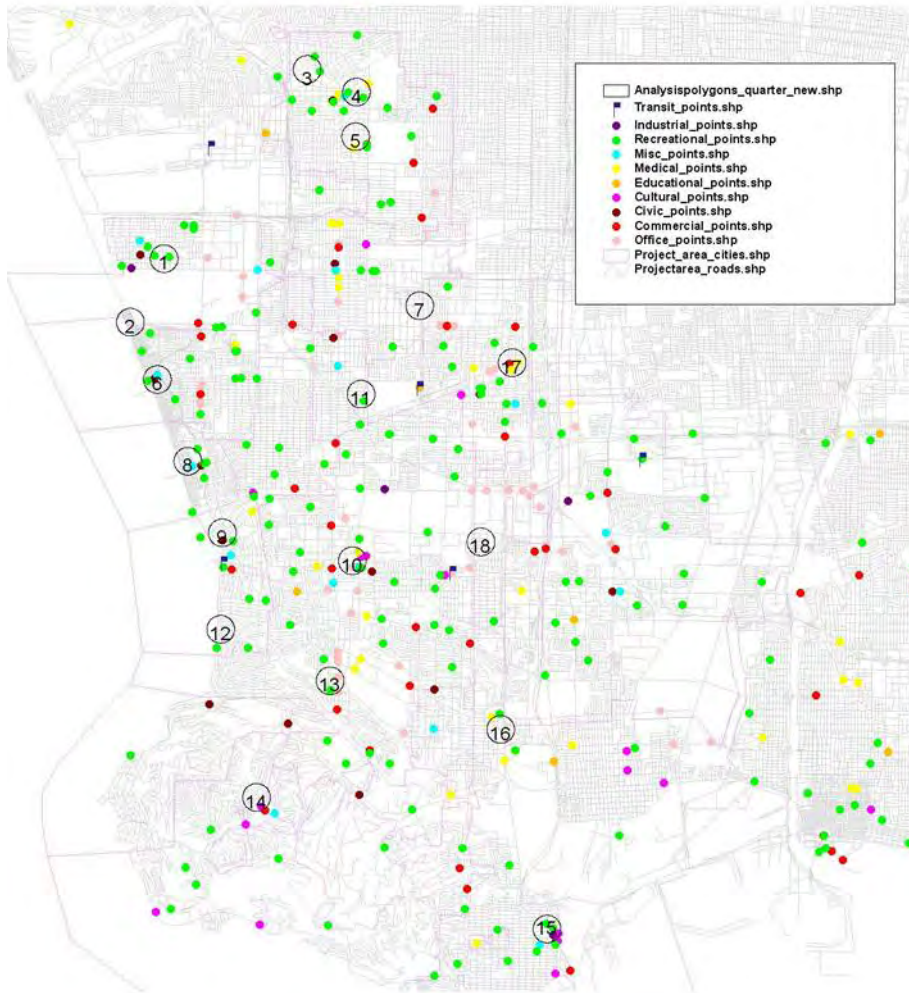
This variation has blessed the South Bay with a large number of village-scale town centers, as well as a large number of arterial strips and intersections. Generally speaking, these have not evolved into large regional entertainment or employment centers; rather, they have tended to remain local centers. But they do represent a significant and varied set of opportunities on which the next generation of development in the South Bay may be built – opportunities that could help to implement the 2% strategy. The experience of these centers and strips may also provide guidance for how best to accommodate the next generation of development – especially housing – in emerging locations such as the employment centers surrounding the Green Line stations throughout the South Bay, which are also likely targets for the 2% strategy.

2.3 Overview of Current Institutional, Housing and Employment Patterns in the South Bay

The various layers of the South Bay's urban growth has left a hodgepodge of land use patterns in the subregion as well. This made it somewhat difficult for us to unearth good examples of true mixed-use centers in the subregion.

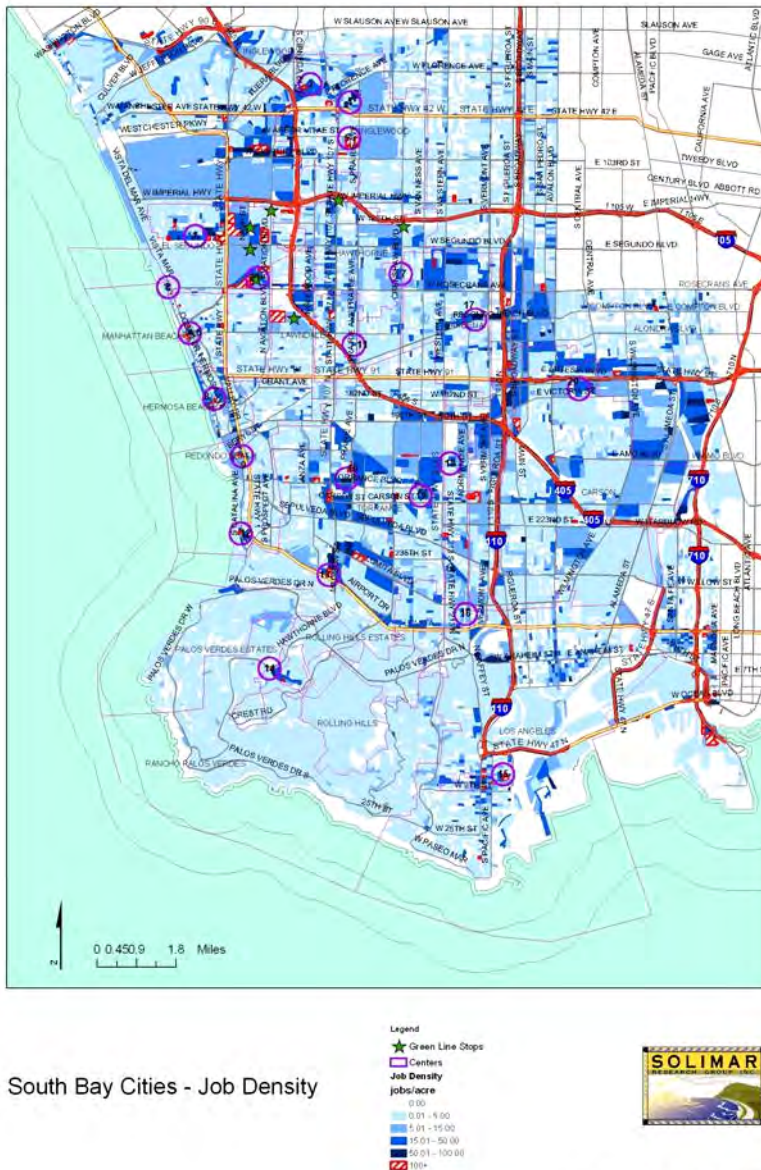
As a mature suburban area, the South Bay has no lack of large shopping and employment centers, as well as institutions such as hospitals and universities. However, as Figure 2.3 show, these centers are scattered across the landscape in a somewhat random fashion, and many are “single-use centers”. For example, the Del Amo Fashion Center and the Galleria at South Bay are huge centers, but they contain only retail uses. Inglewood contains a huge complex of medical centers, including Daniel Freeman Hospital, Centinela Hospital, and Kaiser Permanente, but they represent only a cluster of jobs, not necessarily a tightly knit mixed-use center.

Figure 2.3: Institutions and Single-Function Centers in the South Bay
Mixed-Use Cluster Centers with Alex's Centers Overlay



Indeed, as Figure 2.4 shows, the South Bay – with its half-million jobs – is rich with dense employment centers, and dense clusters do exist in various locations throughout the subregion. On this map, dense employment centers are depicted in dark blue, with extremely dense centers highlighted in red crosshatching. Dense job centers are located around LAX and in El Segundo; in the corridor between El Segundo and Rosecrans Boulevards; along the 100 Freeway and east toward the Los Angeles River; and in traditionally industrial sections of Torrance.

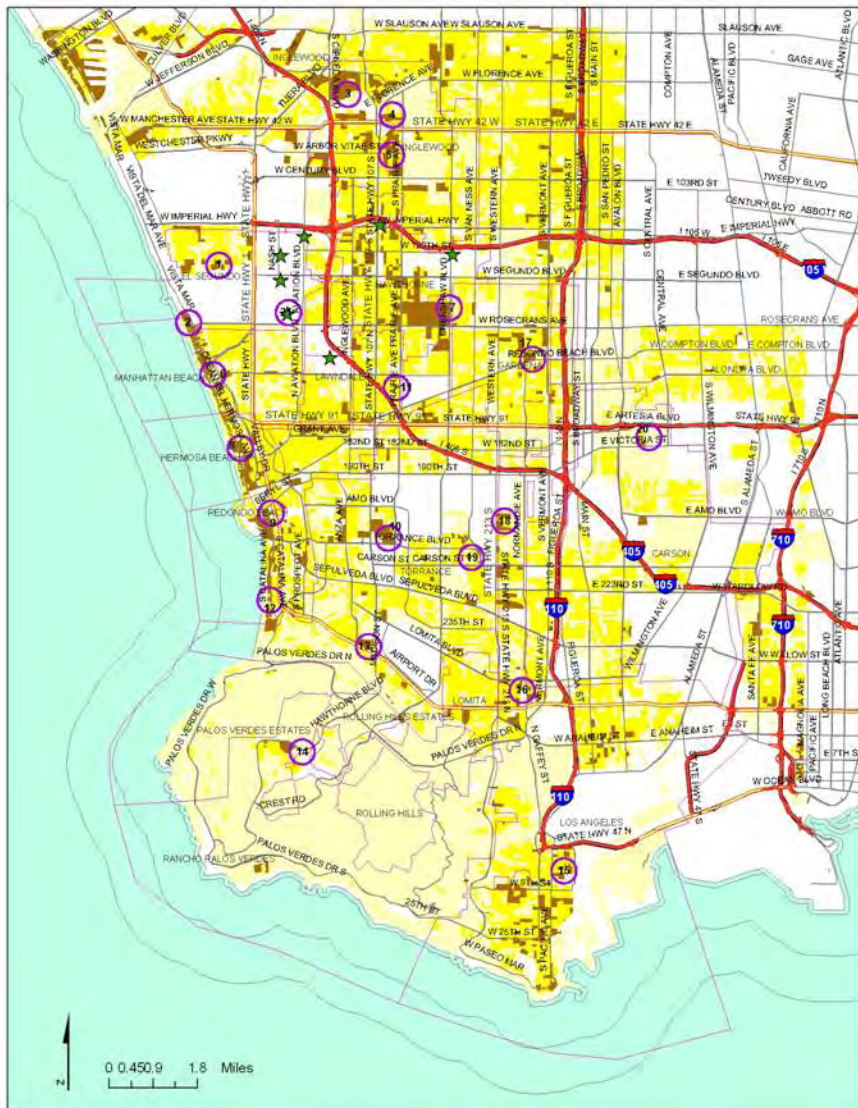
Figure 2.4: Job Density in the South Bay by Census Block



Traditionally, housing is more decentralized than employment, and in this respect the South Bay is typical. The South Bay experienced its greatest population growth between 1940 and 1970 – the period of Southern California’s history that was most characterized by single-family residential development and what we nowadays call “suburban sprawl”. Thus, housing densities throughout the South Bay are lower than job densities, and housing is scattered across the subregional landscape fairly evenly.

Figure 2.5 shows housing density throughout the subregion. Considerable portions of the South Bay are developed at very low densities (6 units per acre or less). Most of the residential areas are developed at traditional suburban densities (6 to 15 units per acre).

Figure 2.5: Housing Density in the South Bay by Census Block



South Bay Cities - Housing Density

- ★ Green Line Stops
- Centers
- units/acre
- 0.00
- 0.01 - 5.00
- 5.01 - 15.00
- 15.01 - 50.00
- 50+



map created by: Ryan Aubry, Dec. 13, 2004

Only in a few select areas do residential densities exceed 15 units per acre – the minimum generally needed to support public transit and truly neighborhood-level commercial services. These dense areas are scattered throughout the region. Many are located in Inglewood and in other older inland neighborhoods in communities such as Hawthorne.

Most beach communities are developed at high densities. High-density residential neighborhoods can also be found in selected parts of Torrance and the Wilmington-San Pedro sections of Los Angeles, near the ports.

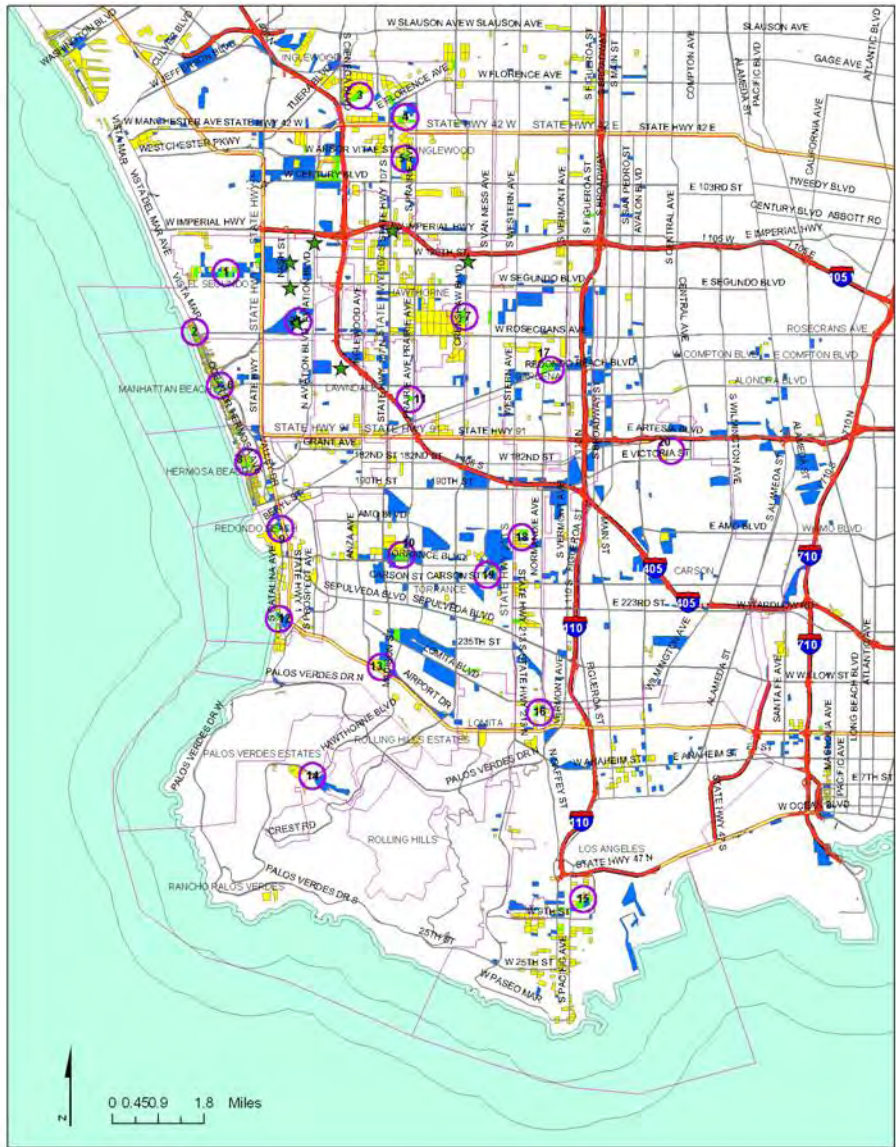
2.4. Identifying True Mixed-Use Centers in the South Bay

The purpose of this report is to identify successful mixed-use centers in the South Bay and learn more about how they function, in hopes of informing the cities in the South Bay and elsewhere about how best to make future land-use decisions.

One definition of a mixed-use center, of course, is a location that contains both a dense concentration of both jobs and housing, suggesting a dense interplay of human activity. In today's Southern California it is unlikely that many people would both live and work in mixed-use centers, but a dense concentration of both jobs and housing would suggest that businesses serving residents and employees might be clustered together in such a way as to encourage people to walk, bike, or take public transit on some daily activities instead of driving.

Given the scattered landscape of both housing and jobs, we concluded that the best way to identify possible mixed-use centers is to show where high-density job centers and high-density residential neighborhoods overlap. Figure 2.6 depicts the location of high-density job centers (more than 25 jobs per acre), high-density residential areas (more than 15 units per acre), and locations where these overlap.

Figure 2.6: Clusters of High-Density Jobs and Housing in the South Bay



South Bay Cities - Mixed-Use Analysis

- Legend
- ★ Green Line Stops
 - Centers
 - House Den. 15 - Jobs Den. 25
 - Housing 15/a+
 - Jobs 25/a+



map created by: Ryan Aubry, Dec. 13, 2004

The locations where this overlap occurs are depicted in green. As the map shows, there are more than 70 of these “jobs-housing” areas. Most are small in area and they are scattered across the subregion. However, several of these areas are located in Inglewood, and several more are located in the old beach communities. The remainder are scattered across the region, with several located in Torrance south of the 405 Freeway.

Seeking to make more sense of this data, we selected 19 (areas that had either (1) several green areas) or (2) green areas surrounded by blue and yellow areas). We then drew a ¼-mile circle from the centroid of the green area. This resulted in 19 centers ranging in size from 100 to 500 acres. These centers encompassed at least part of 11 cities. Most, but not all, green areas are included inside these circles. We later added two more centers that did not exactly fit our parameters but seemed to be potentially significant from a subregional perspective (Cal State Dominguez Hills and Douglass Green Line Stop), giving us a total of 21. These 21 areas are numbered on the map in Figure 2.6.

Not all areas that others might identify as centers are included in these circles. Some major shopping centers are excluded, for example, as are most areas around rail stops and some areas identified by the South Bay Cities COG as centers.

Having identified 21 areas that seemed to qualify as mixed-use centers via a mapping process with statistical thresholds, we then conducted a more detailed statistical analysis that sought to rank them from a mixed-use perspective. We used four criteria: population density, housing density, jobs density, and density of neighborhood-serving businesses.

Neighborhood-serving businesses were defined as businesses that were classified under the following two-digit SIC codes⁹:

- 54: Markets
- 58: Restaurants
- 59: Drug stores and stuff
- 60: Banks
- 80: Health Services
- 82: Educational Services
- 79 Amusement and Recreation Facilities

It is important to note that the densities inside these circles are lower than one might expect because, in drawing the ¼-mile buffer, we included many areas that were low-density as well as areas that were high-density.

Table 2.1 shows the demographic characteristics of the 21 areas. Three demographic trends were evident:

1. There was a mix of race and ethnic character among the circles.
2. All areas were overwhelmingly renter neighborhoods (excluding the Douglass Green Line Center which does not have housing).

⁹ We were aware that this represented only a rough approximation of neighborhood-serving businesses. When we did a more detailed analysis of the final three mixed-use centers, we re-examined the neighborhood business question and came up with a more fine-grained definition.

- Household sizes are generally quite low, although there is obviously some correlation between race and household size, as one would expect.

Table 2.1: Socioeconomic Characteristics of 21 South Bay Centers

Center	Cross-Streets	City	Race				Age	HH Size	Tenure (Owner %)
			White	Black	Asian	Hispanic			
4	Downtown Inglewood	Inglewood	9.9%	77.1%	3.0%	11.5%	31.7	1.57	9.6%
8	Hermosa Beach Pier	Hermosa Beach	91.0%	0.4%	4.0%	6.0%	30.5	2.81	10.7%
12	Riviera Village	Redondo Beach	85.7%	1.6%	6.1%	6.5%	23.7	3.31	16.6%
9	PCH/Diamond	Redondo Beach	81.1%	1.9%	8.4%	11.4%	35.0	1.65	13.2%
6	Manhattan Beach Pier	Manhattan Beach	92.3%	0.5%	3.4%	5.3%	31.5	3.09	10.7%
5	Arbor Vitae/Prairie	Inglewood	17.4%	45.3%	2.3%	47.8%	27.5	1.57	29.2%
13	PCH/Hawthorne	Torrance	64.1%	2.3%	24.1%	10.9%	25.6	1.10	17.4%
3	Hyde Park/Beach	Inglewood	10.3%	67.7%	1.2%	25.9%	26.6	2.11	17.2%
19	Downtown Torrance	Torrance	65.3%	2.7%	13.5%	26.5%	29.96	1.47	14.8%
15	Center/5th	Los Angeles	35.3%	12.6%	5.0%	71.9%	22.0	1.84	29.1%
2	Rosecrans/Ocean	Manhattan Beach	92.2%	0.4%	3.8%	5.4%	34.1	1.66	14.3%
1	Downtown El Segundo	El Segundo	81.0%	1.0%	8.3%	13.0%	26.4	1.66	7.6%
10	Torrance Civic Center	Torrance	49.3%	4.8%	31.1%	17.3%	26.6	1.84	15.4%
17	Redondo Beach/Budlong	Gardena	20.5%	15.8%	38.7%	30.6%	36.1	3.65	8.4%
21	Douglas Green Line Station	El Segundo	0.0%	0.0%	0.0%	0.0%	-	-	0.0%
7	Crenshaw/139th	Hawthorne/Gardena	16.8%	55.1%	6.7%	30.8%	30.7	1.47	15.7%
18	Del Amo/Harbor	Los Angeles	31.1%	20.0%	6.1%	64.0%	19.3	2.92	26.4%
16	Normandie/255th	LA (adj to Lomita)	36.3%	15.6%	5.3%	69.6%	25.0	2.59	0.1%
14	Silver Spur	Rolling Hills Estates	60.0%	1.8%	32.8%	4.3%	39.1	1.65	7.0%
11	Prairie/164th	Lawndale	42.2%	10.2%	10.6%	56.7%	27.1	1.70	9.8%
20	Cal State Dominguez Hills	Carson	5.8%	82.6%	2.6%	10.4%	22.2	2.18	1.9%

We ranked each of the 21 areas in each category and then aggregated the rankings (without weighting the different factors). (Table 2.2.) We also ranked them without population (jobs, housing, neighborhood businesses) and without housing (jobs, population, neighborhood businesses) because we thought that differences between housing density and population density might affect the rankings. The difference was not great. We did a rough, approximate “weighted” ranking that sought to recognize the relative strength of each center within each category (a center with twice as much housing was given twice as much weight in the housing category). Again, there was virtually no difference in the rankings, with one exception – the Douglass Green Line Station rose to the top of the list because it has three times the job density of any other center.

Table 2.2: Initial Rankings of 21 South Bay Centers

Center	Cross-Streets	City	Size (acres)	Population	Housing	Jobs	Neighborhood-Serving Uses	Cumulative Ranking
				Per Acre	Per Acre	Per Acre	Per Acre	
4	Downtown Inglewood	Inglewood	176	35.93	10.23	24.23	0.90	1T
8	Hermosa Beach Pier	Hermosa Beach	180	40.41	13.81	15.92	0.81	2
12	Riviera Village	Redondo Beach	175	25.60	16.03	13.69	0.73	3T
9	PCH/Diamond	Redondo Beach	326	34.13	12.60	23.70	0.41	3T
6	Manhattan Beach Pier	Manhattan Beach	198	21.27	8.78	18.08	0.65	5
5	Arbor Vitae/Prairie	Inglewood	187	17.88	9.93	26.66	0.35	6
13	PCH/Hawthorne	Torrance	234	15.38	8.32	29.18	0.39	7T
3	Hyde Park/Beach	Inglewood	231	36.61	15.10	15.02	0.10	8
19	Downtown Torrance	Torrance	164	13.76	7.14	17.36	0.70	9
15	Center/5th	Los Angeles	233	11.70	7.17	15.84	0.74	10
2	Rosecrans/Ocean	Manhattan Beach	100	19.74	6.54	8.36	0.45	11T
1	Downtown El Segundo	El Segundo	187	14.90	7.01	24.78	0.11	11T
10	Torrance Civic Center	Torrance	331	16.16	7.82	12.59	0.26	11T
17	Redondo Beach/Budlong	Gardena	234	12.92	6.89	13.92	0.64	14
21	Douglas Green Line Station	El Segundo	193	0.00	0.00	70.19	0.40	15
7	Crenshaw/139th	Hawthorne/Gardena	231	12.33	7.76	6.51	0.25	16T
18	Del Amo/Harbor	Los Angeles	240	19.74	5.41	8.55	0.06	16T
16	Normandie/255th	LA (adj to Lomita)	189	12.46	5.90	6.96	0.22	18
14	Silver Spur	Rolling Hills Estates	496	7.62	3.24	5.92	0.24	19
11	Prairie/164th	Lawndale	334	11.53	3.46	1.45	0.07	20
20	Cal State Dominguez Hills	Carson	262	9.02	2.75	7.69	0.04	21

In the initial ranking, Downtown Inglewood and the old beach downtowns ranked as the strongest mixed-use centers. Other older centers, such as Downtown Torrance and Downtown El Segundo, also ranked fairly high, though they were mixed in with areas whose mixed-use character may not be so obvious, such as the Torrance Civic Center.

Other important trends that we found in this analysis

- The beachfront areas score high on all scales except jobs.
- Although dense centers exist in El Segundo and Inglewood, they are not around the Green Line stops. The one El Segundo area ranked low in housing, population, and neighborhood businesses but high in jobs.
- A number of promising inland areas in areas of modest incomes fell down because they did not score well on neighborhood businesses.

2.5 Focused Analysis of 7 Leading Mixed-Use Centers

After evaluating the 21 centers it was clear that many would not serve as effective candidates for the final three that will be analyzed in detail as part of this study. In order to select the most promising centers for further review a ranking system was established for the 21 centers as well as a subjective review which included onsite visits and analysis of configuration of streets and businesses. We found that in many cases, an area might appear to be a center in statistical terms, but it did not contain a dense and accessible mix of uses. More detailed mapping of neighborhood-serving businesses revealed that, in many cases, neighborhood businesses were not clustered but, rather, strung in linear fashion along arterial streets. Onsite visits further confirmed that physical impediments existed between uses that otherwise might appear to be in close proximity.

This analysis led to the identification of the following 7 centers which we agreed would be subject to further study. These were:

(# indicates original center ID)

1. Downtown El Segundo (1)
2. Riviera Village (12)
3. Downtown Torrance (19)
4. Inglewood Downtown (4)
5. Manhattan Beach Pier (6)
6. Hermosa Beach Pier (8)
7. Redondo Beach Marina/Pier (9)

Essentially, we were left with four beach communities and three older downtowns, all of which were initially developed prior to the postwar suburban era. Unfortunately, one consequence of this analysis was that many areas with ethnic and income diversity, especially those in inland cities, were dropped. In general, these populations are located in strip-commercial areas developed during the suburban era. This analysis also tended to place a low priority on large-scale retail areas (which are typically single use and contain regional rather than neighborhood businesses) and areas where neighborhood-serving uses are not listed as separately owned businesses (such as the Cal State campus).

In the second round, we used Census Sample Level 3 data to obtain a more fine-grained understanding of demographics, housing, transportation, and economic patterns. This sample data is available only at the Census block group level, meaning we had to re-examine the boundaries. Instead of using the previous ¼-mile circles to determine the area of the 'Center', the block groups which most closely bounded the 'Center' were used. Thus, the center boundaries in Round 2 were much smaller than they were in Round 1, but they were much more closely connected to either the overlap of uses identified in Round 1 and/or to the physical center of the downtowns (usually an intersection) as observed in the field visits.

The boundaries not only made the study areas much smaller; they also vastly increased the densities and also, in some cases, tended to rob the study areas of ethnic diversity. The study areas of the 7 semi-finalists ranged from 6 to 32 acres. Their housing density ranged close to 100 units per acre. Six of the seven study areas are mostly white; only Inglewood has a majority non-white population. In the case of Downtown Torrance, the smaller boundaries had the effect of removing Asian and Hispanic populations, leaving a much higher white population.

In addition, we examined Downtown Torrance two different ways. We first examined a study area that included only one census block, and then we added a second census block that incorporated considerable industrial land and therefore decreased the density of jobs and population. As we will discuss in the section on Downtown Torrance, this approach turned out to be appropriate because of the area's history as a residential, commercial, and industrial center.

Although we continued to do a statistical analysis of all 7 centers, Hermosa Beach expressed a desire to withdraw from consideration, and we also decided to focus on Riviera Village rather than Redondo Beach Pier, both of which were located mostly in Redondo Beach. Therefore, we created detailed maps of only 5 of the 7 centers. (Figures 2.7 through 2.11.)

Figure 2.7: El Segundo Round 2 Study Area

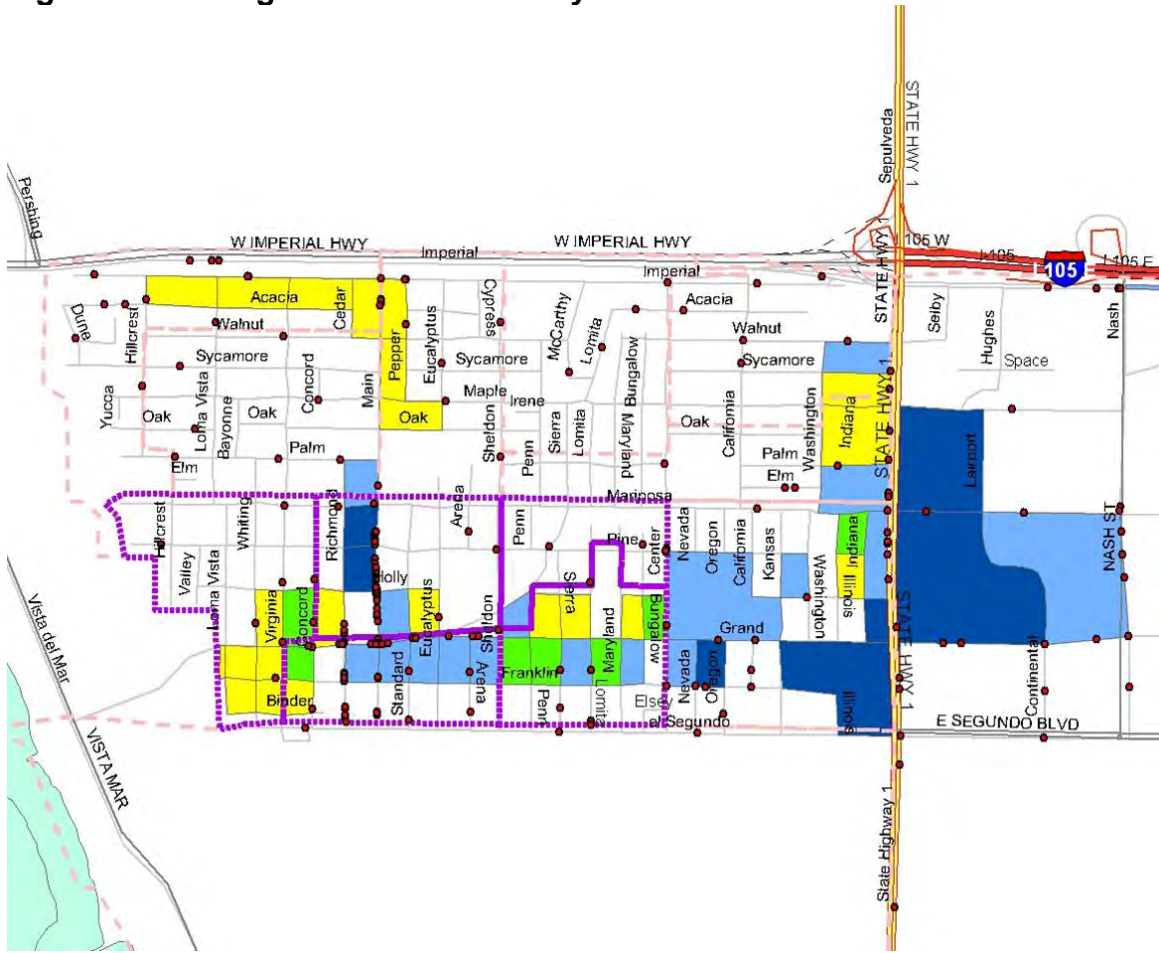


Figure 2.8: Inglewood Round 2 Study Area

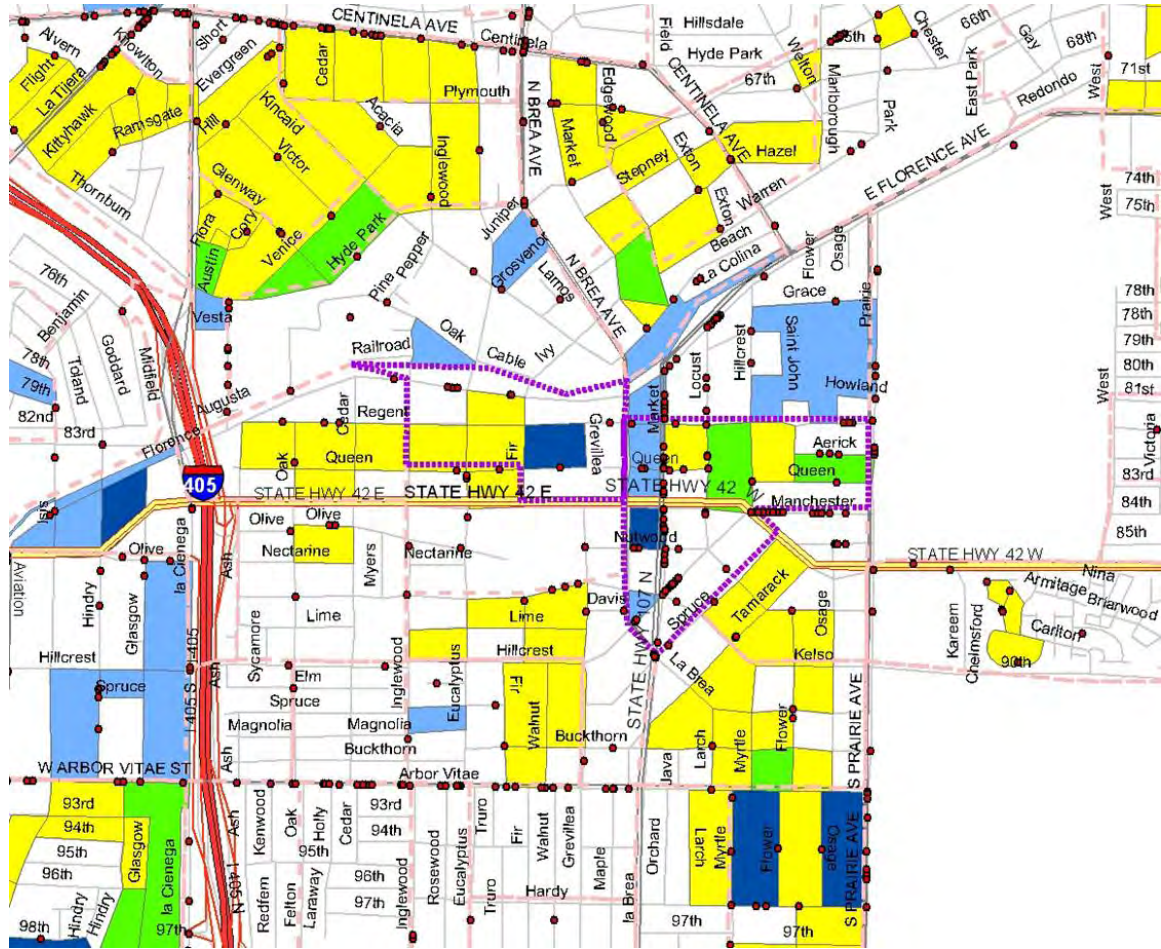


Figure 2.9: Manhattan Beach Round 3 Study Area

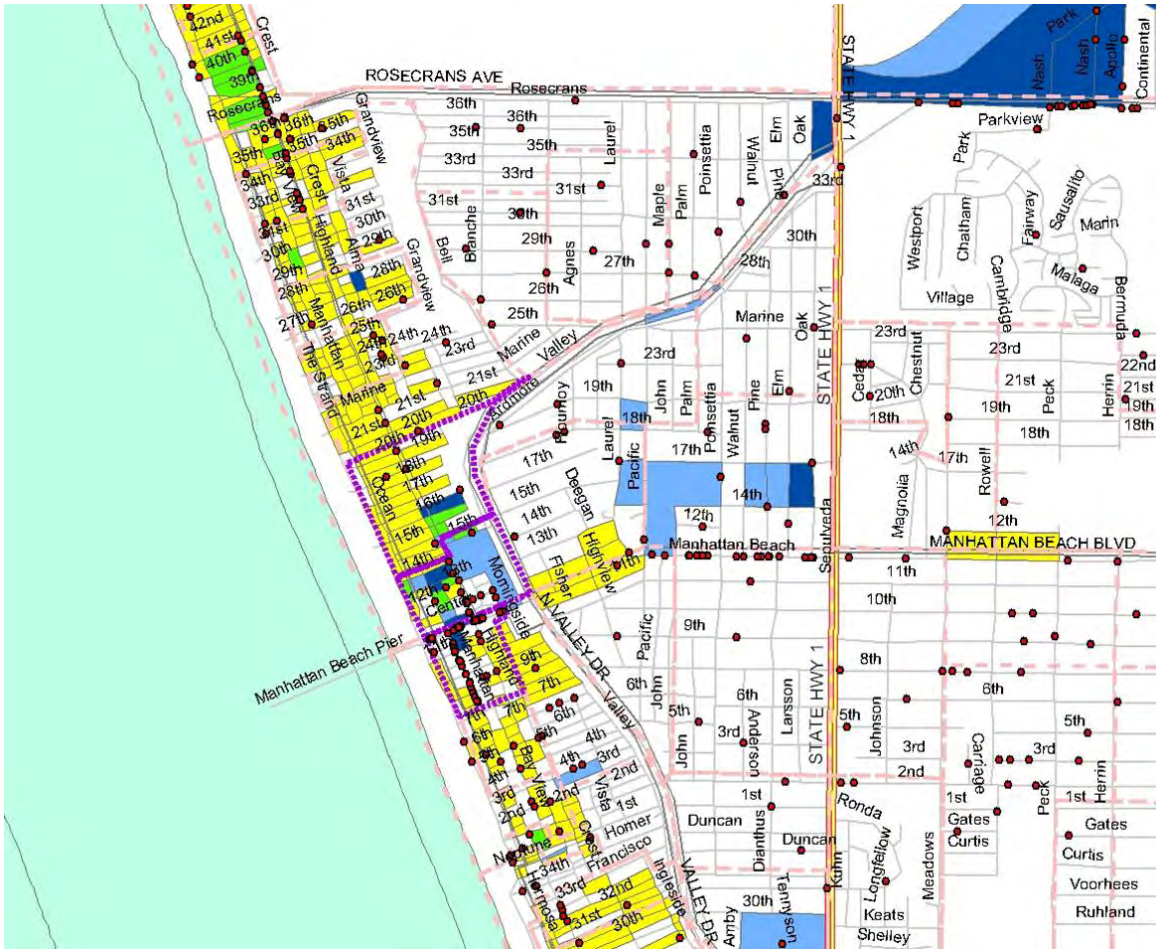


Figure 2.10: Riviera Village Round 2 Study Area

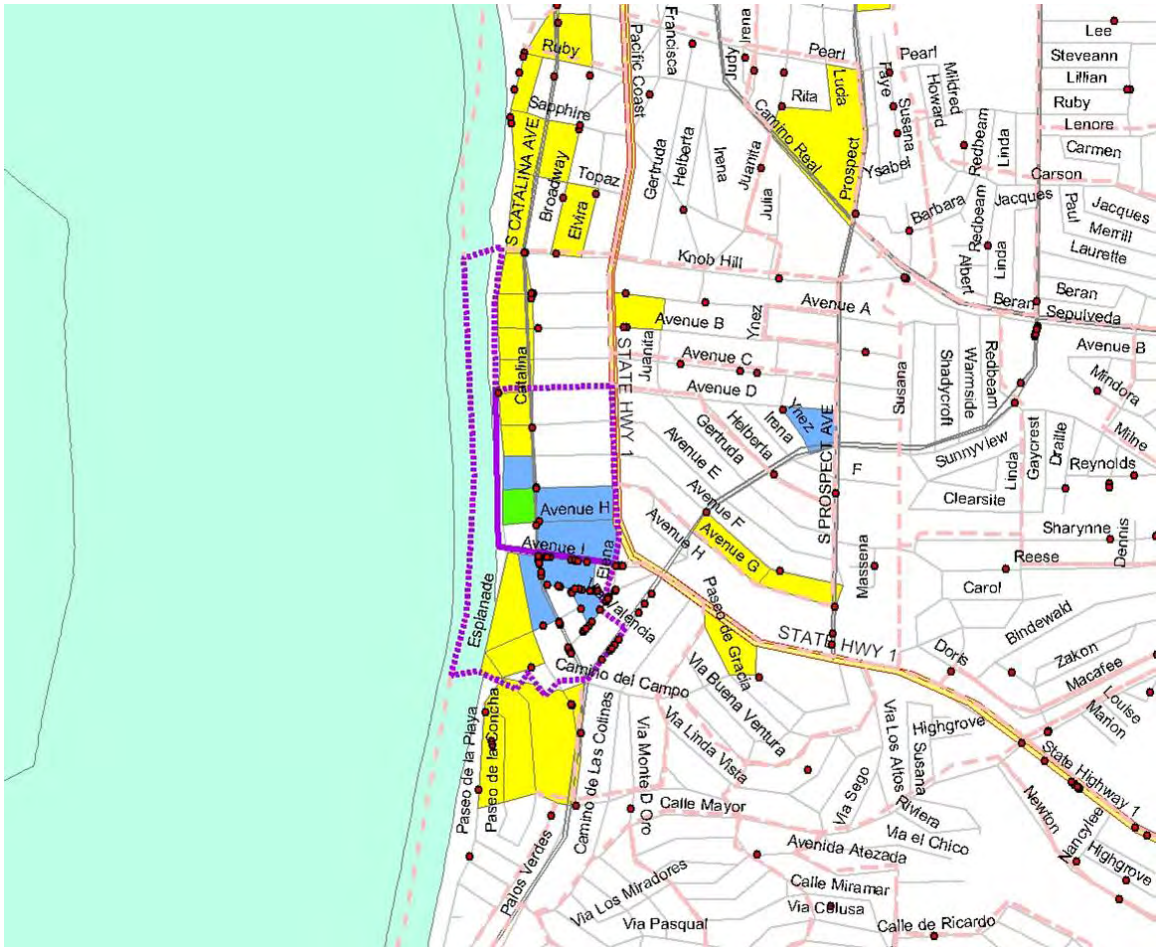
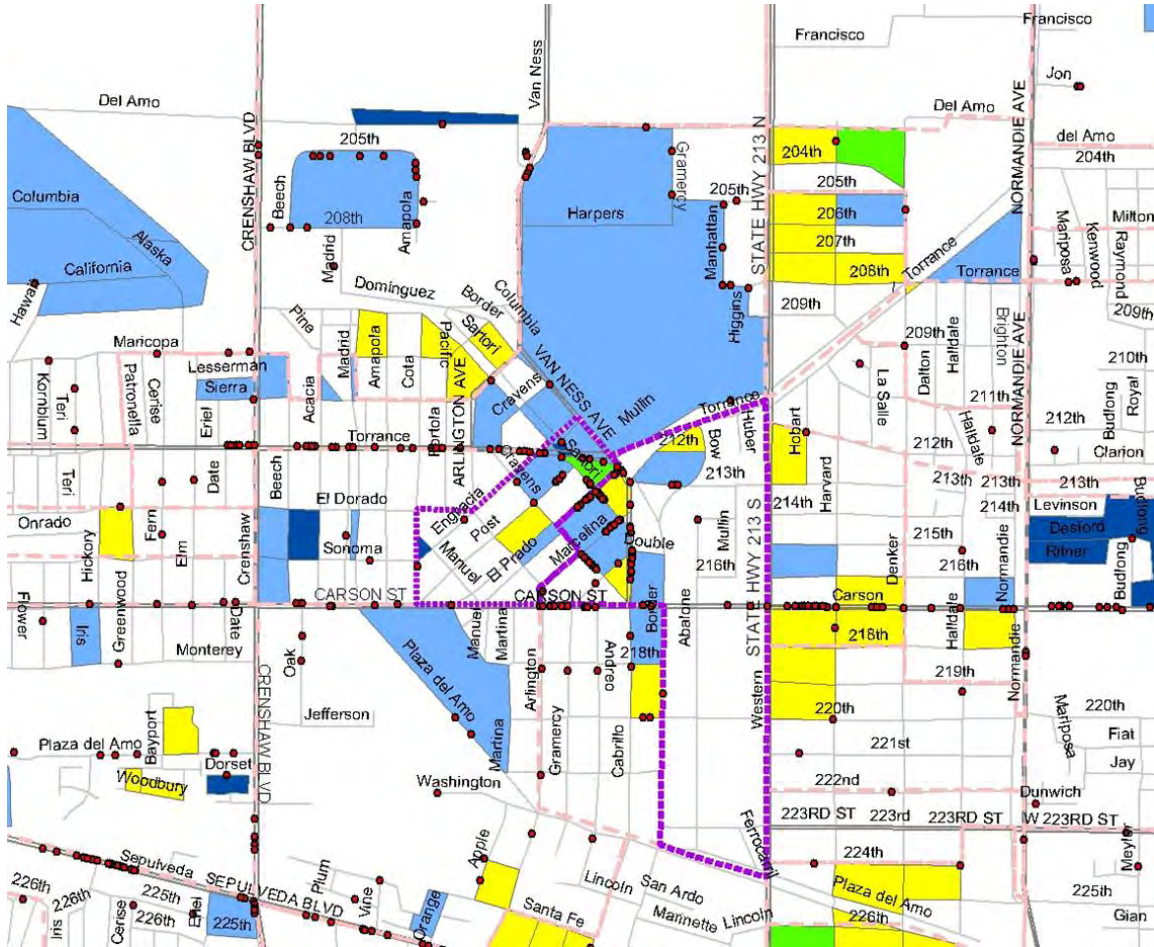


Figure 2.11: Torrance Round 2 Study Area



It is important to note that the boundaries in Round 2, like the boundaries in Round 1, were not meant as the permanent study area boundaries but rather to provide a rough statistical picture of the center.¹⁰ (Tables 2.3 through 2.9)

¹⁰ One methodological note: The Census Blocks including Old Town Torrance also include a very large employer (American Honda) with 4,000 jobs. We removed this job center as an outlier; but even so the Old Town area scored very high on job density.

Table 2.3: Socioeconomic Characteristics of 7 Finalists

Number	1	4	6	8	9	12	19	
Name	Downtown El Segundo	Downtown Inglewood	Manhattan Beach Pier	Hermosa Beach Pier	Marina Pier	Riviera Village	Torrance	Expanded Torrance
City	El Segundo	Inglewood	Manhattan Beach	Hermosa Beach	Redondo Beach	Redondo Beach	Torrance	Torrance
Census Block Groups in Study Area	5	2	3	2	2	2	1	2
Acres	32.2	17.1	8.4	10.1	26.7	13.4	5.8	23.2
Socioeconomics								
Total Population	5,754	2,854	1,694	2,314	3,473	2,115	701	1,206
Population Per Acre	179	167	201	229	130	158	120	52
% White	83.5%	14.8%	92.0%	91.1%	81.9%	85.8%	72.0%	66.3%
% Black	1.0%	66.6%	0.8%	0.3%	1.7%	1.6%	2.6%	2.9%
% Asian	6.4%	2.7%	3.2%	4.0%	8.7%	5.8%	14.1%	17.9%
% Hispanic	12.3%	23.8%	5.7%	6.1%	9.6%	6.5%	12.8%	15.3%
Households	2,750	1,408	937	1,249	2,244	1,293	384	701
Median Age	35.4	38.0	35.5	34.1	39.5	35.6	43.8	41.2
Household Size	2.06	2.03	1.71	1.85	1.68	1.63	1.80	1.70
% Families	48.7%	41.7%	33.5%	32.4%	28.2%	30.5%	38.5%	35.7%
Labor Force Participation	59.1%	32.8%	79.6%	64.0%	65.6%	76.6%	53.1%	60.6%
Median Income	\$ 55,483	\$ 20,538	\$ 103,940	\$ 87,176	\$ 59,844	\$ 60,634	\$ 36,696	\$ 41,842
Homeowners	25.5%	10.7%	37.7%	35.1%	38.0%	14.9%	38.0%	38.5%
Home Value, 2000 Census	\$ 315,320	\$ 154,800	\$ 920,500	\$ 731,651	\$ 388,100	\$ 776,801	\$ 350,000	\$ 308,750
% Renters	74.5%	89.3%	62.3%	64.9%	62.0%	85.1%	62.0%	61.5%
Contract Rent, 2000 Census	\$ 842	\$ 530	\$ 1,287	\$ 1,104	\$ 835	\$ 961	\$ 525	\$ 539

Table 2.4: Transportation Characteristics of 7 South Bay Centers

Number	1	4	6	8	9	12	19	
Name	Downtown El Segundo	Downtown Inglewood	Manhattan Beach Pier	Hermosa Beach Pier	Marina Pier	Riviera Village	Downtown Torrance	Expanded Downtown Torrance
City	El Segundo	Inglewood	Manhattan Beach	Hermosa Beach	Redondo Beach	Redondo Beach	Torrance	Torrance
Census Block Groups in Study Area	5	2	3	2	2	2	1	2
Acres	32.2	17.1	8.4	10.1	26.7	13.4	5.8	95.0
Transportation								
Vehicles	4,391	1,243	1,468	2,017	2,941	1,927	507	847
Vehicles								
Vehicles Per Household	1.60	0.88	1.57	1.61	1.31	1.49	1.32	1.21
Ratio of Vehicles to Household Size	0.77	0.43	0.92	0.87	0.78	0.92	0.73	0.71
<i>Homeowner Households</i>								
Vehicles (Homeowners)	1,289	247	551	852	1,275	356	286	467
Vehicles Per Homeowner Household	1.84	1.65	1.56	1.94	1.50	1.84	1.96	1.73
Ratio of Vehicles to Household Size	0.89	0.81	0.91	1.05	0.89	1.14	1.09	1.02
<i>Renter Households</i>								
Vehicles (Renter)	3,102	996	917	1,165	1,666	1,571	221	380
Vehicles Per Renter Household	1.51	0.79	1.57	1.44	1.20	1.43	0.93	0.88
Ratio of Vehicles to Household Size	0.73	0.39	0.92	0.78	0.71	0.88	0.52	0.52

Table 2.5: Transportation Characteristics of 7 South Bay Centers

Number	1	4	6	8	9	12	19	
Name	Downtown El Segundo	Downtown Inglewood	Manhattan Beach Pier	Hermosa Beach Pier	Marina Pier	Riviera Village	Downtown Torrance	Expanded Downtown Torrance
City	El Segundo	Inglewood	Manhattan Beach	Hermosa Beach	Redondo Beach	Redondo Beach	Torrance	Torrance
Census Block Groups in Study Area	5	2	3	2	2	2	1	2
Acres	32.2	17.1	8.4	10.1	26.7	13.4	5.8	17935.0
Commute Travel Time								
Work at home	3.8%	2.0%	5.2%	5.4%	6.2%	3.8%	1.6%	3.0%
10 Minutes or Less	636	24	80	149	237	87	76	112
10 Minutes or Less	18.7%	2.6%	5.9%	10.1%	10.4%	5.4%	20.4%	15.3%
10 to 20 Minutes	993	207	263	267	541	465	73	163
10 to 20 Minutes	29.2%	22.1%	19.5%	18.0%	23.8%	28.7%	19.6%	22.3%
20 to 30 Minutes	580	165	183	203	367	295	63	142
20 to 30 Minutes	17.1%	17.6%	13.6%	13.7%	16.1%	18.2%	16.9%	19.4%
30 Minutes or More	1,063	521	753	783	991	711	154	292
30 Minutes or More	31.3%	55.7%	55.8%	52.8%	43.5%	43.9%	41.4%	39.9%
Aggregate Travel Time	72,625	30,135	42,850	54,480	62,225	49,810	10,180	18,895
Mean Travel Time	22.20	32.86	33.50	38.86	29.13	31.97	27.81	26.65
<i>Public Transit Riders</i>	49.72	67.23	0.79	40.00	28.92	30.00	34.50	36.92
<i>Others</i>	21.06	28.79	31.76	36.74	27.30	30.75	26.96	25.44

Table 2.6: Transportation Characteristics of 7 South Bay Centers

Number	1	4	6	8	9	12	19	
Name	Downtown El Segundo	Downtown Inglewood	Manhattan Beach Pier	Hermosa Beach Pier	Marina Pier	Riviera Village	Downtown Torrance	Expanded Downtown Torrance
City	El Segundo	Inglewood	Manhattan Beach	Hermosa Beach	Redondo Beach	Redondo Beach	Torrance	Torrance
Census Block Groups in Study Area	5	2	3	2	2	2	1	2
Acres	32.2	17.1	8.4	10.1	26.7	13.4	5.8	0.0
Commute Travel Mode								
Drive Alone	83.5%	68.4%	85.3%	81.6%	77.6%	84.1%	87.1%	82.2%
Carpool	6.9%	18.2%	8.5%	5.3%	6.2%	6.2%	2.4%	3.4%
Public Transit	1.1%	8.9%	0.0%	0.7%	1.6%	0.4%	5.4%	3.6%
Walk	3.1%	1.5%	1.0%	5.9%	5.1%	2.1%	3.5%	3.4%
Bicycle	0.2%	0.0%	0.0%	0.0%	1.1%	0.6%	0.0%	2.7%
Other	4.7%	2.0%	5.2%	5.4%	6.8%	5.1%	1.6%	3.0%
Summary of Alternative/Short Commuting								
Works at Home/Public Transit/Walk/Bike	8.1%	12.4%	6.2%	12.0%	14.0%	7.0%	10.5%	12.7%
Works at Home/Commute 10 min or less	22.5%	4.6%	11.1%	15.5%	16.6%	9.2%	22.0%	18.3%

Table 2.7: Housing Characteristics of 7 South Bay Centers

Number	1	4	6	8	9	12	19	
Name	Downtown El Segundo	Downtown Inglewood	Manhattan Beach Pier	Hermosa Beach Pier	Marina Pier	Riviera Village	Downtown Torrance	Expanded Downtown Torrance
City	El Segundo	Inglewood	Manhattan Beach	Hermosa Beach	Redondo Beach	Redondo Beach	Torrance	Torrance
Census Block Groups in Study Area	5	2	3	2	2	2	1	2
Acres	32.2	17.1	8.4	10.1	26.7	13.4	5.8	0.2
Housing								
Housing Units	2,837	1,453	1,013	1,307	2,397	1,345	400	734
Housing Units Per Acre	88.2	84.9	120.0	129.2	89.8	100.6	68.6	31.7
Vacancy Rate 200 Census	3.1%	3.1%	7.5%	4.4%	6.4%	3.9%	4.0%	7.9%
Housing Type								
Single-Family Detached	29.0%	5.3%	31.9%	26.9%	5.3%	12.0%	34.5%	20.7%
Single-Family Attached	7.8%	7.5%	18.5%	10.9%	7.8%	2.1%	7.8%	13.9%
Duplexes	5.3%	2.3%	21.0%	9.8%	0.8%	0.8%	4.2%	3.4%
Triplexes & Fourplexes	12.7%	6.3%	20.6%	15.5%	3.0%	8.2%	1.8%	4.8%
5-9 Units	30.8%	17.7%	2.1%	13.9%	8.1%	24.4%	5.5%	12.0%
10 or more units	14.5%	60.9%	5.9%	18.7%	64.9%	52.5%	46.2%	45.2%
Other	0.0%	0.0%	0.0%	4.3%	10.3%	0.0%	0.0%	0.0%

Table 2.8: Business Characteristics of 7 South Bay Centers

Number	1	4	6	8	9	12	19	
Name	Downtown El Segundo	Downtown Inglewood	Manhattan Beach Pier	Hermosa Beach Pier	Marina Pier	Riviera Village	Downtown Torrance	Expanded Downtown Torrance
City	El Segundo	Inglewood	Manhattan Beach	Hermosa Beach	Redondo Beach	Redondo Beach	Torrance	Torrance
Census Block Groups in Study Area	5	2	3	2	2	2	1	2
Acres	32.2	17.1	8.4	10.1	26.7	13.4	5.8	0.0
Business								
Total Businesses	647	406	440	142	637	412	104	426
Businesses Per Acre	20.1	23.7	52.1	14.0	23.9	30.8	17.8	18.4
Jobs	5,535	2,403	3,354	1,066	6,028	1,883	1,462	3,994
Jobs Per Acre	172	140	397	105	226	141	251	172
Neighborhood Dynamics								
Neighborhood Businesses	140	139	124	44	184	98	30	122
Neighborhood Businesses Per Acre	4.4	8.1	14.7	4.3	6.9	7.3	5.1	5.3
Housing Units Per Nhood Biz	20.3	10.5	8.2	29.7	13.0	13.7	13.3	6.0
Jobs Per Resident Worker	1.63	2.57	2.49	0.72	2.65	1.16	3.93	5.46

Table 2.9: Ranking of 7 South Bay Centers

Number	1	4	6	8	9	12	19	
Name	Downtown El Segundo	Downtown Inglewood	Manhattan Beach Pier	Hermosa Beach Pier	Marina Pier	Riviera Village	Downtown Torrance	Expanded Downtown Torrance
City	El Segundo	Inglewood	Manhattan Beach	Hermosa Beach	Redondo Beach	Redondo Beach	Torrance	Torrance
Census Block Groups in Study Area	5	2	3	2	2	2	1	2
Acres	32.2	17.1	8.4	10.1	26.7	13.4	5.8	0.0
Ranking								
Previous Criteria								
1. Population Density	179	167	201	229	130	158	120	52
2. Job Density	172	140	397	105	226	141	251	172
3. Housing Density	88.2	84.9	120.0	129.2	89.8	100.6	68.6	31.7
4. Neighborhood Services Density	4.4	8.1	14.7	4.3	6.9	7.3	5.1	5.3
Previous Formula								
Population Density	3	4	2	1	6	5	7	
Job Density	4	6	1	7	3	5	2	
Housing Density	5	6	2	1	4	3	7	
Neighborhood Services Density	6	2	1	7	4	3	5	
Overall Total	18	18	6	16	17	16	21	
Weighted								
2. Job Density	172	140	397	105	226	141	251	172
3. Housing Density	264	255	360	387	269	302	206	95
4. Neighborhood Services Density	174	325	588	174	276	293	206	210
Overall Total	611	720	1345	667	771	736	662	478

All the study areas had small household sizes (1.7 to 2.0 persons per household), although El Segundo and Inglewood had more families than the other 5 centers. The housing was dense as well, ranging from 84 to 130 housing units per acre in all centers except Torrance, where it was considerably lower. Housing type varied from center to center. In Hermosa Beach, Manhattan Beach, and El Segundo, about 30% of houses were single-family detached. By contrast, in Downtown Inglewood, Downtown Redondo Beach, and Riviera Village, well over half of housing units were in large apartment or condominium buildings.

The centers were overwhelmingly renter-occupied. Renters represented between 60% and 90% of the households in the centers.

In general, the households in the study areas had fewer than one vehicle per person; the lowest figure was among Inglewood renters (0.39 vehicles per person) and the highest was among Riviera Village homeowners (1.14 vehicles per person). Most residents in all study areas drove alone to work, although Inglewood had a substantial number of carpoolers and bus riders. Commute times were longest in Inglewood, where bus riders have long travel times, and in Manhattan Beach and Hermosa Beach, which are relatively far from job centers. Interestingly, however, between 15% and 25% of residents either work at home or

commute 10 minutes or less in El Segundo, Hermosa Beach, Redondo Beach, and Torrance.

The number of businesses and jobs varied considerably from center to center as well. Manhattan Beach and Riviera Village had the most businesses per acre, while Hermosa Beach had the fewest. Manhattan Beach had by the far the most neighborhood businesses per acre, while El Segundo and Hermosa Beach had the fewest.

Using the same two methodologies as before – a straight aggregation of rankings and a rough and approximate weighting system within each category – the Manhattan Beach Pier (#6) scored highest. All of the other centers ranked very closely to one another, although Old Town Torrance and Downtown El Segundo tended to rank the lowest. No new criteria were used in this ranking, even though we now have more data.

In contemplating a reduction of the field from seven to three for in-depth analysis, we were confronted with several issues:

1. The four old beach communities all rank very high but are all very similar. Furthermore, although they are jobs-rich, it is likely that the jobs are tourist jobs and therefore jobs-housing balance is likely not strong. This is suggested by the long mean travel times – people live in dense beach centers but nevertheless commute significant distances inland to work via automobile.
2. Inglewood was the only center with a large non-white population and much transit usage (at least for commuting).
3. Downtown El Segundo and Downtown Torrance tended to rank somewhat lower but were different in important ways worth considering. They are less expensive than the beach communities; had more resident families (especially El Segundo); and are located in close proximity to major employment centers located near the center. Thus, mean commute travel time is shorter and use of alternative transportation is higher.

In consultation with the COG and the COG’s Livable Communities Working Group, we selected the following three centers for in-depth analysis:

4. Downtown Inglewood, a more traditional “downtown” and also the only center with a large non-white population;
5. Downtown Torrance, which had a large employment base adjacent to a commercial core and a residential area with a variety of housing types; and
6. Riviera Village, located mostly in Redondo Beach but partly in Torrance, which appeared to be the most “neighborhood-oriented” of the four beach communities.

3. Analysis of Three Mixed-Use Centers

Once we had selected three promising mixed-use centers for further analysis, the next step was to examine all aspects of these centers in detail in order to understand how they function and how people use them. In consultation with the COG and the Livable Communities Working Group, we undertook the following steps:

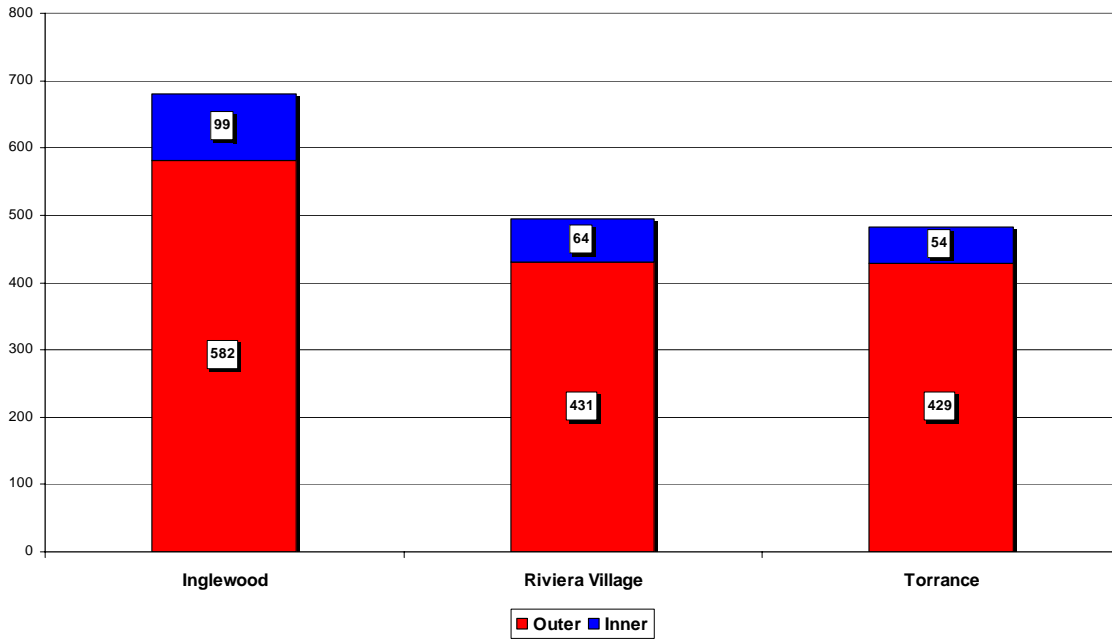
1. Finalized boundaries.
2. Researched the history of each center.
3. Conducted a GIS-based analysis of land use, housing, business, and employment patterns of each center.
4. Conducted a field survey analyzing the urban design character of each center.
5. Examined bus ridership patterns in each center.
6. Conducted pedestrian counts in each center.

In addition, we undertook extensive surveys of residents, employees, and visitors of each center, as well as a focus group of center users in each center. These results are presented in Section 4.

The boundaries were finalized in consultation with the Working Group and with each city. Upon reflection, we decided to create two boundaries for each center – an “inner” boundary and an “outer” boundary. Broadly speaking, the inner boundary included a radius of approximately $\frac{1}{4}$ mile from the centerpoint of the mixed-use center. The outer boundary included a radius of approximately $\frac{1}{2}$ -mile. We refined these boundaries based on other boundary efforts – such as redevelopment project areas and BIDs – as well as major street routes and Census block boundaries. The centers grew in size dramatically from the second round of analysis when these boundaries were created.

The inner boundaries ranged in size from 54 to 99 acres and the outer boundaries ranged in size from 429 to 582 acres. (Figure 3.1.) For reasons we will explain below, the Riviera Village and Torrance study areas were similar in size, while the Inglewood study area was considerably larger. Generally speaking, the inner boundary isolated an established commercial core, while the outer boundary included a broader and more diverse area that covered residential, commercial, and/or employment areas, depending on the center.

Figure 3.1: Size of inner and outer boundaries of three centers, in acres.



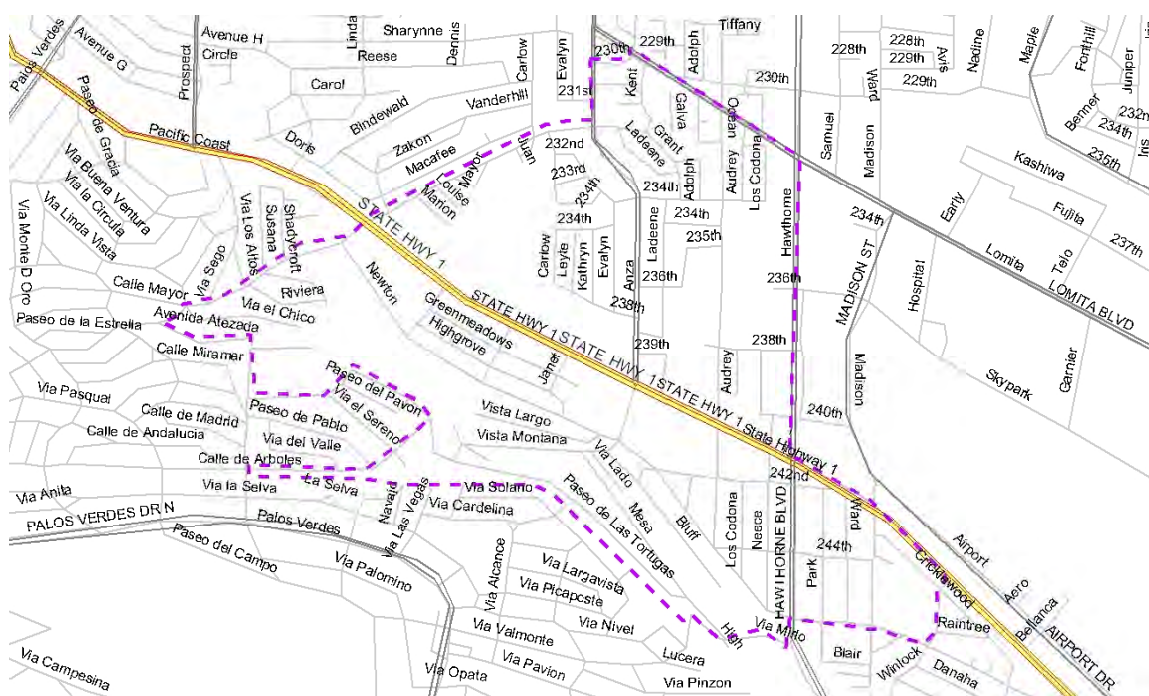
It is important to note that all these centers are similar in several ways and in selecting them we chose to focus narrowly on certain characteristics of centers in the South Bay. Most specifically:

- They are all *neighborhood centers* in the sense that each has a commercial core that caters primarily to the residential and employment neighborhoods around it; they are also relatively low-rise, with no more than four-story buildings. Commercial centers are usually characterized by their scale. For example, a major shopping mall such as Del Amo Fashion Center would be categorized as a regional center because of its size and market area. A large downtown such as Long Beach would be categorized as a citywide center because of market area is the entirety of a large city. In scale and nature of commerce, the three mixed-use centers here are more akin to neighborhood shopping centers which provide basic services to surrounding neighborhoods such as groceries, drug stores, and so forth. In this sense, they are “workhorse” centers rather than “showhorse” centers and provide a good basis for analysis in relation to day-to-day life.
- They are all predominantly *horizontal* mixed-use centers, rather than *vertical* mixed-use centers. By this terminology, we simply mean that different land uses generally sit adjacent to each other, in separate buildings or on separate streets, rather than on top of one another in the same building (which is often the classic definition of mixed use). This is typical of old Southern California downtowns. There is some vertical mixed-use in each of the three centers but they are not the predominant form.

- Even though they function mostly as neighborhood centers, each of the three centers has a reputation larger than the typical neighborhood center. Inglewood is well known as a center of governmental and medical functions. Torrance has one of the largest and most important employers in Southern California, American Honda Co. Riviera Village has proximity to the ocean and a reputation on the Palos Verdes Peninsula as a center of interest to residents there.

For some aspects of the analysis, we used a strip-commercial area around Pacific Coast Highway and Hawthorne Boulevard as a “control” area. We did conduct a full-blown economic and demographic analysis of the control area, but it was similar to Center #13 identified in the first round of analysis. We used the control area for pedestrian counts and also for the resident survey. A map of the control area is contained in Figure 3.2.

Figure 3.2: Control Area



As the maps of each center below reveal, each of the three study areas reflected a different kind of center with its own lessons for mixed-use development in the South Bay and Southern California. All have roots in Los Angeles’s vast interurban system of the early 20th Century, which was often used to promote real estate development in undeveloped areas, although the actual development of Riviera Village took place much later than the other areas and was never really a “transit village”.

Downtown Inglewood represents what might best be described as an *arterial downtown*. Its focal point is the intersection of two arterial streets, Manchester Boulevard and La Brea Boulevard, which carry considerable through traffic.

Riviera Village represents more of a *classic village*, with a neighborhood-oriented commercial core surrounded by a variety of residential neighborhoods with different densities.

Downtown Torrance represents a classic Los Angeles *planned industrial suburb*, with employment centers, a commercial core, and residential areas all located in close proximity to one another.

It is important to note that three centers we analyzed are not really regional retail or employment centers. Although both Torrance and Inglewood have large employers, none of the three areas have regional entertainment or shopping attractions. Rather, they appear to be neighborhood-oriented centers that cater largely to employees and residents within a short distance. In this sense they may be more typical than large regional shopping malls or entertainment centers that have emerged in recent years.

In addition to finalizing the boundaries, we made one other methodological change for the analysis of the final three centers: We refined the definition of neighborhood businesses.¹¹

3.1 Downtown Inglewood

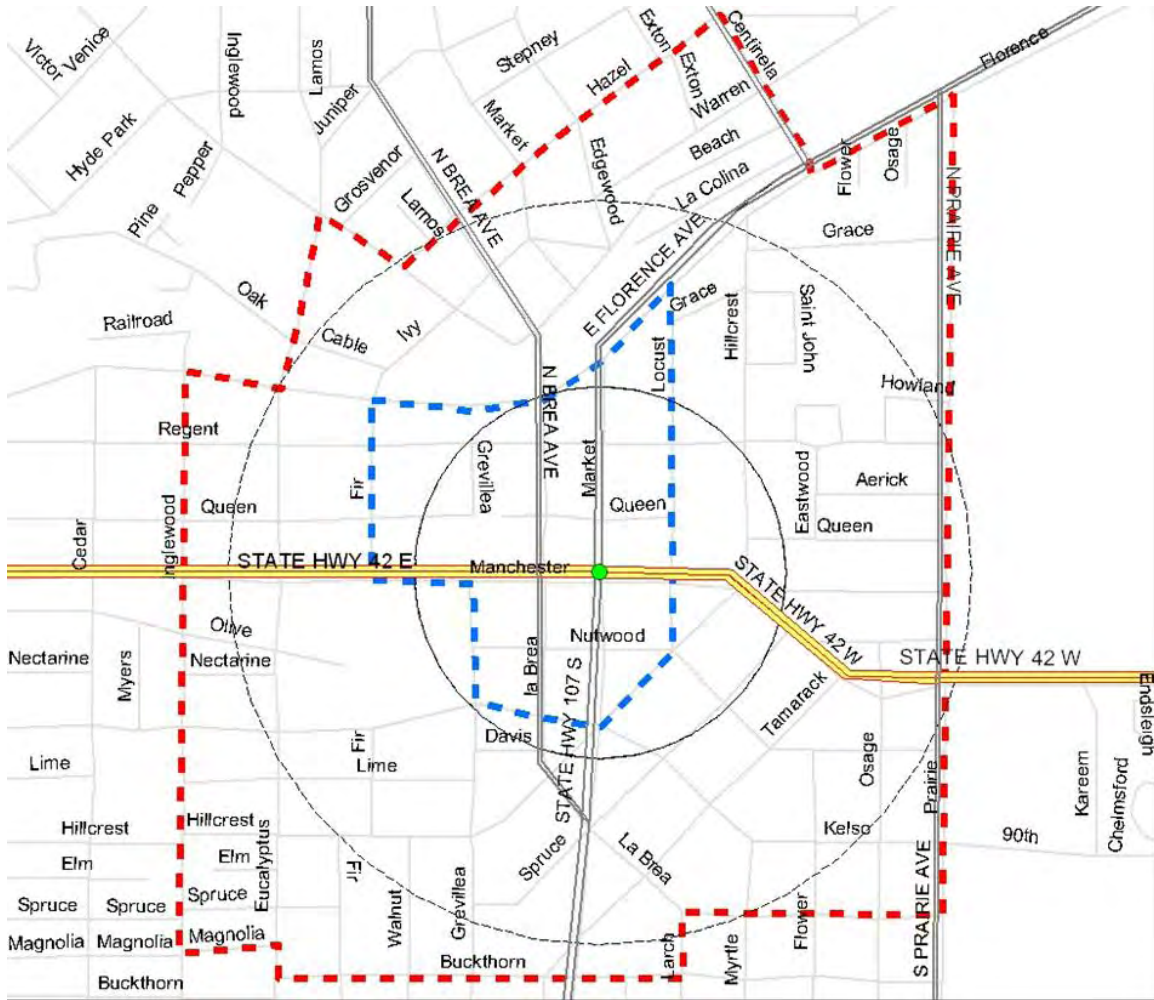
For the purposes of this analysis, Downtown Inglewood was defined rather expansively to include 99 acres in the inner boundary and 582 acres in the outer boundary – a total of 680 acres, or slightly more than one square mile. (Figures 3.1.1 and 3.1.2.) The inner boundary was bounded principally by Florence on the north, Fir on the west, Locust on the east, and Hillcrest on the south. The outer boundary was bounded principally by Hazel on the north, Inglewood on the west, Prairie on the east, and Buckhorne on the south. The study team and the Working Group debated at length whether to include the area north of Florence in the outer boundary, as it is cut off from downtown by Florence and the railroad tracks. However, we decided to include the area because of its extremely close proximity to the inner boundary.

¹¹ See Appendix B for an explanation of the more fine-grained definition of neighborhood-serving uses.

Figure 3.1.1: Aerial photo of Downtown Inglewood



Figure 3.1.2: Downtown Inglewood, Inner and Outer Boundaries



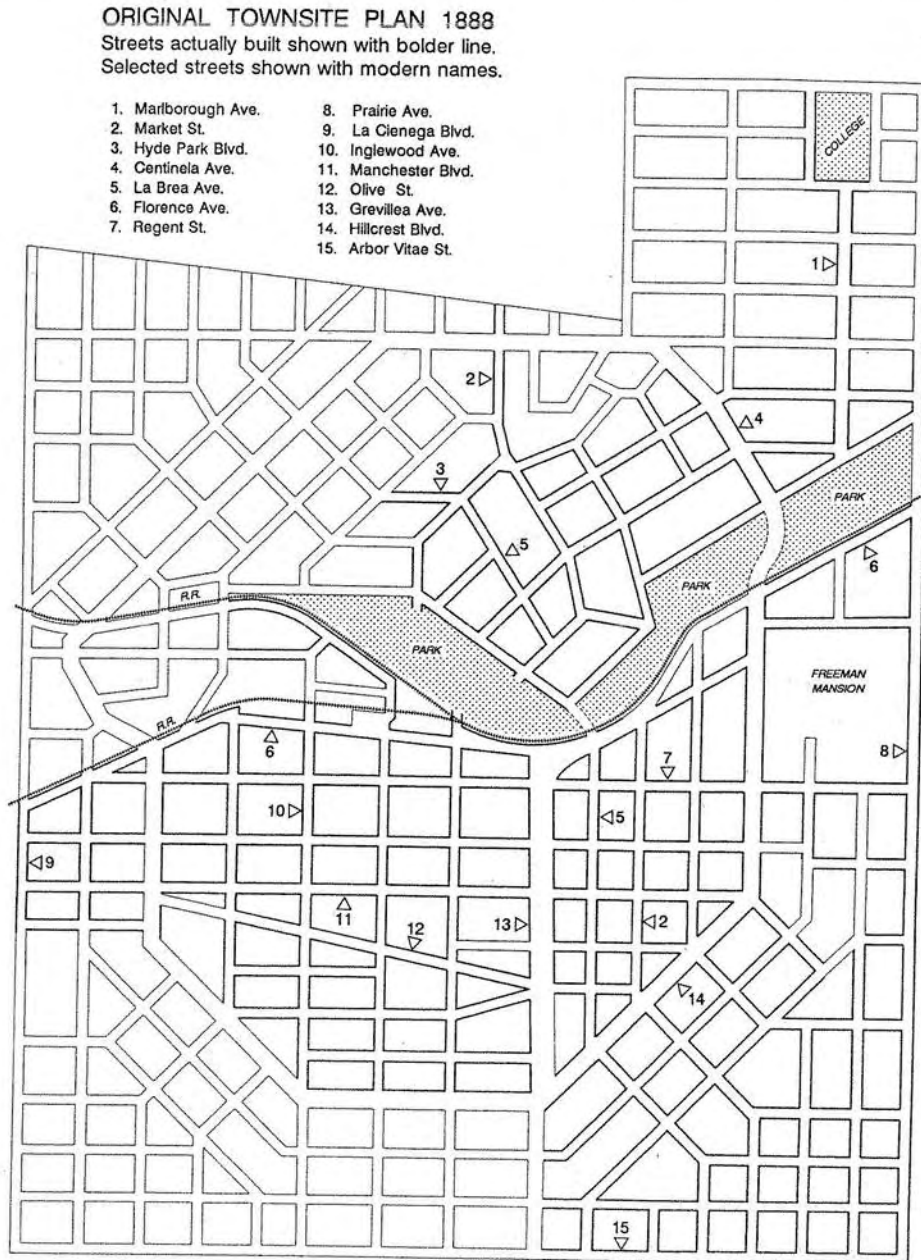
History

Downtown Inglewood is one of the oldest “mixed-use centers” in the entire South Bay, dating back to the first Los Angeles real estate boom in the late 1880s. It was laid out in 1887 by the Centinela-Inglewood Land Co., a group of investors including Daniel Freeman who also laid out Redondo Beach at about this same time. The Inglewood location was inspired by two things. The first was the presence of a year-round artesian spring in what is now Vincent Park. The second was its location as a railroad junction. In the late 1880s, a railroad through the area was built to the ocean in an attempt to create a port at Ballona Creek; shortly thereafter, a spur was constructed from Inglewood to the ocean at Redondo Beach.

As originally conceived, the Inglewood townsite revolved around the railroad line along what is now Florence Avenue as well as a linear park on the north side of the railroad. The spur to Redondo Beach broke off at what is now Fir Street. The main street in the townsite

followed the route of the modern Grevillea Avenue. A grand “ring road” was envisioned to encircle the entire downtown area, but only a few small portions of it were built – principally Hillcrest Boulevard, thus accounting for Hillscrest’s unusual shape. (Figure 3.1.3)

Figure 3.1.3: Original Inglewood Townsite Plan, 1888



As the “boom of the ‘80s” fizzled, Freeman took over the land company and continued to develop it. The city’s growth and identity took hold in 1902, when the Los Angeles & Redondo Railway opened. This railway was eventually absorbed into the “Yellow Car” system, which ran to downtown Inglewood until 1955. Although it was not originally conceived of as the main street, Market Street became the primary shopping street for the entire South Bay in the 1920s.

This history is well reflected in the age patterns of the buildings in Downtown Inglewood. Most buildings are old, dating back to World War II and before. Relatively few buildings have been constructed in the last 20 years, most notably a large medical building at Hillcrest and Manchester just outside the inner area boundary. (Figure 3.1.4.) However, unlike the other two centers, Downtown Inglewood has undergone many waves of building over the years. (Figure 3.1.5.) Especially in the inner area, no single era dominates.

Figure 3.1.4: Age of Buildings, Downtown Inglewood

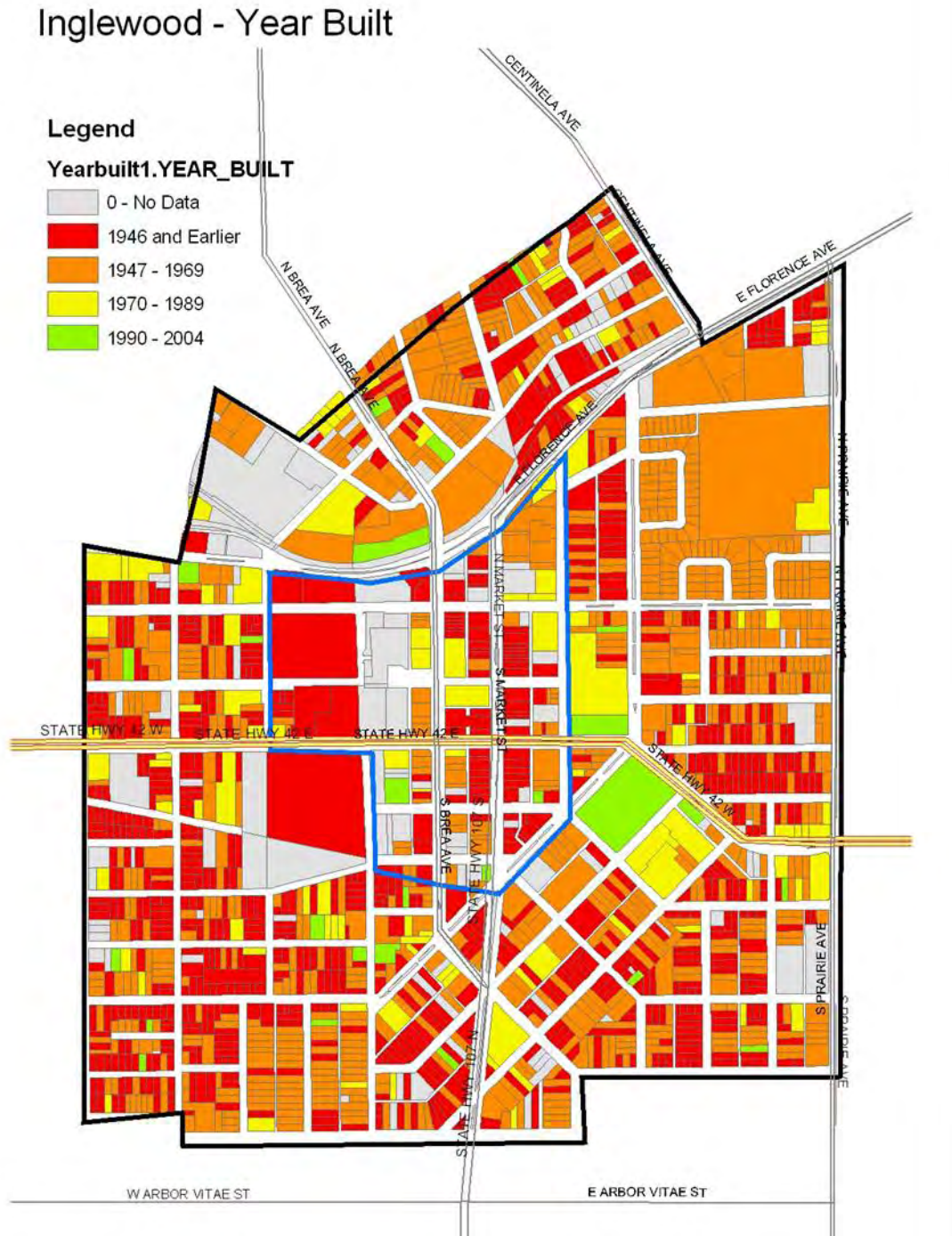
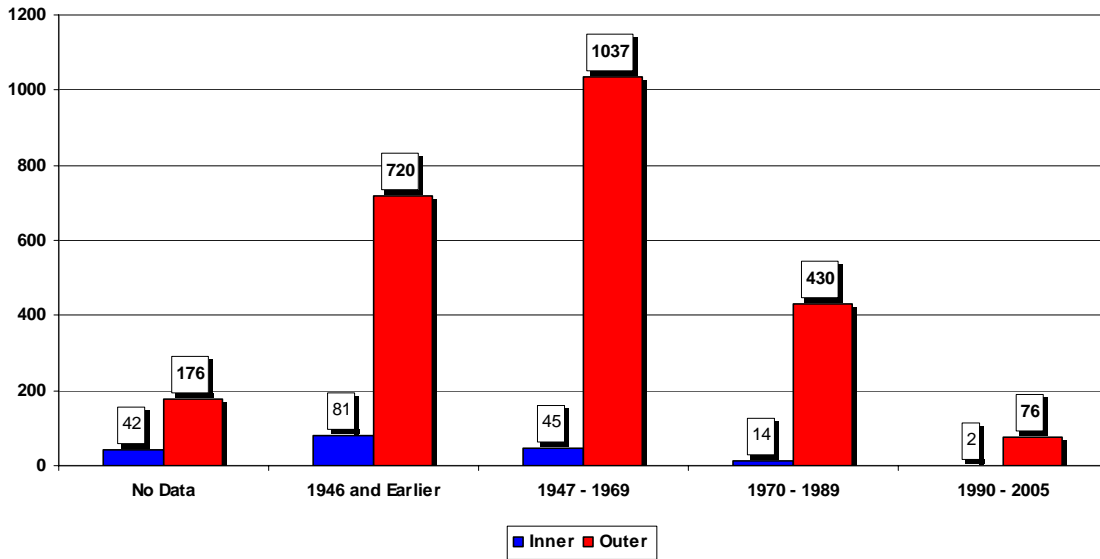


Figure 3.1.5: Age of Buildings In Downtown Inglewood



Land Use Pattern

Downtown Inglewood's land use pattern today reflects both the original townsite layout and the pattern of development over the past century. (Figure 3.1.6.) Virtually all of the land inside the inner boundary is either office, commercial, or governmental; indeed, as Figure 3.1.7 shows, almost 40% of the land in the inner area is in governmental use. Retail commercial uses are clustered along Market Street, which is still Inglewood's main shopping street. Office uses are gathered one block to the west along La Brea. Government uses are clustered further west, between Manchester and Florence, where both city and county operations are located.

Figure 3.1.6: Land Use Patterns, Downtown Inglewood

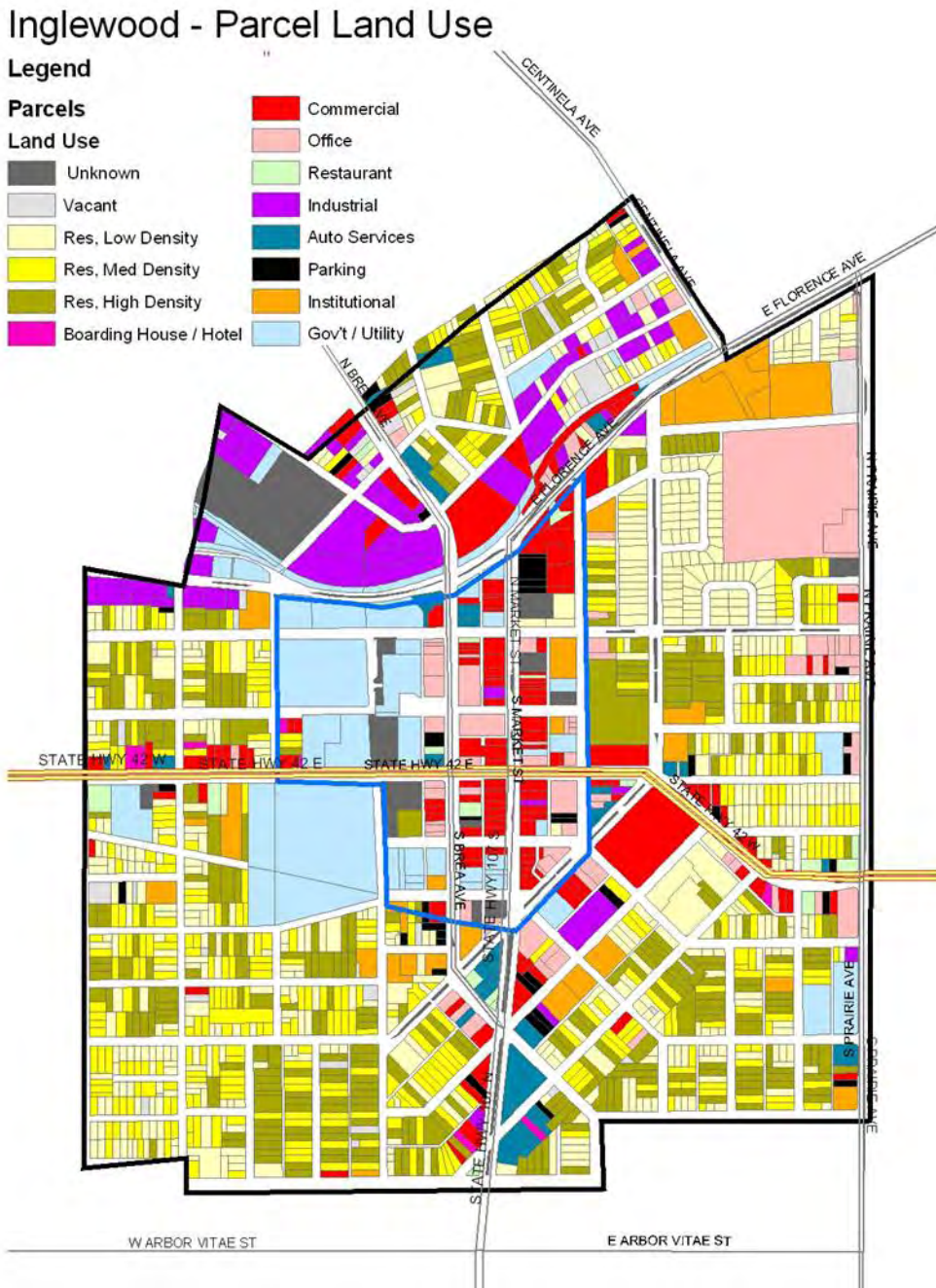
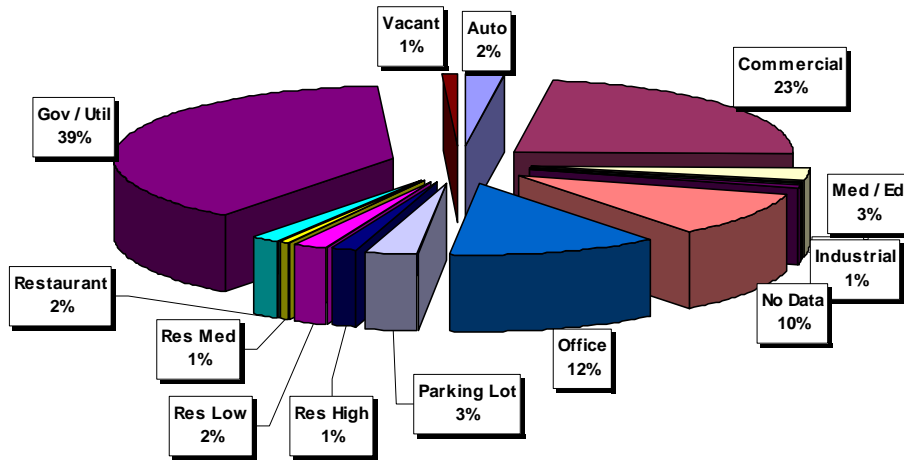
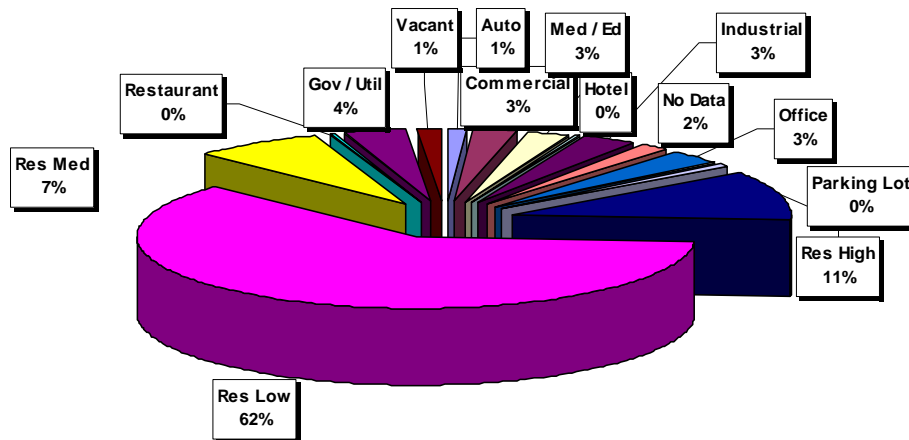


Figure 3.1.7: Land Use Breakdown in Downtown Inglewood, Inner Area



The outlying areas of downtown reflect a wide variety of uses, although as Figure 3.1.8 shows, more than 60% of the land is in low-density residential use. The inner area is surrounded on three sides (east, south, and west) mostly by residential development of varying quality and density. Freeman hospital is located on Prairie near Florence and there is considerable industrial land located just north of the downtown core beyond Florence and the railroad tracks. Many other businesses are located along arterial streets such as Prairie and Manchester.

Figure 3.1.8: Land Use Breakdown in Downtown Inglewood, Outer Area

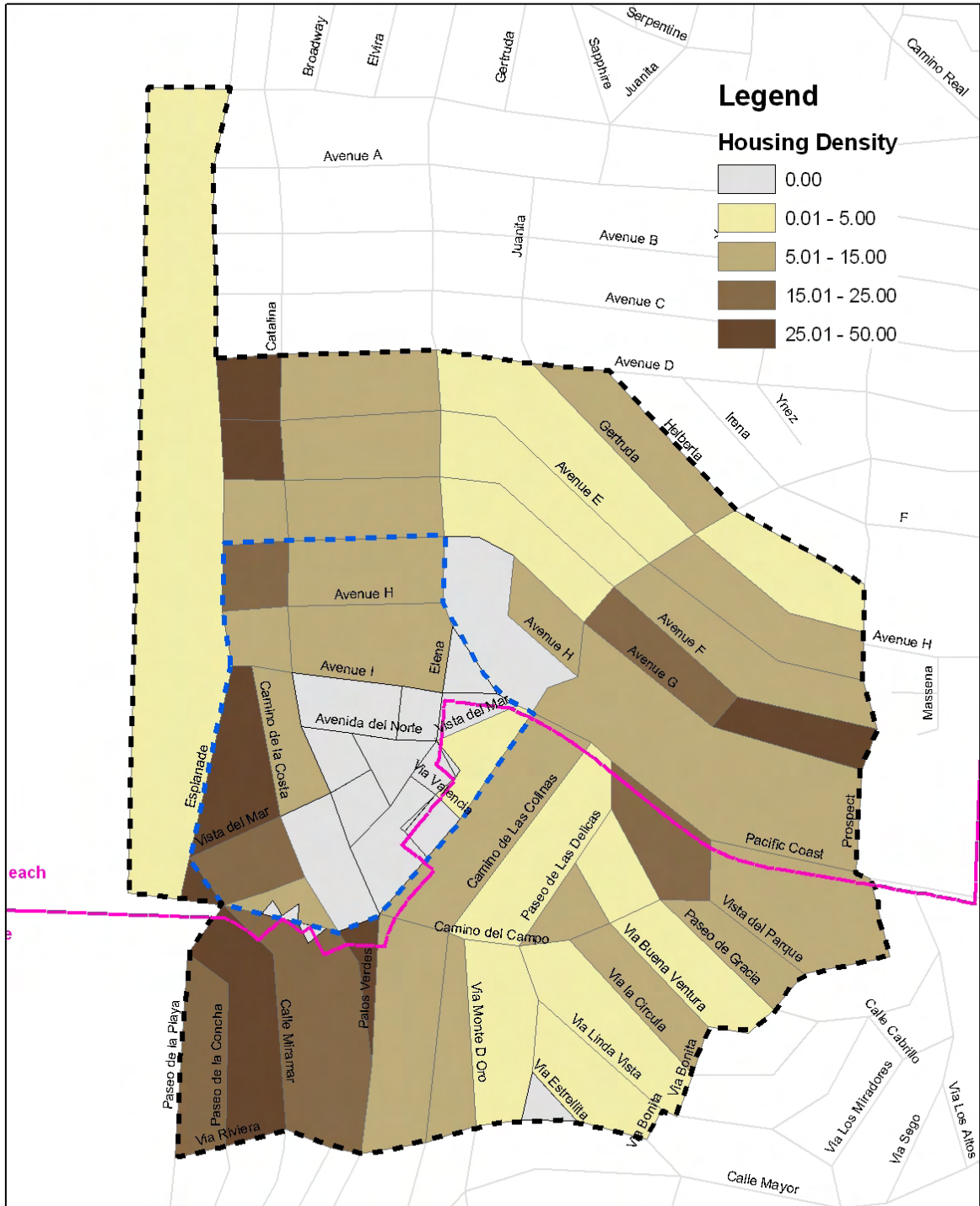


As Table 3.1.1 suggests, housing density is extremely low in the inner core area and in the industrial area north of Florence because most land is in non-residential use. Figure 3.1.6 shows that high-density residential areas are located immediately west and south of the inner core and, to a lesser extent, to the east as well. Overall, housing density in the outer core is about 10 units per acre – the highest figure found in any of the three centers.

Table 3.1.1: Inglewood Housing

	<i>Inner</i>	<i>Outer</i>	<i>Total</i>
Total Units	219	5,954	6,173
<i>Units Per Acre</i>	2.2	10.2	9.1
Vacancies	1	243	244
	0.5%	4.1%	4.0%
Household Size	1.31	2.58	2.53
<i>Tenure</i>			
Owner	1	1,094	1,095
	0.5%	19.2%	18.5%
Renter	217	4,617	4,834
	99.5%	80.8%	81.5%

Figure 3.1.9: housing Density, Riviera Village



Demographic Profile

The demographic and breakdown included in Table 3.1.2. clearly shows that the inner boundary of Downtown Inglewood isolates the commercial core, while the outer boundary includes a wide variety of residential and employment areas.

Table 3.1.2: Inglewood Demographics

	<i>Inner</i>	<i>Outer</i>	<i>Total</i>
# of Block Groups	16	80	96
Acres	99	582	681
Square Miles	0.15	0.91	1.06
Population			
Total Population	287	15,344	15,631
Persons/Square Mile	1,861	16,878	14,700
Racial Breakdown			
White	33	2,998	3,031
	<i>11.5%</i>	<i>19.5%</i>	<i>19.4%</i>
Black	214	7,725	7,939
	<i>74.6%</i>	<i>50.3%</i>	<i>50.8%</i>
Asian	-	238	238
	<i>0.0%</i>	<i>1.6%</i>	<i>1.5%</i>
Hispanic	50	6,570	6,620
	<i>17.4%</i>	<i>42.8%</i>	<i>42.4%</i>
Gender Breakdown			
Males	119	6,974	7,093
	<i>41.5%</i>	<i>45.5%</i>	<i>45.4%</i>
Females	168	8,370	8,538
	<i>58.5%</i>	<i>54.5%</i>	<i>54.6%</i>

Only 287 people live in the inner boundary, most of them African-American and female. More than 15,000 people live in the outer area, with a much higher Hispanic population. Household size is extremely low in the inner boundary (1.3) but much closer to average in the outer boundary (2.6). The vast majority of residents in both the inner and outer areas are renters. The outer area contains a wide variety of residential neighborhoods, including some of Inglewood's most attractive residential streets, and owner occupancy is much higher there.

In addition to the demographic breakdown using Census blocks, we also did an analysis of the area's demography using block groups, which permitted us to look at more detailed information collected through the Census's sample data. The boundaries for this analysis were similar but not identical to the study area boundaries.

As Table 3.1.3 shows, the median age of the Inglewood residents is relatively young (32.8 years) and median income is about \$30,000, or about 70% of the county's median. In

2000, median home price was \$170,000 and median rent was \$586, though these have obviously increased considerably since then.

Table 3.1.3: Inglewood Housing

	<i>Inner</i>	<i>Outer</i>	<i>Total</i>
Total Units	219	5,954	6,173
<i>Units Per Acre</i>	2.2	10.2	9.1
Vacancies	1	243	244
	0.5%	4.1%	4.0%
Household Size	1.31	2.58	2.53
<i>Tenure</i>			
Owner	1	1,094	1,095
	0.5%	19.2%	18.5%
Renter	217	4,617	4,834
	99.5%	80.8%	81.5%

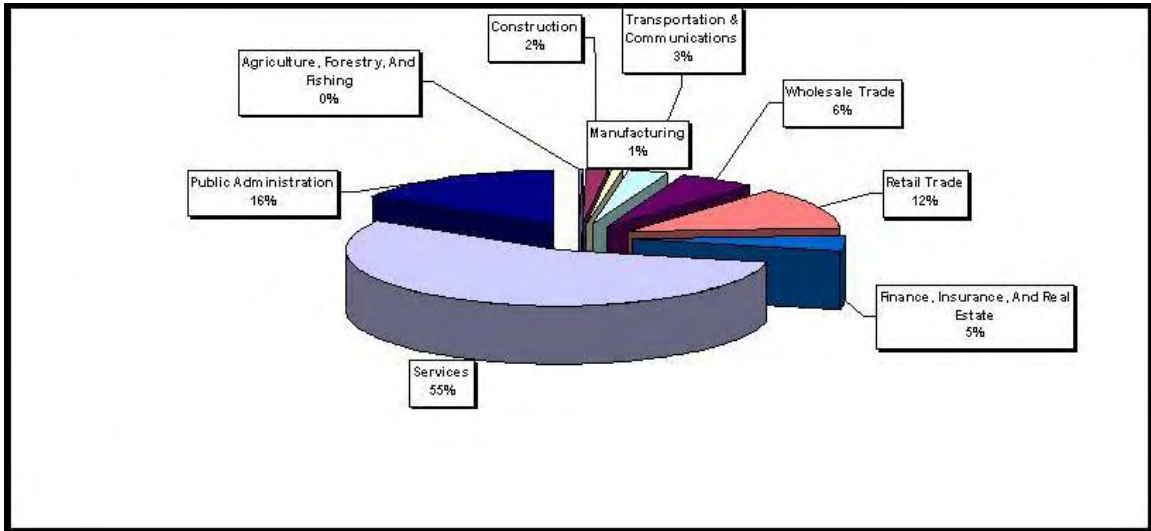
The sample data also permits us to examine some transportation data as well. Homeowner households had about 1.7 cars while renter households had about 1 car, both slightly below the county average. Almost 9% of residents commute to work by public transit, a figure much higher than the country average. Overall, 12.4% of residents either work at home or use alternate transportation modes to commute, which is below the county average of 15%. The mean commute travel time of 30.1 minutes was just slightly above the county average.

Economic Profile

Both the inner and outer areas of Downtown Inglewood are jobs-rich, especially with service and public administration jobs. (Figure 3.1.10). Our analysis found more than 2,785 jobs located at 365 businesses in the 99-acre inner area. This is due, in large part, to the presence of several major institutional employers in the area, including Kaiser Permanente, the City of Inglewood, Los Angeles County, and Inglewood High School. The outer area contains some 6,400 jobs, many of them in the medical sector. Daniel Freeman Hospital is located just inside the outer boundary; Centinela Hospital and Hollywood Park

are located just outside the boundary. More than 2,700 medical-related jobs are located in the outer area.

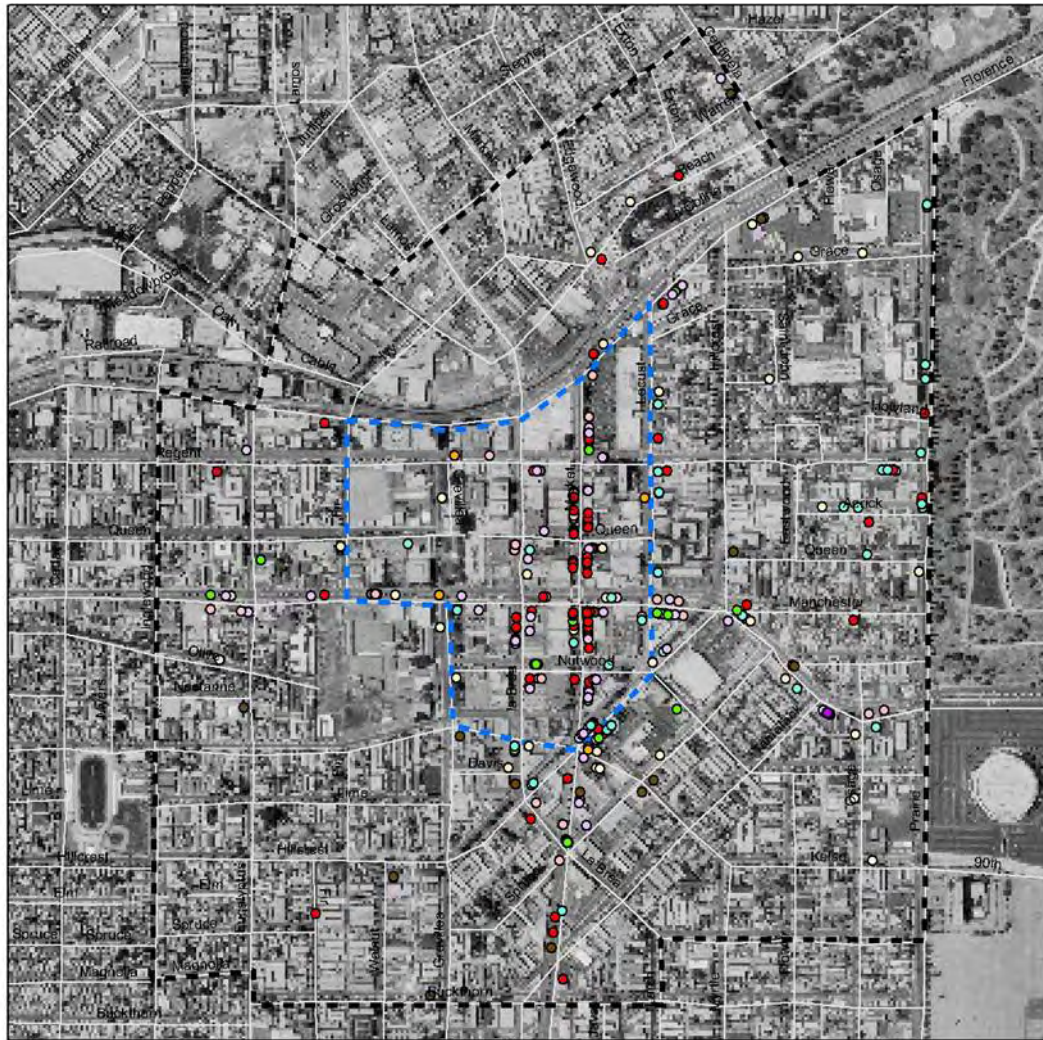
Figure 3.1.10: Jobs by Economic Sector, Downtown Inglewood













Inglewood also has a large number of neighborhood businesses – more than 100 in the inner area and almost 200 in the outer area. In the aggregate this was a much higher number than in the other two centers. As Figure 3.1.11 shows, although many businesses are located along the arterial strips in the outer area, retailing is concentrated along Market Street in the inner area. Although Downtown Inglewood has many stores that cater to the needs of people with modest incomes, it is not unsuccessful as a retail center. The neighborhood has virtually no retail vacancies.

A more detailed analysis of the types of businesses located in Downtown Inglewood reveals that the area is heavily represented by hair shops (especially in the inner area) and by medical offices (especially in the outer area). The inner area has 22 hair shops, while the outer area has 91 medical offices and 23 dentist’s office. This is probably because of the proximity to the major medical centers in the outer area.

Figure 3.1.11: Distribution of Neighborhood Businesses, Downtown Inglewood



Legend

- | | | | | | |
|---|----------------|---|---|---|------------------|
|  | Outer Boundary | Neighborhood Business |  | Organizations | |
|  | Inner Boundary |  | Education |  | Retail |
| | |  | Entertainment / |  | Retail / Food |
| | |  | Government |  | Restaurant / Bar |
| | |  | Medical |  | Services |
| | | | |  | Social Services |

0 0.1 0.2 0.4 Miles

map created by: Ryan Aubry, My 17, 2005



Urban Design Analysis

Downtown Inglewood has a strong sense of place and identity derived largely from the traditional grid that was laid out in the 1880s. At the same time, however, it is a complex downtown environment in which several sets of activities compete with one another.

As Figures 3.1.12 and 3.1.13 show, downtown is complex for a variety of reasons. There is an extraordinary combination of uses in close proximity with one another, and each form different districts. The angular shift in the grid at Hillcrest Boulevard, along with the northern boundary created by the railroad, create boundaries to this complex area.

Figure 3.1.12: Inglewood Neighborhood Structure

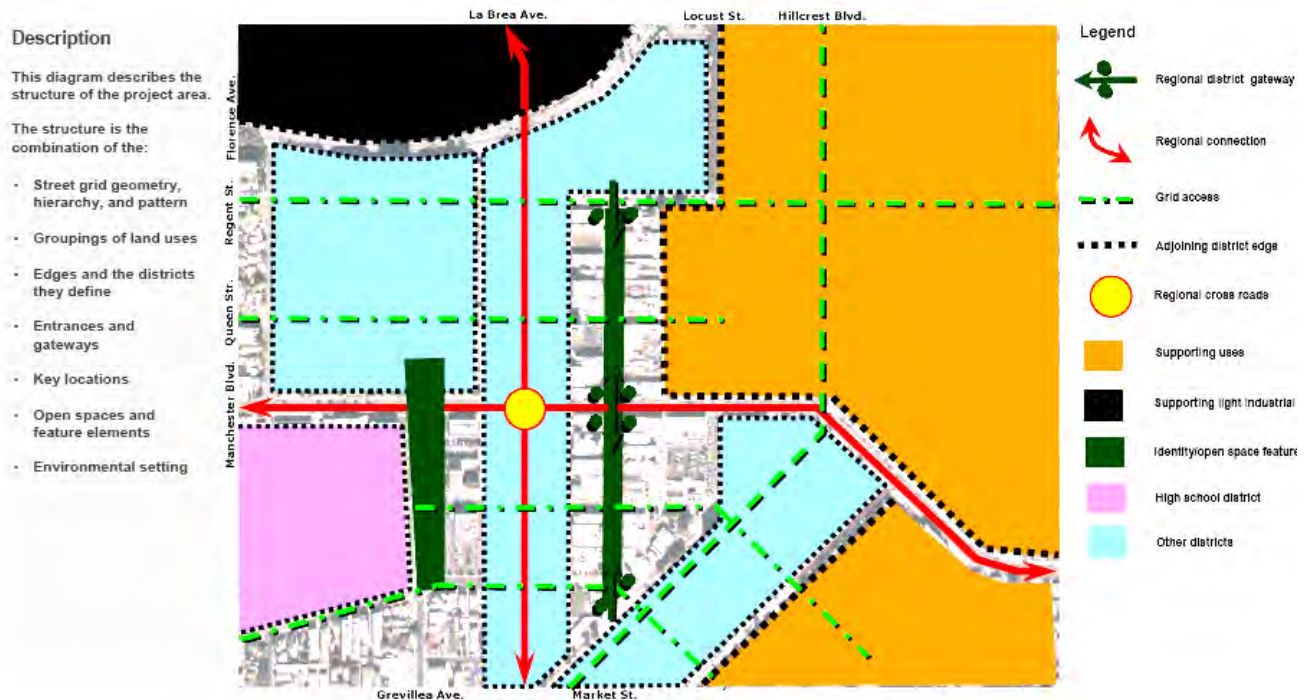
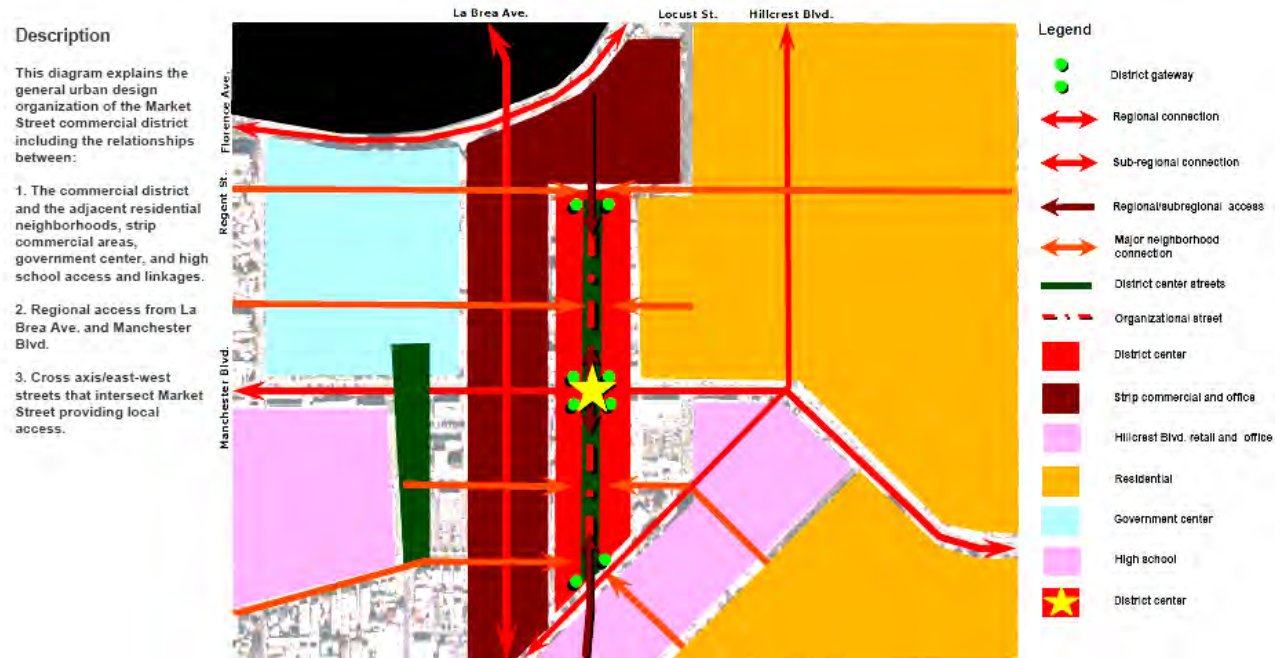


Figure 3.1.13: Inglewood Neighborhood Organization



Market Street is the key local shopping street and forms the heart of the commercial district.¹² As Figure 3.1.14 shows, there are three street classes in downtown Inglewood:

- **Regional:** La Brea Avenue, Manchester Boulevard, and Florence Avenue are vehicular oriented streets that establish regional linkages. These uses vary but are mostly strip commercial/office, or government uses.
- **Citywide:** Hillcrest Boulevard is a city-wide street that varies in use including residential, office, retail, and institutions.

¹² The classification of streets used in this urban design analysis includes the following:

Regional connector: traffic dominated avenue/boulevard that people perceive provides regional connections
Beach/ocean access: mixed traffic and pedestrian street that runs along or to the beach providing access to this national feature.

Major neighborhood connection: traffic or pedestrian street that connects neighborhoods and commercial districts.

District identity or organizational street: a street that organizes the urban structure and/or provides identity and character to a place. The street that sticks in the mind when you leave a place, or that causes you to want to be in a place. In RivVill its the ocean connector and it organizes the streets around it.

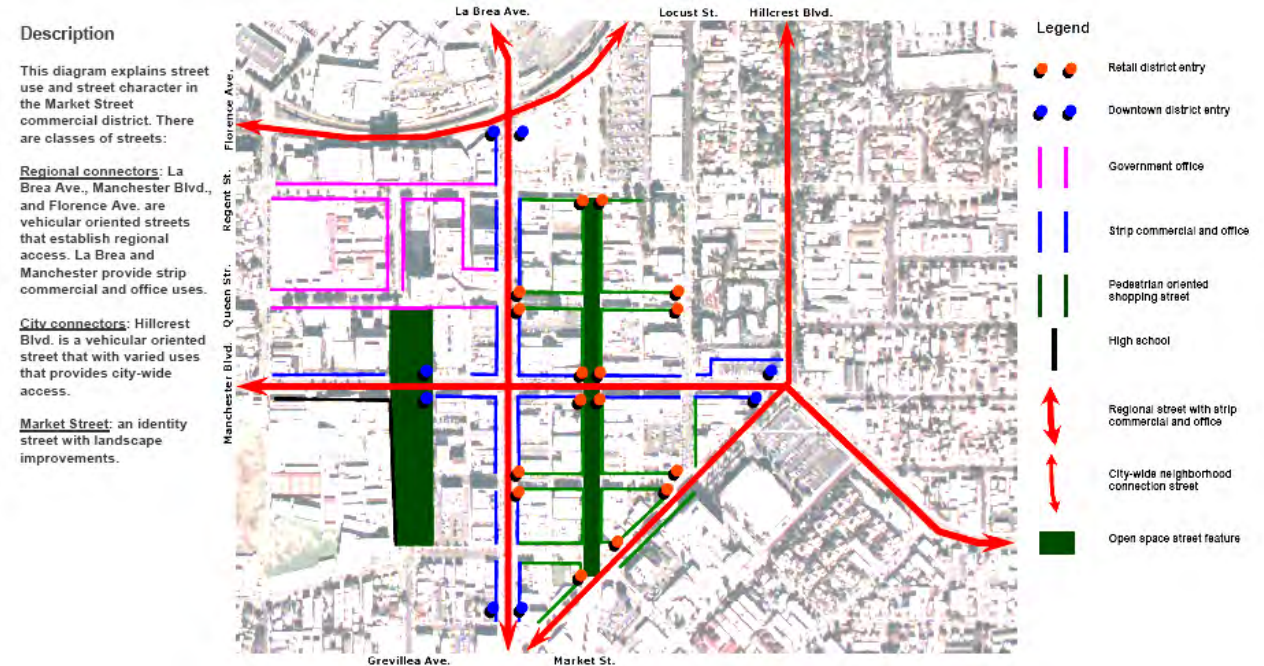
District center streets: local oriented, light traffic, pedestrian oriented.

City-wide streets: traffic dominated avenue/boulevard that people perceive provides city-wide connections.

This classification is intended to examine streets in urban design terms, not traffic engineering terms. It is derived from three well-known works: Design of Cities by Edmund Bacon; Great Streets by Allan Jacob Image of the City by Kevin Lynch

- Identity streets: Market Street and Grevillea Avenue are identity streets. Market Street is a commercial street with a winding landscape character. Grevillea Avenue has a very wide adjacent open space.

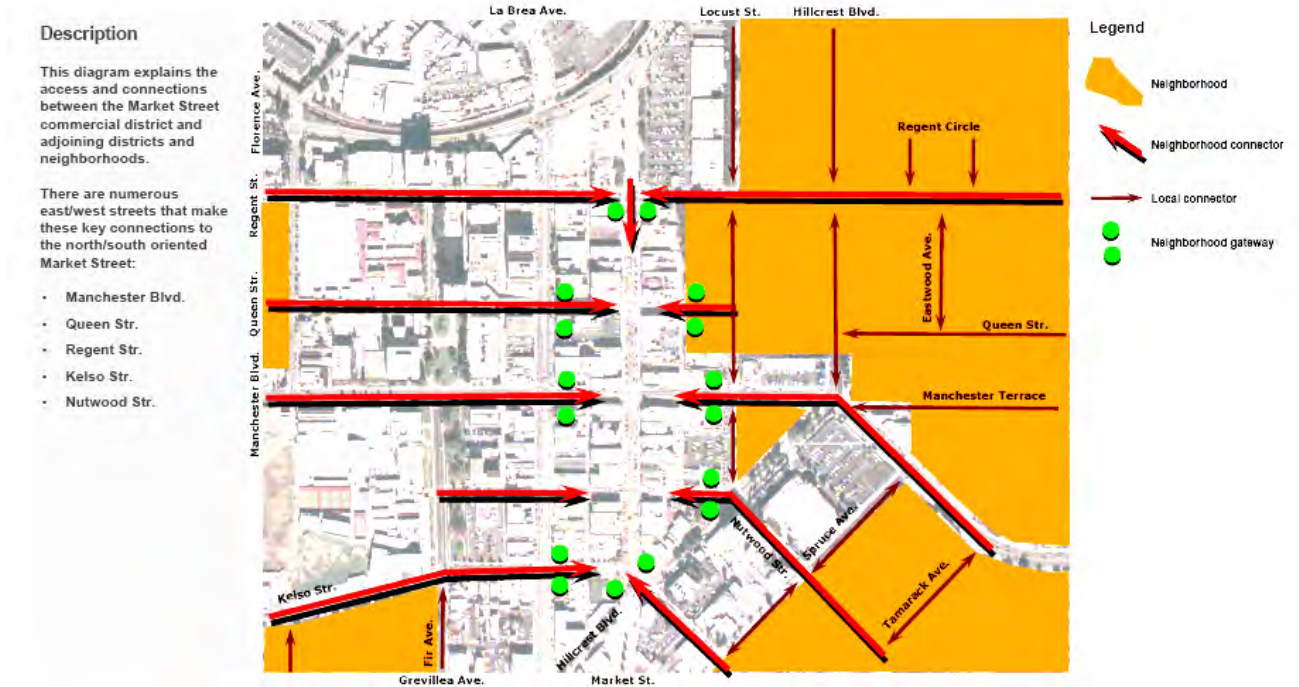
Figure 3.1.14: Inglewood Street Use & Character



The government center, east of the La Brea Avenue corridor is a large, generally single purpose area. As stated above, the Grevillea Avenue open space axis connects the City Hall with Inglewood High School to the south. Inglewood High School is also a large, single purpose area south of Manchester Boulevard. These two uses – government center and high school – create a major institutional district. These uses provide the Downtown with advantages and disadvantages. One advantage is that they build-in a large daytime population. One disadvantage is that the school cuts off adjacency to nearby residential neighborhoods.

As Figure 3.1.15 shows, there are five east-west streets that create connections to the Market Street retail district. These connections become narrowly focused as Market approaches the angle in Hillcrest to the south. At the same time, several neighborhood connector streets – include Nutwood and Queen – are short in length and terminate within the downtown.

Figure 3.1.15: Inglewood Neighborhood Connections



Downtown Inglewood has strong connections to the neighborhood, the region, and the city. Multiple access points are available due to the grid: Manchester Boulevard, Florence Avenue, La Brea Avenue, and Hillcrest Boulevard.

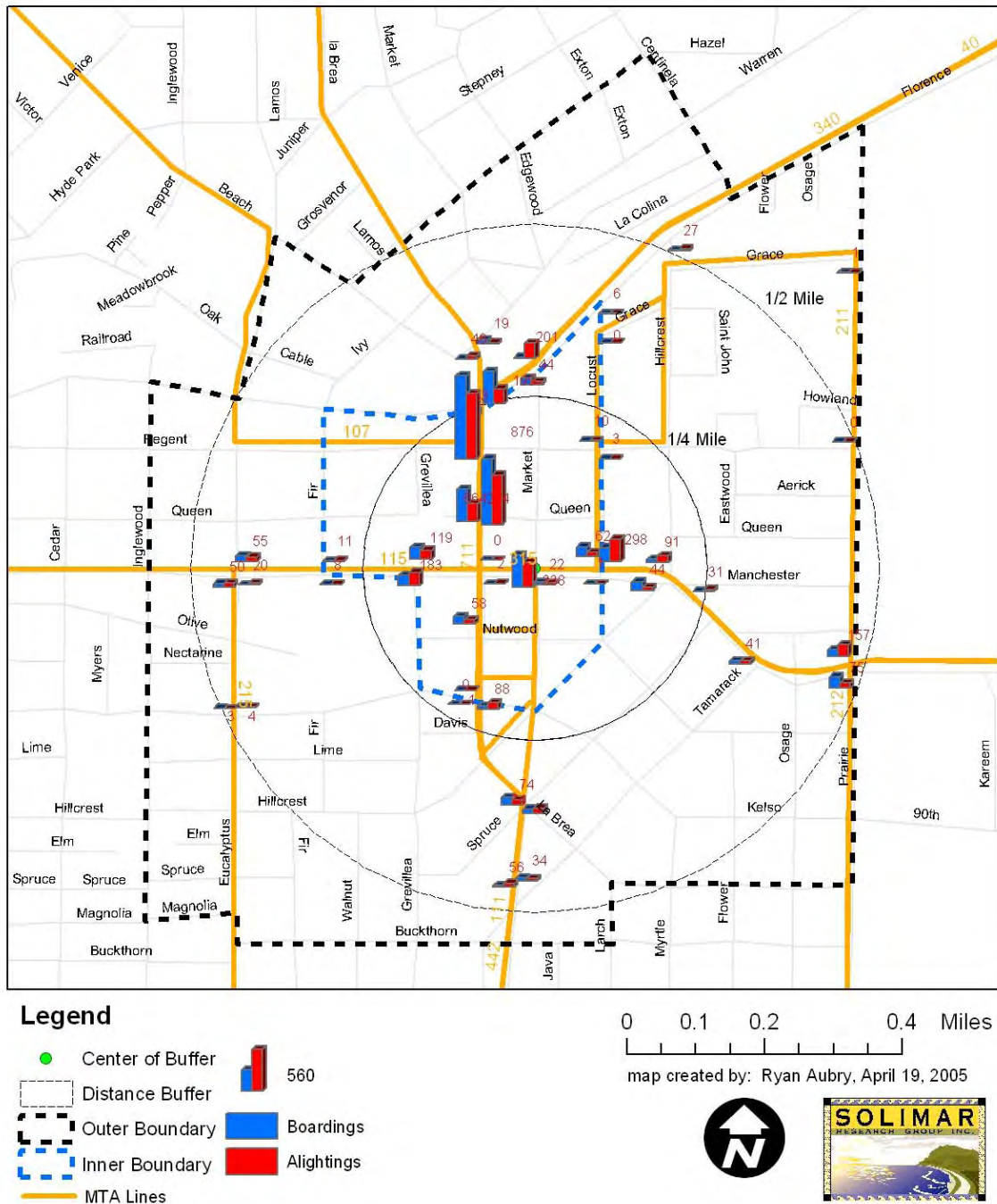
Thus, downtown Inglewood should be attractive to residents and employees in the surrounding area. East of Market Street, the neighborhood includes a range of high density multi-family buildings all the way to single family residences. To the west of Market Street, the government center and high school provide a day time population to feed the Downtown, but these areas otherwise limit adjoining neighborhood access. As stated above, connections to these neighborhoods is strong, although the high school and the government complex block other residential neighborhood connections to the west. Connections to the light industrial district north of Florence Avenue are also significantly limited to the long distance involved and limited crossing only at La Brea Avenue, which is strongly auto-oriented.

Bus Ridership and Pedestrian

In considering how a mixed-use center functions – and, in particular, how residents and employees might use cars – we felt it was important to examine two important transportation alternatives, bus ridership and pedestrian activity.

Downtown Inglewood is one of the most active bus centers in the South Bay, continuing a pattern that was originally developed during the interurban and streetcar era. The city recently renovated the bus transfer station on Kelso Street, which is served by several different bus lines that connect Inglewood both to Los Angeles and to the rest of the South Bay. Bus ridership in Downtown Inglewood is substantially greater than in either of the other centers, with the bus stops along La Brea Boulevard in particular handling more than 2,000 boardings and alightings per day. The stops as La Brea and Queen and La Brea and Regent - key locations for both the government center to the west and Market Street to the east, have the highest boardings and alightings.(Figure 3.1.16)

Figure 3.1.16: Bus Ridership in Downtown Inglewood



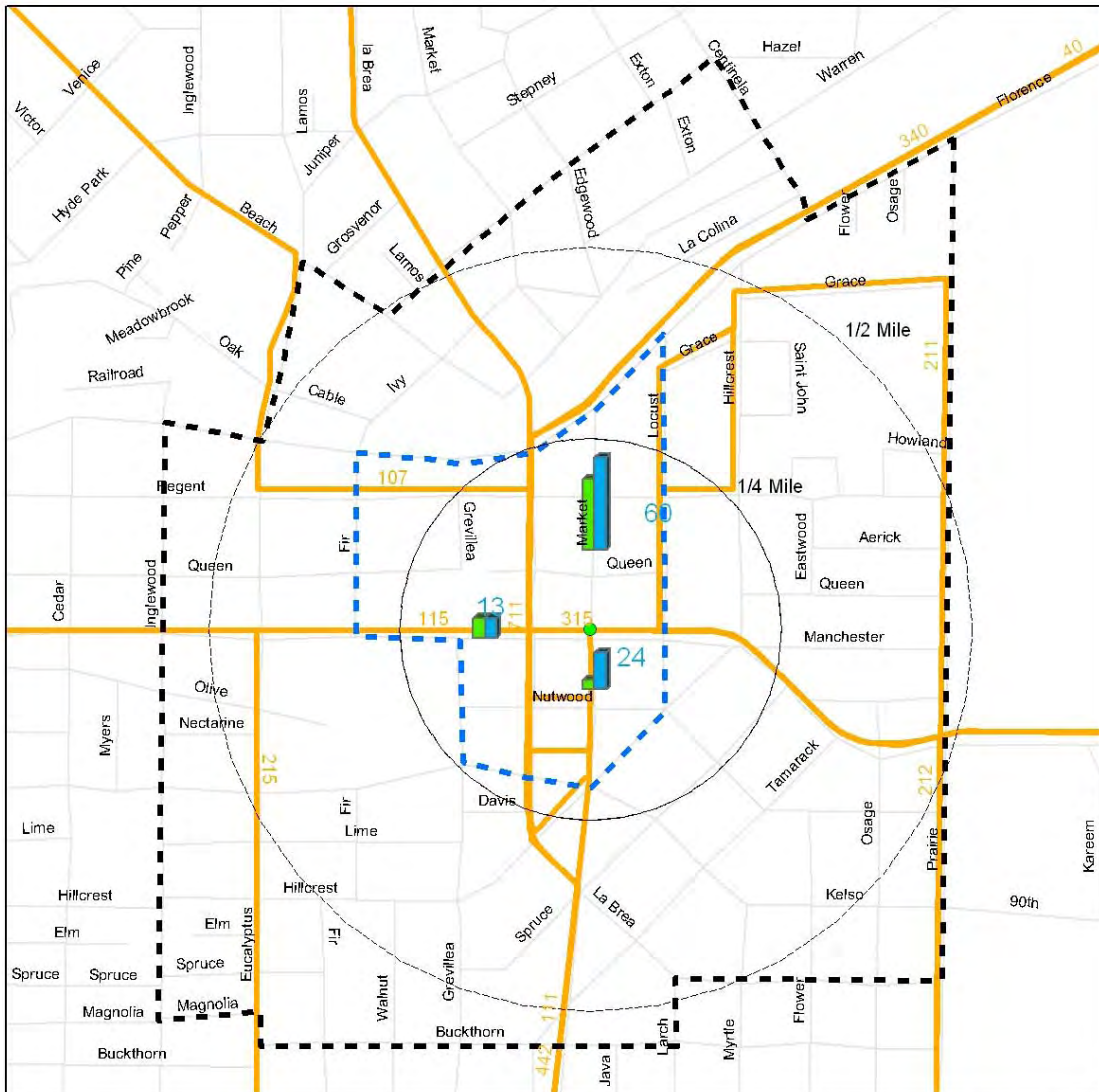
Solimar’s pedestrian analysis, which counted pedestrians in both at three different locations between noon and 1 p.m. on a Wednesday and then again on a Saturday, found considerable activity. The locations selected were equidistant “gateways” approximately ¼

mile from the center location. As Table 3.1.4 and Figure 3.1.17 show, pedestrian activity was heavier on Saturday than on Wednesday, and of the three locations, pedestrian activity at Market and Queen – near a heavily used bus stop and along a retail street – was much heavier than in the other two locations.

Table 3.1.4: Inglewood Pedestrian Counts

	Wednesday			Saturday			Average		
	In	Out	Total	In	Out	Total	In	Out	Total
Manchester near Grevillea	21	18	39	18	21	39	20	39	78
Market near Queen	66	72	138	108	72	180	87	144	318
Big 5	0	18	18	60	12	72	30	30	90
Average	29	36	65	62	35	97	46	71	162

Figure 3.1.17: Pedestrian Counts in Downtown Inglewood



Legend

- Center of Buffer
- Distance Buffer
- Outer Boundary
- Inner Boundary
- 30
- Wed
- Sat
- Saturday Count is Labeled

0 0.1 0.2 0.4 Miles

map created by: Ryan Aubry, May 17, 2005



3-2 Riviera Village

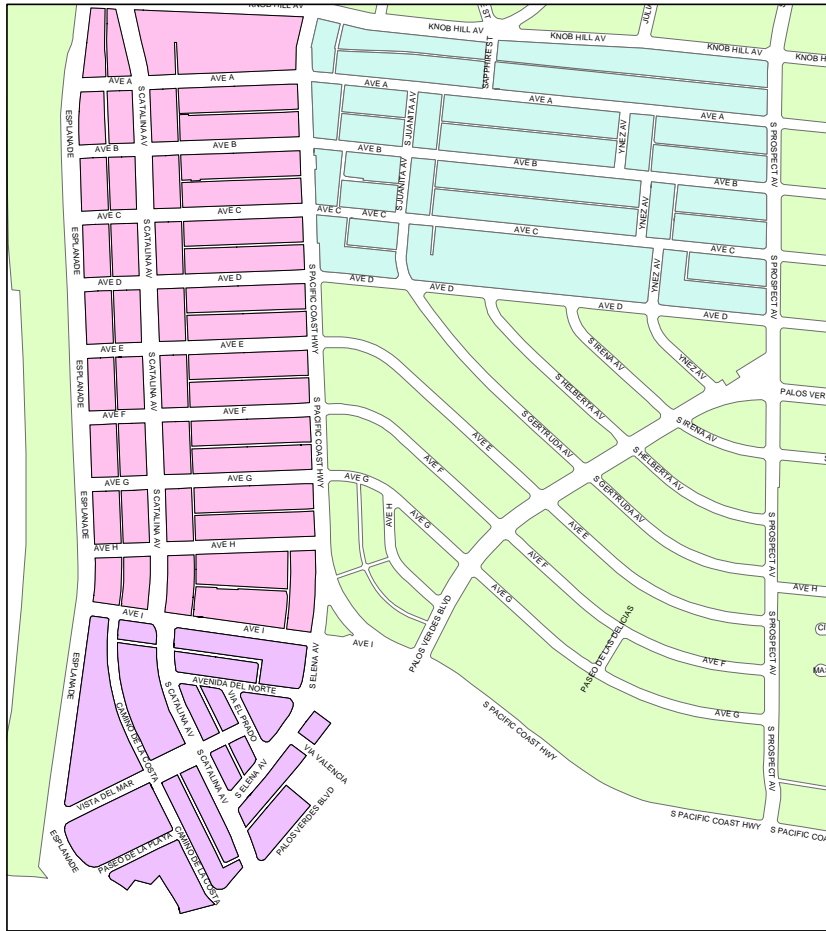
In conducting this analysis we identified an “inner” and “outer” area of Riviera Village based largely on 1/4- and 1/2-mile radii from the triangular parking lot bounded by Avenue del Norte, Via del Prado, and Elena Avenue. The inner area of 64 acres encompasses the village’s commercial core, which is located in Redondo Beach. The outer area of 431 acres includes commercial areas along Pacific Coast Highway as well as a wide variety of residential neighborhoods ranging from high-rise towers along the ocean to single-family neighborhoods to the east and south. These neighborhoods are divided between Redondo Beach and Torrance.

3.2.1 History

Riviera Village’s roots also go back to the interurban era, but most of the area’s development did not occur until after World War II. In 1906, Henry Huntington begin subdividing a high-income suburb known as “Clifton-By-The-Sea,” which extended south to Avenue M, in a traditional grid pattern. This development was slow to progress, however. In 1923, visiting developer Clifford Reid purchased most of the property and persuaded the city to vacate all the streets south of Avenue J to make way for a “village” adjacent to his Hollywood Riviera subdivision.

Some development did occur prior to World War II. However, most home lots in the area were not offered for sale until 1945. Most current buildings date back to a five-year period of construction between 1953 and 1958. (Figure 3.2.1.) As Figure 3.2.2 shows, some 80% of the area’s buildings were constructed during this period. In 1965, the Redondo Beach City Council granted the request of the Hollywood Riviera Business Men’s Association to name the commercial core of the area “Riviera Village”.

Figure 3.2.1 Riviera Village Historical Subdivisions

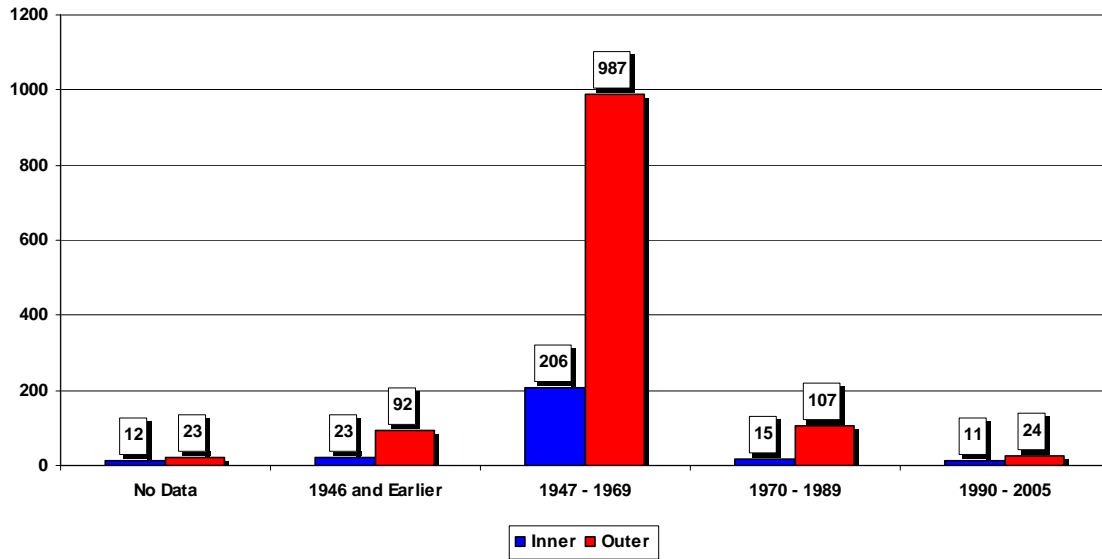


Legend

- Clifford Reid's Hollywood Riviera (also extends to Torrance)
- Clifton by the Sea (Henry Huntington)
- Clifton Heights (Henry Huntington)



Figure 3.2.2: Age of Buildings in Riviera Village



3.2.2 Land Use Pattern

Riviera Village’s overall land use pattern involves a concentration of commercial and businesses activities in the “village” and along Pacific Coast Highway and a variety of residential neighborhoods surrounding it. (Figure 3.2.3.) Retail commercial uses are clustered in the village along Catalina Avenue and Avenue del Norte. The inner area also has a large percentage of land devoted to high-density residential. (Figure 3.2.4.)

Figure 3.2.3: Land Use Patterns in Riviera Village

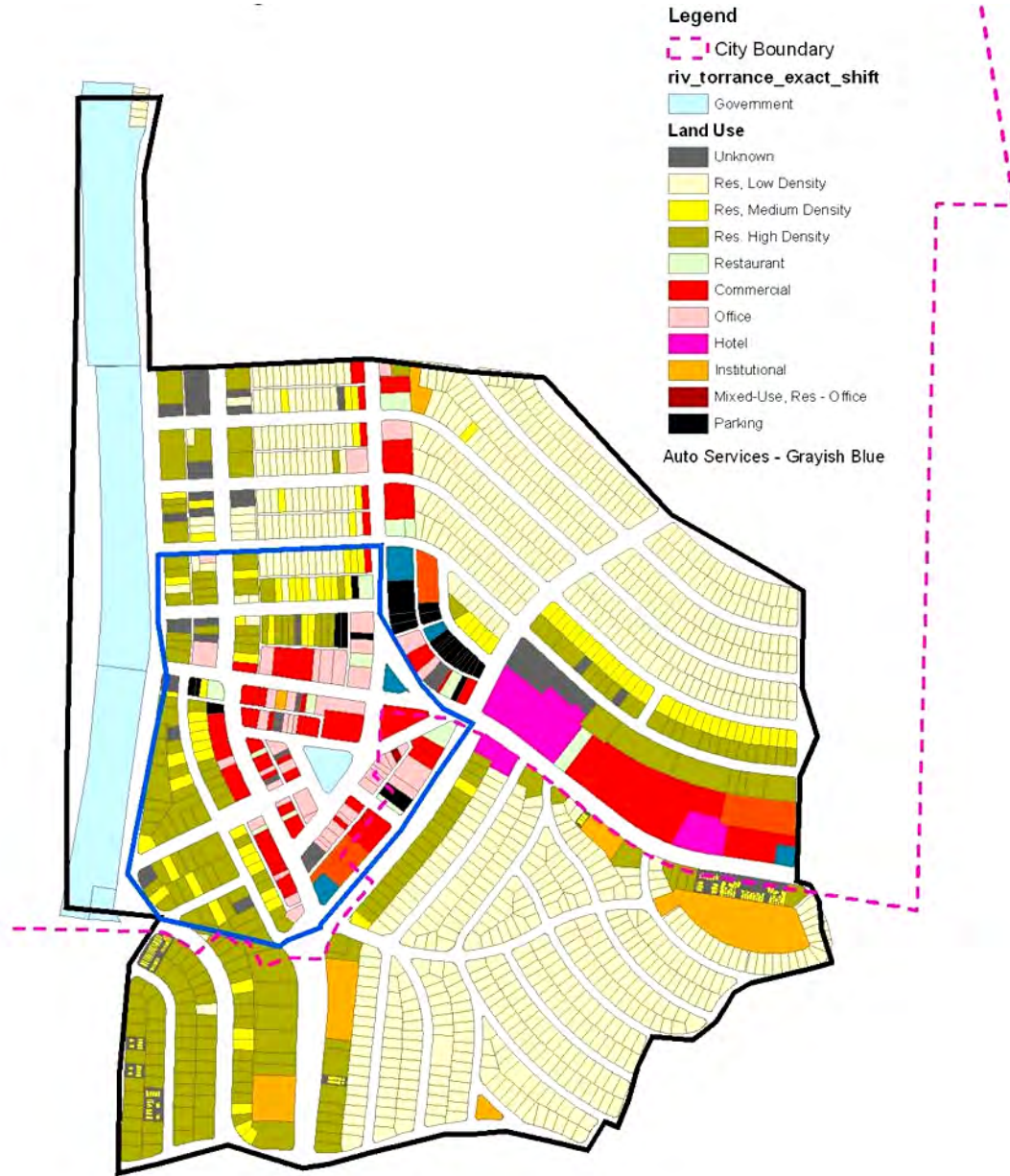
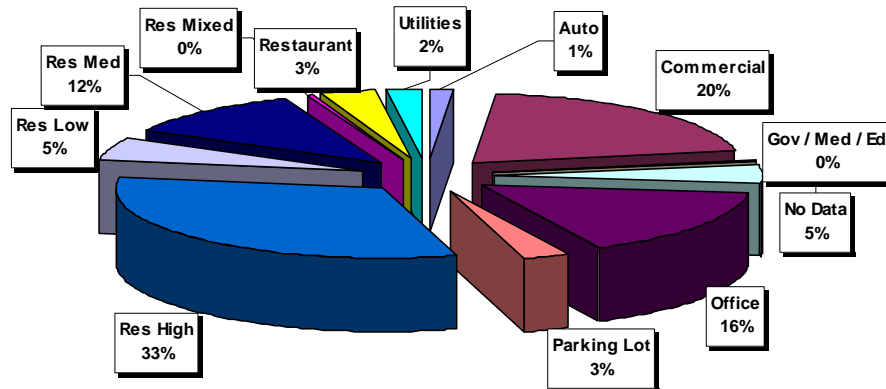
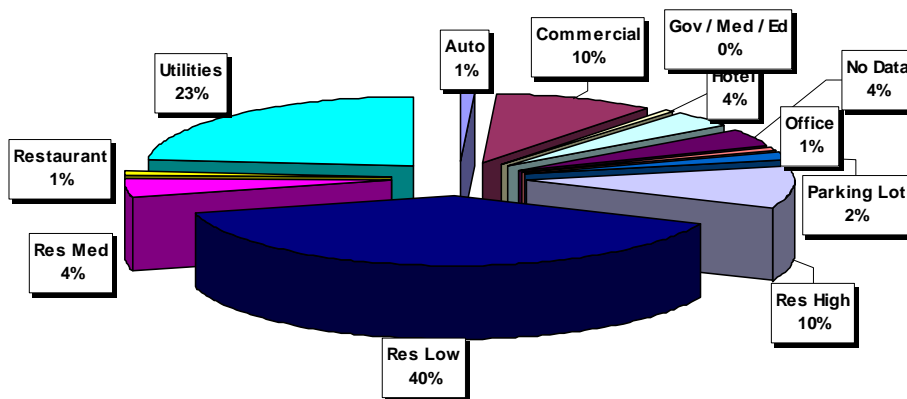


Figure 3.2.4: Land Use Breakdown in Riviera Village, Inner Area



Overall, both the inner and outer areas are developed at about 9 units per acre. But this figure masks the fact that the residential areas vary dramatically by density. Medium- and high-density residential neighborhoods surround the village and are located along the beach. Low-density residential neighborhoods are located to the north, east, and south. The low-density residential neighborhoods to the east are cut off from the village by Pacific Coast Highway, but similar neighborhoods to the southeast of the village are located immediately adjacent, not separated by an arterial highway. Almost half the land in the outlying area is devoted to low-density residential. (Figure 3.2.5.)

Figure 3.2.5: Land Use Breakdown in Riviera Village, Outer Area



3.2.3 Demographic Profile

Riviera Village is mostly white but also mostly a renter community. Only about 1,100 people – 94% of them renters – live in the inner area while almost 6,000 live in the outer area – almost 70% of them renters. Household sizes are low in both cases, below 2 persons

per household, but population per square mile is high (in the range of 9,000-10,000) in both areas. (Tables 3.2.1 and 3.2.2)

Table 3.2.1: Riviera Village Demographics

	<i>Inner</i>	<i>Outer</i>	<i>Total</i>
# of Block Groups	23	41	64
Acres	79	357	436
Square Miles	0.12	0.56	0.68
Population			
Total Population	1,139	5,953	7,092
Persons/Square Mile	9,279	10,667	10,417
Racial Breakdown			
White	976	5,144	6,120
	85.7%	86.4%	86.3%
Black	16	88	104
	1.4%	1.5%	1.5%
Asian	60	354	414
	5.3%	5.9%	5.8%
Hispanic	79	460	539
	6.9%	7.7%	7.6%
Gender Breakdown			
Males	119	6,974	7,093
	41.5%	45.5%	45.4%
Females	168	8,370	8,538
	58.5%	54.5%	54.6%

Table 3.2.2: Riviera Village Housing

	<i>Inner</i>	<i>Outer</i>	<i>Total</i>
Total Units	756	3,261	4,017
<i>Units Per Acre</i>	9.6	9.1	9.2
Vacancies	28	103	131
	3.7%	3.2%	3.3%
Household Size	1.51	1.83	1.77
Tenure			
Owner	42	972	1,014
	5.8%	30.8%	26.1%
Renter	686	2,186	2,872
	94.2%	69.2%	73.9%

In addition to the demographic breakdown using Census blocks, we also did an analysis of the area’s demography using block groups, which permitted us to look at more detailed information collected through the Census’s sample data. The boundaries for this analysis were similar but not identical to the study area boundaries.

The median age of the Riviera Village residents is relatively old (almost 38 years) and median income in 2000 was about \$67,000, or about 60% more than the county’s median. In 2000, median home price was \$626,000 and median rent was \$988, though these have obviously increased considerably since then.

The sample data also permits us to examine some transportation data as well. Homeowner households had about 2.1 cars while renter households had about 1.4 cars, both slightly above the county average. Only 7% of residents either work at home or use alternate transportation modes to commute, less than half the county average. The mean commute travel time of 31 minutes was somewhat above the county average, perhaps reflecting the area’s remoteness from job centers

3.2.4 Economic Profile

Riviera Village has a fairly balanced business base, divided among retail establishment, service businesses, and professional services. Retail is much more prevalent in the inner area, and most of these stores are upscale boutiques that cater not only to Riviera Village residents but also to Palos Verdes peninsula residents who consider Riviera Village as “their” shopping area. Riviera Village also has a strong supermarket base, with Trader Joe’s located right in the center of the inner area and several more supermarkets located in the outer ring. The inner ring – an area of only 79 acres – has more than 400 businesses, including more than 100 retail shops. (Figure 3.2.6 and Table 3.2.3.) Because it has no large employers, Riviera Village is not particular job rich, but the jobs are concentrated in the commercial core around the triangular parking lot. (Figure 3.2.7.)

Figure 3.2.6: Jobs by Economic Sector, Riviera Village

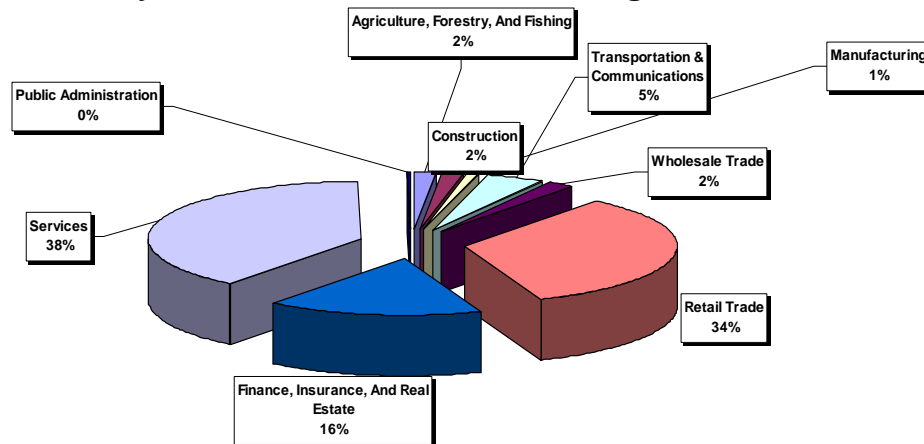


Table 3.2.3: Riviera Village Businesses and Jobs

	Inner		Outer		Total	
Businesses	426		182		608	
Agriculture, Forestry, And Fishing	3	0.7%	3	1.6%	6	1.0%
Construction	3	0.7%	12	6.6%	15	2.5%
Manufacturing	6	1.4%	3	1.6%	9	1.5%
Transportation & Communications	4	0.9%	2	1.1%	6	1.0%
Wholesale Trade	11	2.6%	6	3.3%	17	2.8%
Retail Trade	108	25.4%	35	19.2%	143	23.5%
Finance, Insurance, And Real Estate	54	12.7%	41	22.5%	95	15.6%
Services	232	54.5%	78	42.9%	310	51.0%
Public Administration	5	1.2%	2	1.1%	7	1.2%
Employees	1,658		795		2,453	
Agriculture, Forestry, And Fishing	16	1.0%	25	3.1%	41	1.7%
Construction	2	0.1%	38	4.8%	40	1.6%
Manufacturing	18	1.1%	4	0.5%	22	0.9%
Transportation & Communications	65	3.9%	47	5.9%	112	4.6%
Wholesale Trade	38	2.3%	9	1.1%	47	1.9%
Retail Trade	624	37.6%	203	25.5%	827	33.7%
Finance, Insurance, And Real Estate	272	16.4%	129	16.2%	401	16.3%
Services	618	37.3%	336	42.3%	954	38.9%
Public Administration	5	0.3%	4	0.5%	9	0.4%

Figure 3.2.7: Job Density, Riviera Village



The small area produces \$260 million in sales per year, including \$70 million in retail alone, or more than twice as much sales as the outer area. To put this comparison in perspective, the inner area produces more than \$3 million per acre in sales per acre, including almost \$1 million per year per acre in retail sales. (Table 3.2.4.)

Table 3.2.4: Riviera Village Sales Volume by Sector

Sales Volume [in thousands]	\$ 260,390		\$ 111,170		#####	
Agriculture, Forestry, And Fishing	\$ 2,056	0.8%	\$ 2,268	2.0%	4,324	1.2%
Construction	\$ 1,606	0.6%	\$ 13,552	12.2%	15,158	4.1%
Manufacturing	\$ 5,157	2.0%	\$ 665	0.6%	5,822	1.6%
Transportation & Communications	\$ 5,890	2.3%	\$ 5,031	4.5%	10,921	2.9%
Wholesale Trade	\$ 39,965	15.3%	\$ 5,938	5.3%	45,903	12.4%
Retail Trade	\$ 69,807	26.8%	\$ 30,268	27.2%	100,075	26.9%
Finance, Insurance, And Real Estate	\$ 51,365	19.7%	\$ 26,940	24.2%	78,305	21.1%
Services	\$ 84,544	32.5%	\$ 26,508	23.8%	111,052	29.9%
Public Administration	\$ -	0.0%	\$ -	0.0%	-	0.0%

The inner area is heavily represented by medical offices (34), dental offices (21), and hair shops (43). When translated into outlets per square mile, the inner area has literally hundreds of establishments per square mile. This is probably due to the fact that Riviera Village is heavily patronized by residents of the Palos Verdes Peninsula, who do not live in the immediate neighborhood.

3.2.5 Urban Design Analysis

As Figures 3.2.8 and 3.2.9 reveal, Riviera Village is a “set piece village” that has a distinct design identity. The set piece is defined primarily by a “double triangle” geometry. Two inner triangles of district center streets establish the concentric identity of the village. This simultaneously creates an internal oriented focus (the nature of the triangle shape) and outward connectivity along one leg of the triangle (Catalina Avenue connecting to adjoining residential neighborhoods). The double-triangle is reinforced by the sharp edge of the Pacific Ocean to the west, the Pacific Coast Highway to the east, and the Palos Verdes Peninsula to the south.

Figure 3.2.8: Riviera Village Neighborhood Structure



Figure 3.2.9: Riviera Village Neighborhood Organization



Multiple entry gateways on Pacific Coast Highway in close proximity all lead to the eastern “point” of the concentric triangle. The grouping of three entries in close proximity creates a sense of compression that is resolved by the counterpoint of the legs of the triangle splaying outward toward Catalina Avenue, itself connecting into adjoining neighborhoods. Furthermore, the point of the triangle where two of the three gateways point is visually on axis with Vista Del Mar which provides a view corridor to the regional feature: the Pacific Ocean.

As noted above, Riviera Village is – unlike the other two centers – primarily a neighborhood commercial center surrounded by residential areas with little employment base nearby. These neighborhoods vary in character and density, but generally they are well connected to the Village itself. As Figure 3.2.10 suggests, there are four key streets that connect the commercial district and neighborhoods:

- Catalina Avenue connects to adjoining neighborhoods to the north.
- Vista Del Mar connects to the neighborhood to the west toward the beach.
- Palos Verdes Boulevard connects more distant northeast neighborhoods to Pacific Coast Highway, Via Valencia, and Catalina Avenue.
- Camino Del Campo connects to the adjoining hillside neighborhood to the southeast.

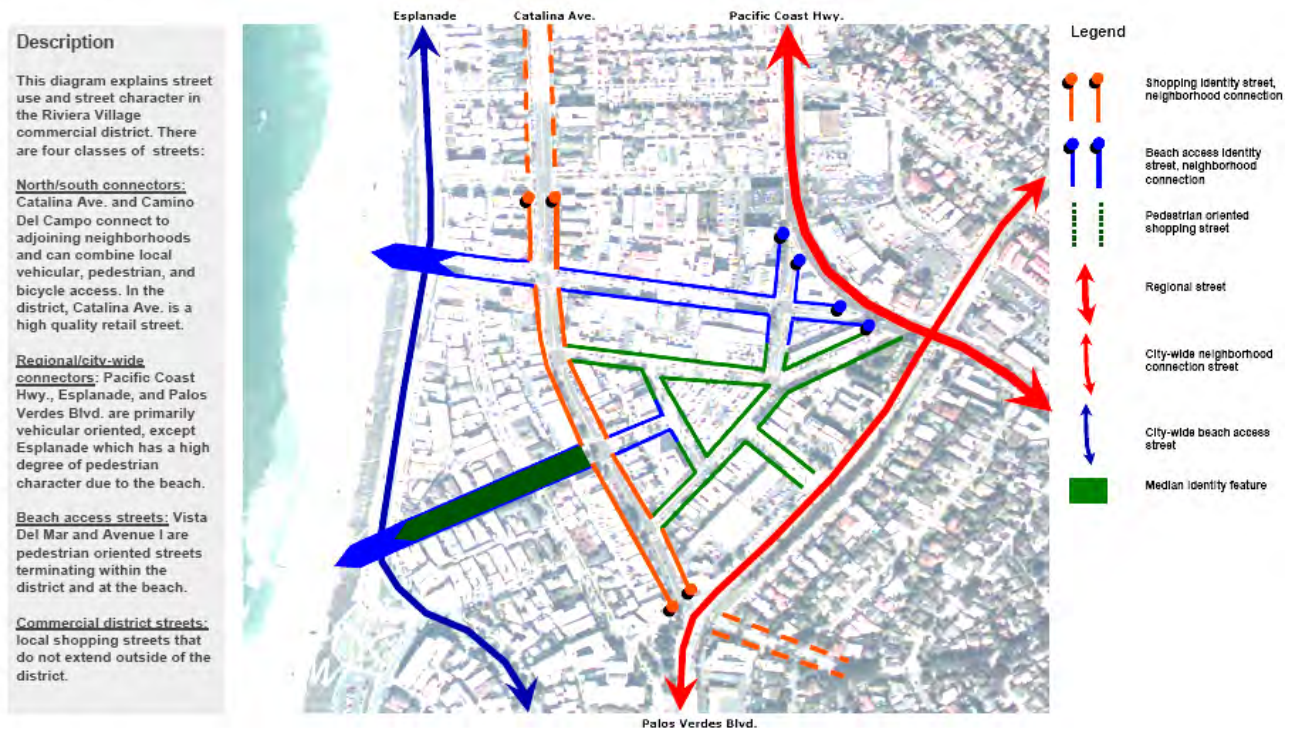
Figure 3.2.10: Riviera Village Neighborhood Connections



Interestingly, however, not all these streets serve the same role in the neighborhood. As Figure 3.2.11 shows, there are four street classes in Riviera Village:

- North/south connectors: Catalina Avenue and Camino Del Campo connect to adjoining neighborhoods and can combine local vehicular, pedestrian, and bicycle access. In the district, Catalina Avenue is a high quality retail street.
- Regional/city-wide connectors: Pacific Coast Highway, Esplanade, and Palos Verdes Boulevard are primarily vehicular oriented, except Esplanade which has a high degree of pedestrian character due to the beach.
- Beach access streets: Vista Del Mar and Avenue I are pedestrian oriented streets terminating within the district and at the beach.
- Commercial district streets: local shopping streets that do not extend outside of the district.

Figure 3.2.11: Riviera Village Street Use & Character



In general, the unique character of Riviera Village derives from the way its design operates at two scales.

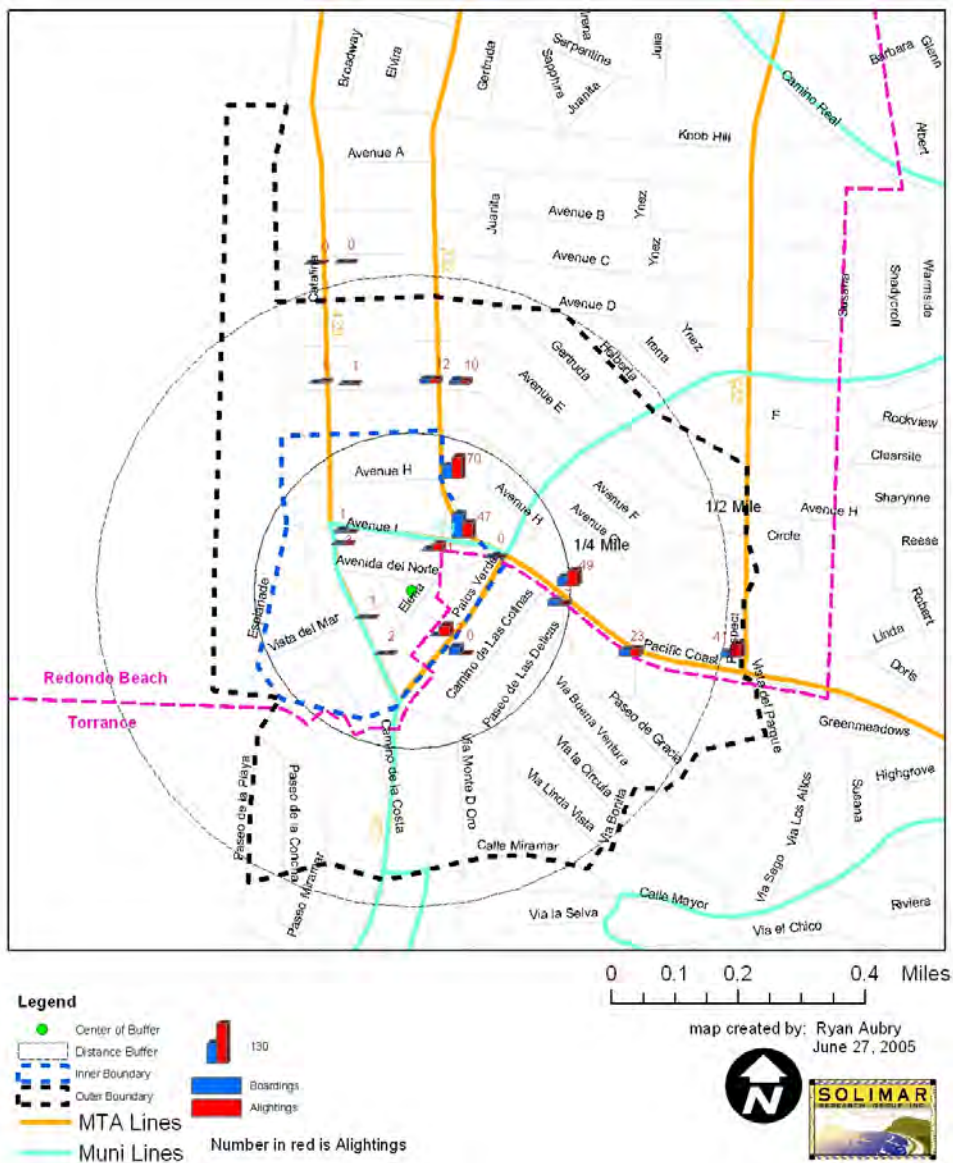
- The triangular geometry creates an internal focus.
- The Palos Verdes hills to the south and the Pacific Ocean to the west provide regional scale touchstones that can be seen from within the village.

Riviera Village's design characteristics provide strong connections to surrounding neighborhoods – connections that are stronger than the connections to the rest of the city. In this sense Riviera Village is a community or neighborhood scaled center, rather than a regional or city-wide center.

3.2.6 Pedestrians and Bus Activity

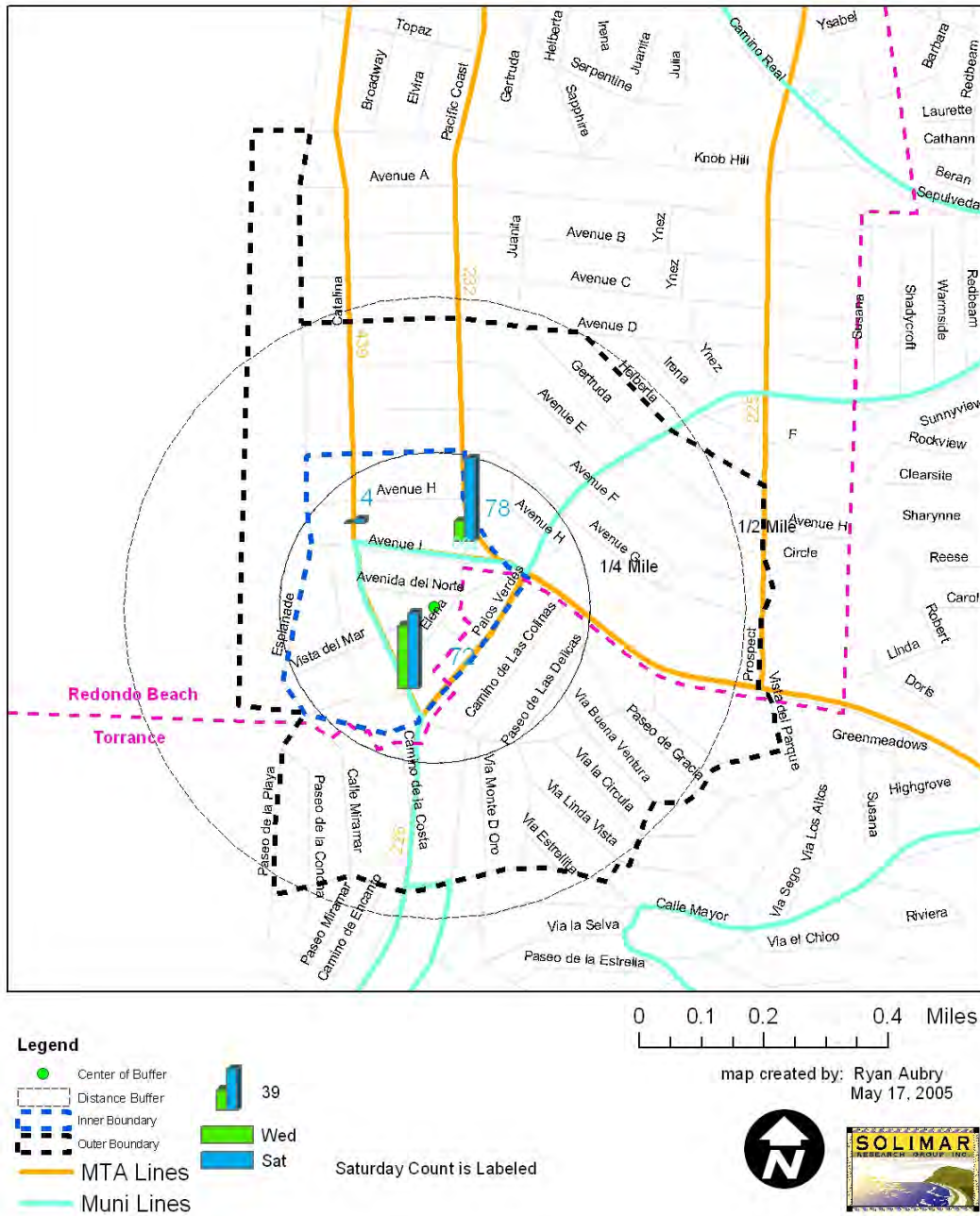
Public transit is present in Riviera Village but it is not well patronized (figure 3.2.12). Several MTA lines serve the area, most significantly Line 232 on Pacific Coast Highway, and Beach Cities Transit also runs a line through the area. The Beach Cities line gets very little ridership, but the MTA line along PCH gets 300 to 400 riders a day, including several dozen at key stops near Riviera Village. The Redondo Express, which goes to the Green Line, LAX and on into Los Angeles, carries about 100 passengers per day from this area. The MTA has considered canceling this service but has not done so.

Figure 3.2.12: Bus Ridership in Riviera Village



Pedestrian patterns, however, reveal a great deal about how Riviera Village functions, because pedestrian counts at the three observation points varied dramatically (figure 3.2.13). Pedestrian activity along Catalina Avenue near the popular Pedoni’s pizzeria is very busy on both weekdays and Saturdays. The northeastern entrance to the Village, which we measured on Elena near Avenue I, was moderately busy during the week but very busy on Saturday, suggesting that local residents walk to the Village on the weekend. Surprisingly, however, the northwestern entrance into the Village at Catalina and Avenue I – a connector between the village and high-density beachside apartments – showed no pedestrian activity at all during the week and only a trickle on Saturday.

**Figure 3.2.13:
Pedestrian Counts in Riviera Village**



3.3 Downtown Torrance

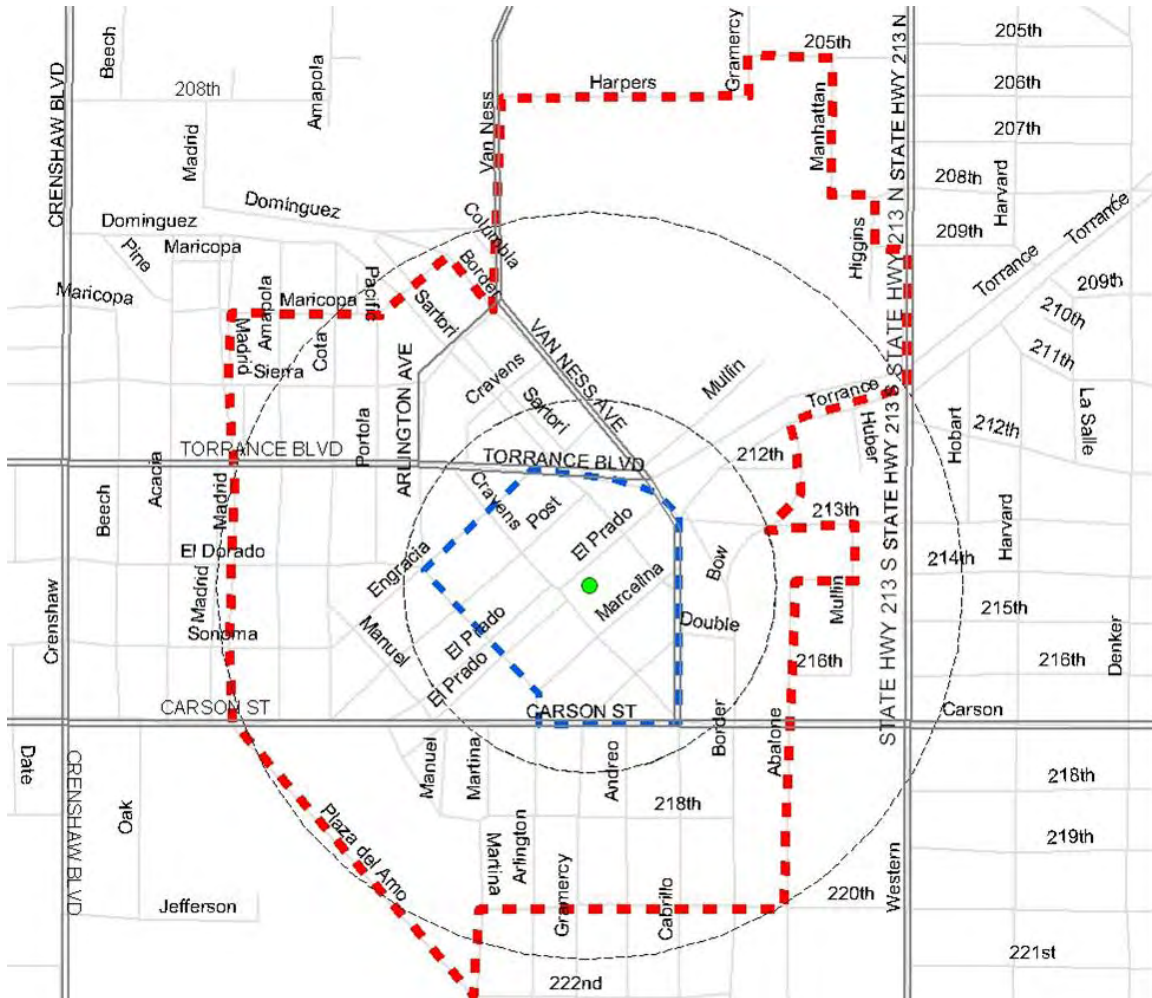
Downtown Torrance is an especially interesting case study for this project because while the commercial core is laid out in village-like fashion, similar to Riviera Village, it retains the flavor of a “planned industrial suburb” in quintessential Los Angeles fashion, surrounded not just by housing but also by large job centers.

For our purposes, Downtown Torrance was defined very much along the classic lines first laid out by the designers who created it almost a century ago. The inner area, 54 acres in size, is bounded by Torrance Boulevard on the north, Cabrillo on the east, Carson on the south, and El Prado and Engracia to the west. The larger area – encompassing 429 acres – stretches approximately from Harpers on the north to 220th on the south and from Madrid on the west to Western on the east. (Figures 3.3.1 and 3.3.2)

Figure 3.3.1: Aerial photo of Downtown Torrance



Figure 3.3.2: Downtown Torrance, Inner and Outer Boundaries



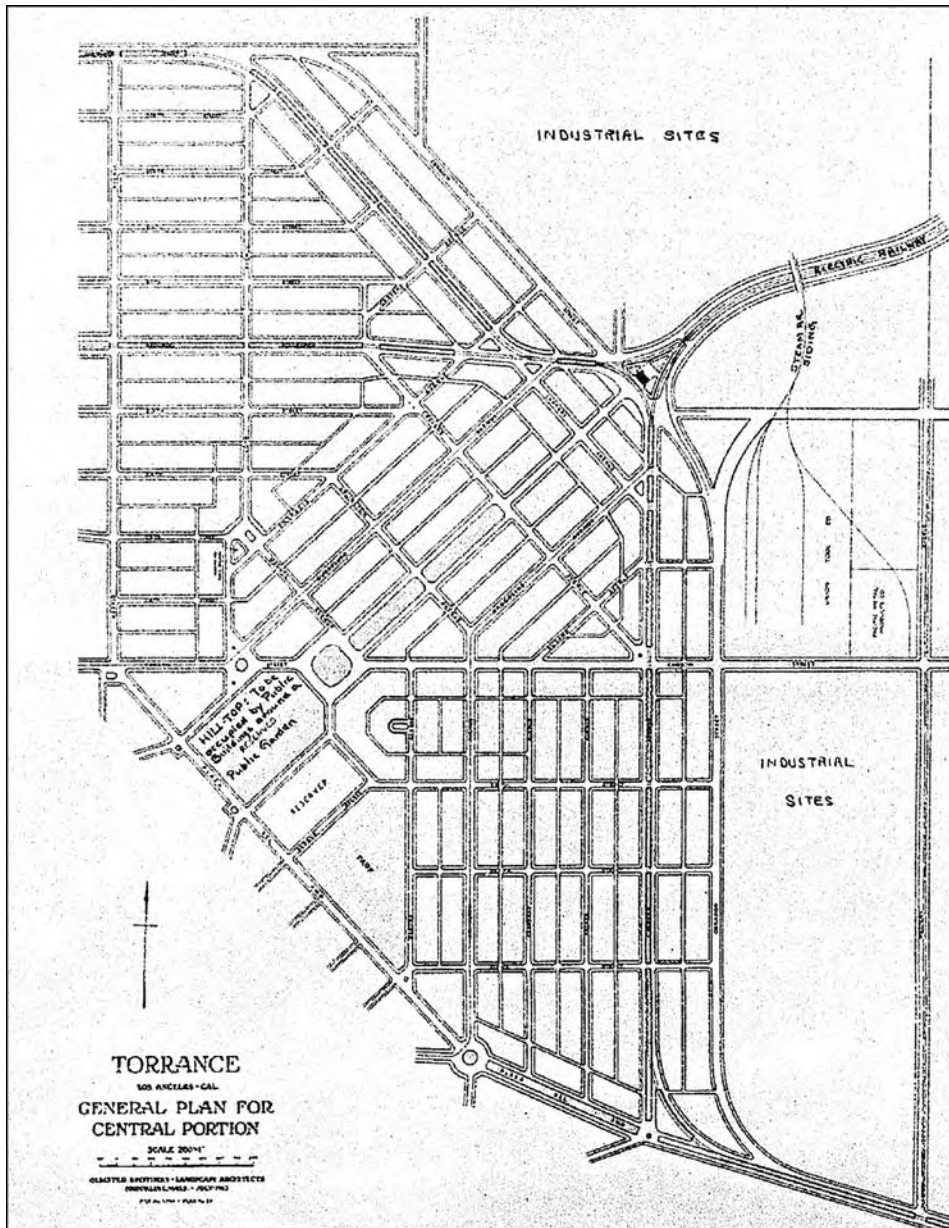
3.3.1 History

In 1911, entrepreneur Jared Torrance and banker Joseph Sartori formed the Dominguez Land Company, purchased 2,800 acres, and hired Frederick Law Olmsted Jr. and Irving Gill as designers.¹³ (Figure 3.3.3.) In the words of historian Greg Hise, they planned “a transit gateway and a civic center with a theater, public library, and linear park leading to detached, workingman’s cottages”. This is the layout that characterizes Torrance to this day. After heavy industries closed in this area in the 1970s, American Honda Co. located its headquarters in 1990 is located on the centerpiece industrial site identified by Olmsted

¹³ This and following drawn from Hise, Greg, “Industry and Urbanization in Southern California, 1900-1950,” Real Estate Research Brief, Lusk Center for Real Estate, University of Southern California, Spring 2001.

and Gill almost a century ago. Most buildings, especially in the outer area, date from the prewar era.

Figure 3.3.3: Torrance Plan, 1912



Later, Pacific Electric was given a 125-acre parcel for its construction and repair yard, stimulating the area's industrial growth. As Hise documented in his book *Magnetic Los Angeles*, the planned industrial suburb was common in Los Angeles in the early part of the 20th Century, but Torrance is an unusually good example.

Today, most original residential and commercial buildings remain, though industrial buildings, including those at Honda, tend to date from the 1970s. (Figure 3.3.4.) But with

the recent surge in development in Downtown Torrance, almost half of the buildings in the inner area date from 1980 or later. (Figure 3.3.5)

Figure 3.3.4: Age of Buildings, Downtown Torrance

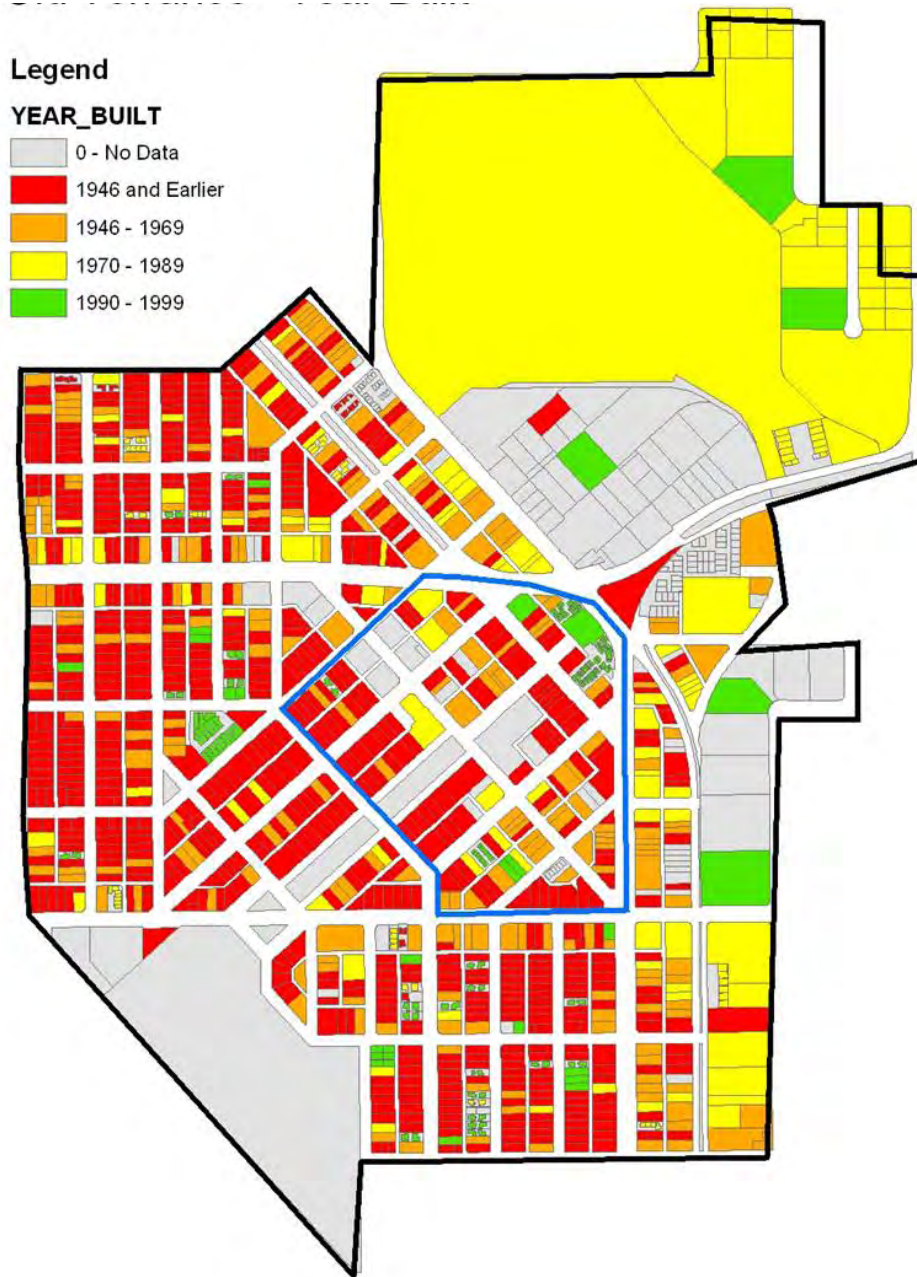
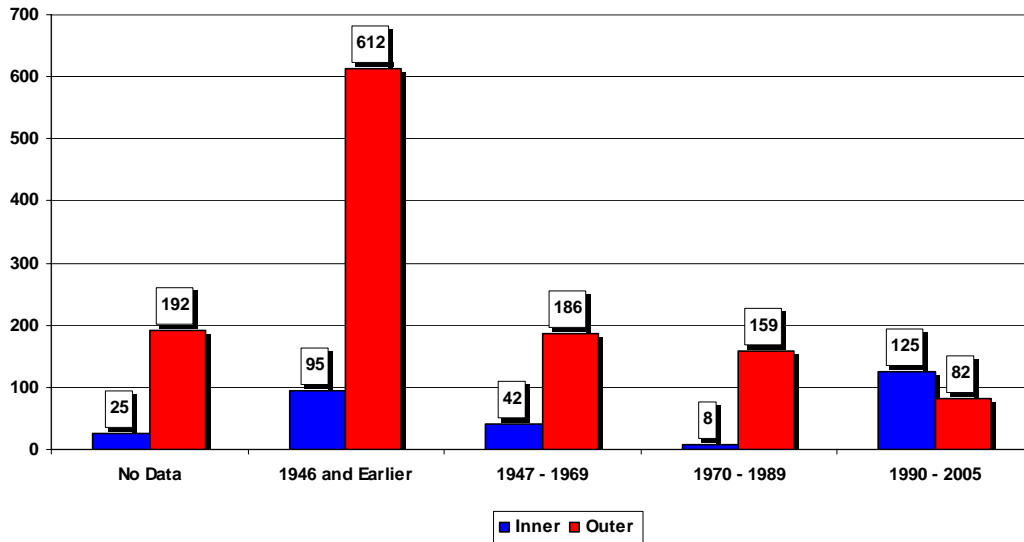


Figure 3.3.5: Age of Buildings in Downtown Torrance



3.3.2 Land Use Pattern

The land use pattern of downtown Torrance is remarkably faithful to the plan laid out by Olmsted. (Figure 3.3.6) Industrial uses are located northeast of Van Ness and east of Cabrillo, with Honda dominating the landscape north of Torrance Boulevard and east of Van Ness. Residential uses predominate in the to the west, southwest, and south, although Torrance High School is located in this area as well. Retail and commercial uses predominate in the commercial core, although a few high-density residential projects have been built there in the last decade. Almost 30% of the land is devoted to commercial use in the inner area, but the overall land use profile is diverse (Figure 3.3.7)

Figure 3.3.6: Land Use Patterns, Downtown Torrance

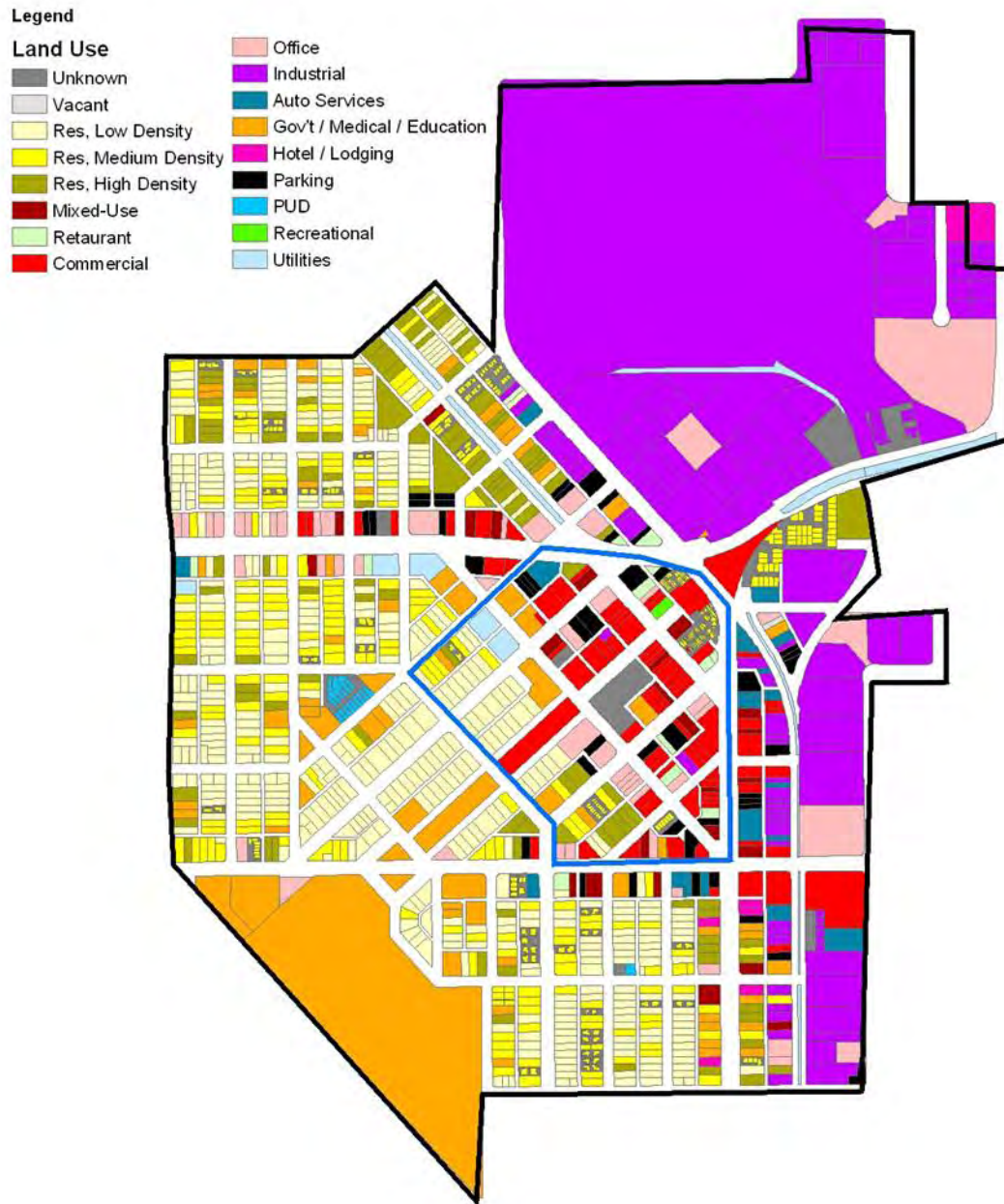
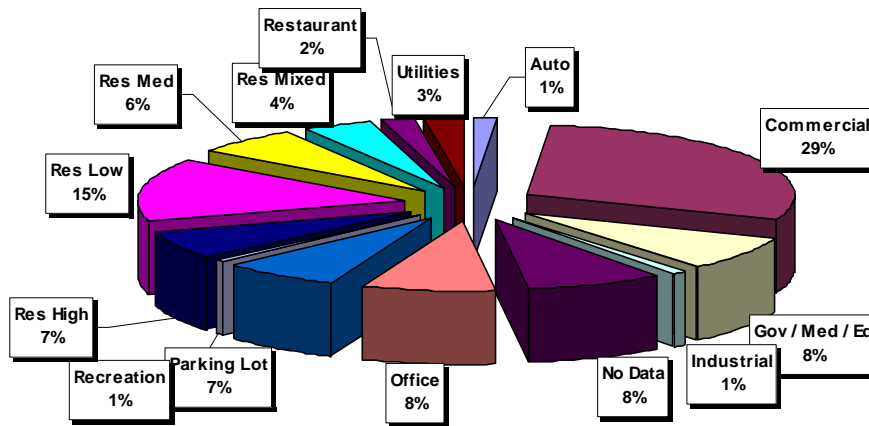


Figure 3.3.7: Land Use Breakdown in Torrance, Inner Area



3.3.3 Demographic Profile

Like Riviera Village, Torrance's population is mostly white, although a significant percentage of the population is Asian in the inner area and a significant percentage is Hispanic in the outer area, and mostly renter. However, due to the presence of handsome older homes close to the commercial downtown the owner-occupied percentage in the inner core is actually higher than in the outer area. Population density is moderate compared to other centers - 8,700 persons per square mile in the inner area and 5,863 persons per square mile in the outer area. Household sizes are small, but they are higher (2 persons per household) in the outer area. (Tables 3.3.3 and 3.3.4.)

Table 3.3.3: Torrance Demographics

	Downtown Torrance		
	Inner	Outer	Total
# of Block Groups	14	63	77
Acres	54	429	483
Square Miles	0.08	0.67	0.76
Population			
Total Population	746	3,797	4,543
Persons/Square Mile	8,786	5,663	6,014
Racial Breakdown			
White	489	2,538	3,027
	65.5%	66.8%	66.6%
Black	20	89	109
	2.7%	2.3%	2.4%
Asian	163	352	515
	21.8%	9.3%	11.3%
Hispanic	86	1,138	1,224
	11.5%	30.0%	26.9%
Gender Breakdown			
Males	365	1,911	2,276
	48.9%	50.3%	50.1%
Females	381	1,886	2,267
	51.1%	49.7%	49.9%

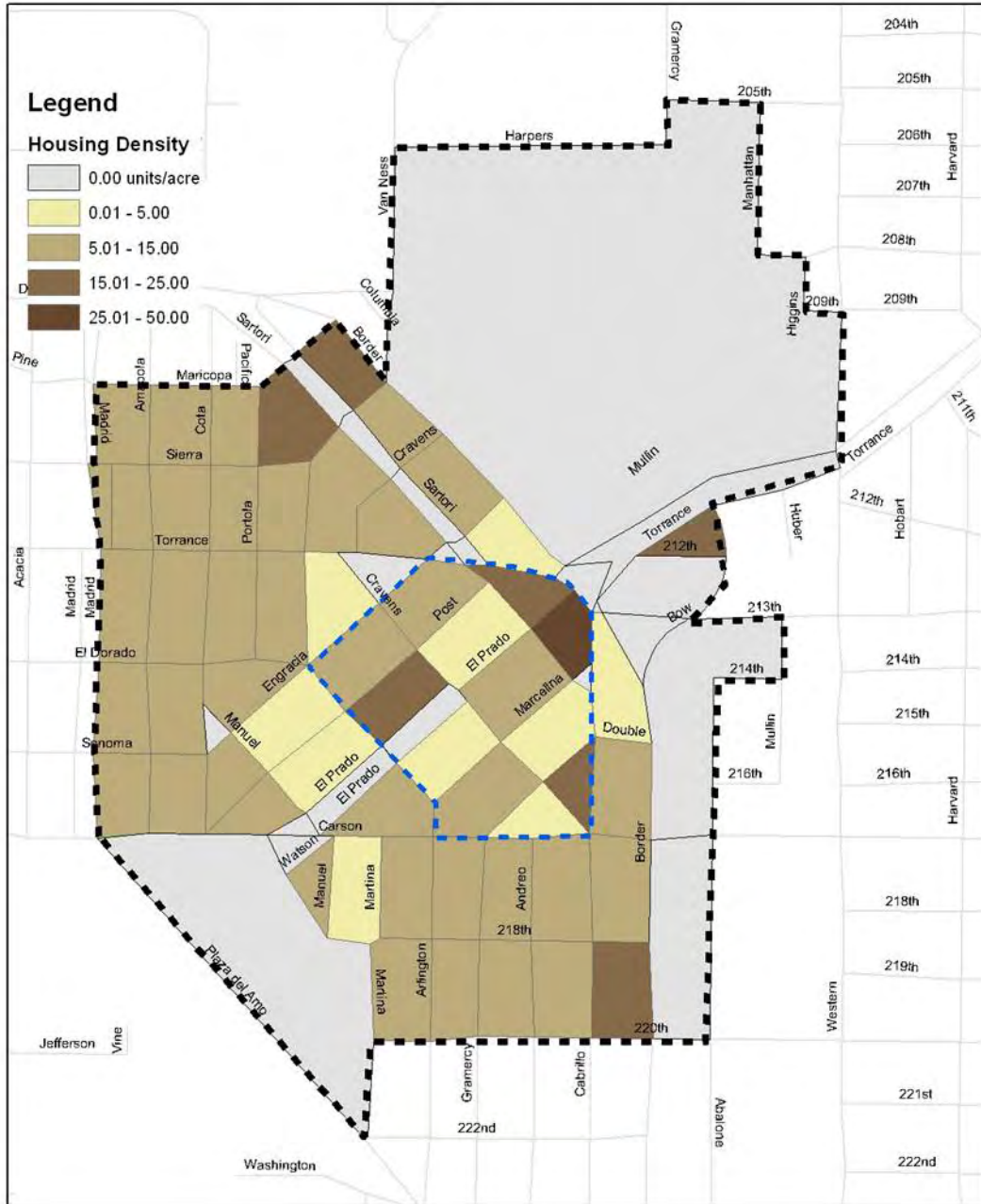
Table 3.3.4: Torrance Housing

	Inner	Outer	Total
Total Units	518	1,755	2,273
Units Per Acre	9.5	4.1	4.7
Vacancies	38	137	175
	7.3%	7.8%	7.7%
Household Size	1.44	2.16	2.00
Tenure			
Owner	175	502	677
	36.5%	31.0%	32.3%
Renter	305	1,116	1,421
	63.5%	69.0%	67.7%

The inner area has more than 9 units per acre compared to only 4 units per acre in the outer area, but this is partly because the outer area has significant industrial land. There are

pockets of dense housing throughout our study area but significant density exists in the core of the downtown. (Figure 3.3.8.)

Figure 3.3.8: Housing Density, Downtown Torrance



In addition to the demographic breakdown using Census blocks, we also did an analysis of the area’s demography using block groups, which permitted us to look at more detailed information collected through the Census’s sample data. The boundaries for this analysis were similar but not identical to the study area boundaries.

The median age of the Downtown Torrance residents is relatively old (almost 38 years) and median income in 2000 was about \$44,000, very similar to the county's median. In 2000, median home price was \$299,000 and median rent was \$652, though these have obviously increased considerably since then.

The sample data also permits us to examine some transportation data as well. Homeowner households had about 1.8 cars (slightly below the county average) while renter households had about 1.4 cars, both about the same as the county the county average. Significantly, 22% of residents work either at home or within 10 minutes of home, reflecting the proximity of major job centers. The mean commute time of 27 minutes is about 15% less than the county average.

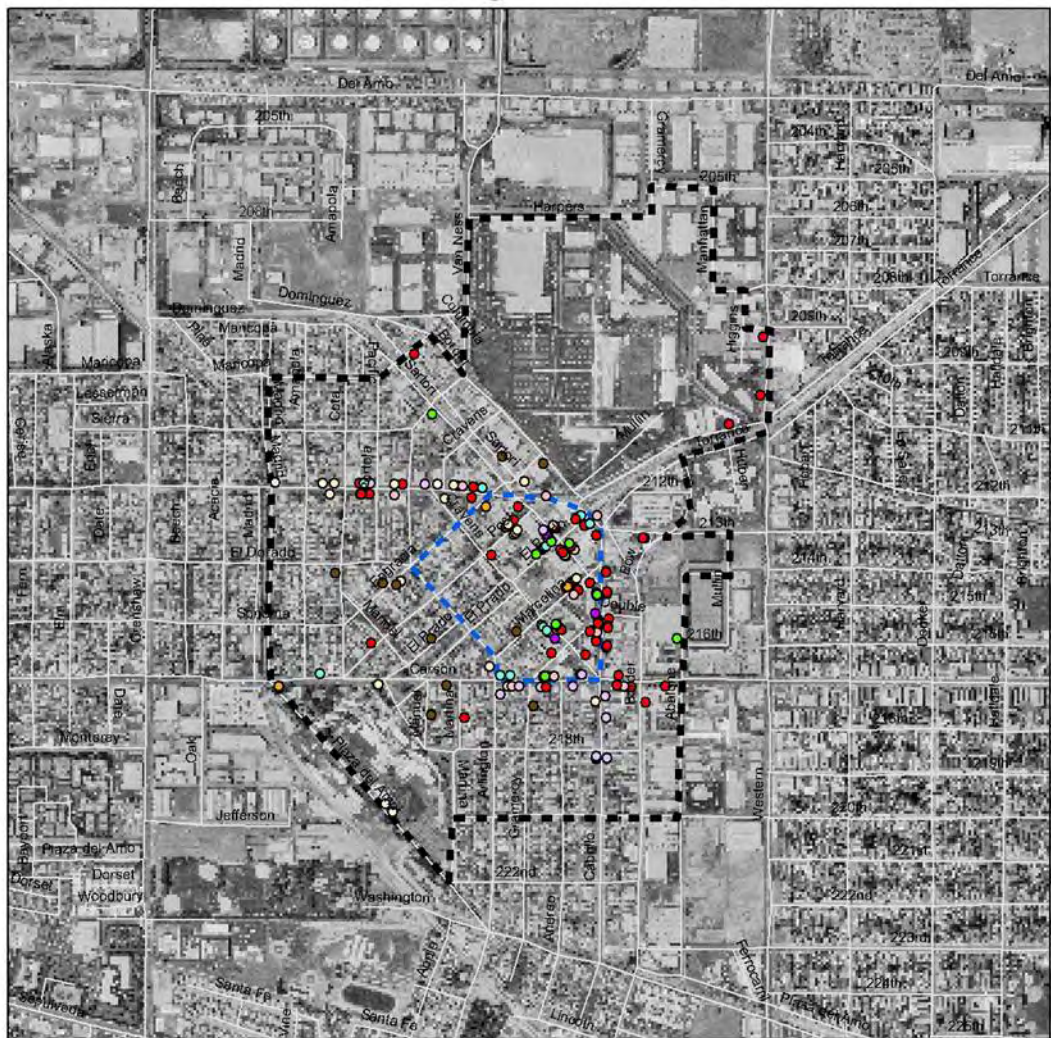
3.3.4 Economic Profile

Downtown Torrance is characterized by small-scale retail and restaurants in the commercial core and a variety of industrial businesses outside the core. There are about 200 businesses in the core. About two-thirds of those businesses are retail and service businesses. One in every eight businesses in the inner area is a restaurant (Table 3.3.5), and these restaurants tend to be concentrated along El Prado in the commercial core. (Figure 3.3.9.)

Table 3.3.5: Torrance Businesses and Jobs

	Inner		Outer		Total	
Businesses	212		336		548	
Agriculture, Forestry, And Fishing	2	0.9%	2	0.6%	4	0.7%
Construction	5	2.4%	1	0.3%	6	1.1%
Manufacturing	7	3.3%	25	7.4%	32	5.8%
Transportation & Communications	6	2.8%	30	8.9%	36	6.6%
Wholesale Trade	9	4.2%	34	10.1%	43	7.8%
Retail Trade	67	31.6%	64	19.0%	131	23.9%
Finance, Insurance, And Real Estate	16	7.5%	25	7.4%	41	7.5%
Services	95	44.8%	147	43.8%	242	44.2%
Public Administration	5	2.4%	8	2.4%	13	2.4%
Employees	800		6,463		7,263	
Agriculture, Forestry, And Fishing	2	0.3%	27	0.4%	29	0.4%
Construction	16	2.0%	2	0.0%	18	0.2%
Manufacturing	22	2.8%	131	2.0%	153	2.1%
Transportation & Communications	13	1.6%	315	4.9%	328	4.5%
Wholesale Trade	18	2.3%	4,171	64.5%	4,189	57.7%
Retail Trade	297	37.1%	439	6.8%	736	10.1%
Finance, Insurance, And Real Estate	33	4.1%	80	1.2%	113	1.6%
Services	378	47.3%	1,287	19.9%	1,665	22.9%
Public Administration	21	2.6%	11	0.2%	32	0.4%

Figure 3.3.9: Distribution of Neighborhood Businesses, Downtown Torrance



Legend

- | | | | | | |
|---|----------------|---|---|---|------------------|
|  | Outer Boundary | Neighborhood Businesses |  | Organizations | |
|  | Inner Boundary |  | Education |  | Retail |
| | |  | Entertainment / |  | Retail / Food |
| | |  | Government |  | Restaurant / Bar |
| | |  | Medical |  | Services |
| | | | |  | Social Services |

0 0.125 0.25 0.5 Miles

map created by: Ryan Aubry, May 17, 2005



The outer area is dominated by Honda, technically characterized as a “wholesale trade” business, which is located across Torrance Boulevard from the commercial core and has approximately 4,000 employees. Partly for this reason, job density is remarkably consistent across both the inner and outer area.

Among neighborhood businesses, the inner area is most heavily represented by medical offices (11), dental offices (8), and restaurants (10).

3.3.5 Urban Design Analysis

Like Riviera Village, Downtown Torrance is a “set piece village” that has an identity within its overall urban context. As Figures 3.3.10 and 3.3.11 show, the commercial district set piece is defined by sitting at a 45 degree angle within the traditional street grid. It is not bisected by arterial roads. This creates triangle in relation to the encompassing street grid and the commercial downtown is strongly connected only to the residential neighborhood to the southwest.

Figure 3.3.10: Torrance Neighborhood Structure



Figure 3.3.11: Torrance Neighborhood Organization



As Figure 3.3.12 shows, there are three types of streets:

- Regional/city-wide connectors: Torrance Boulevard, Carson Street, and Van Ness Avenue/Cabrillo Avenue are vehicular oriented streets that establish regional and city-wide linkages.
- Identity streets: El Prado Avenue is an identity street with a wide central open space median linking the southern residential neighborhood to the commercial district.

Commercial district streets: local shopping streets that do not extend outside of the district. Cravens Ave. forms a key southern boundary to the adjoining residential neighborhood.

Figure 3.3.12: Torrance Street Use & Character



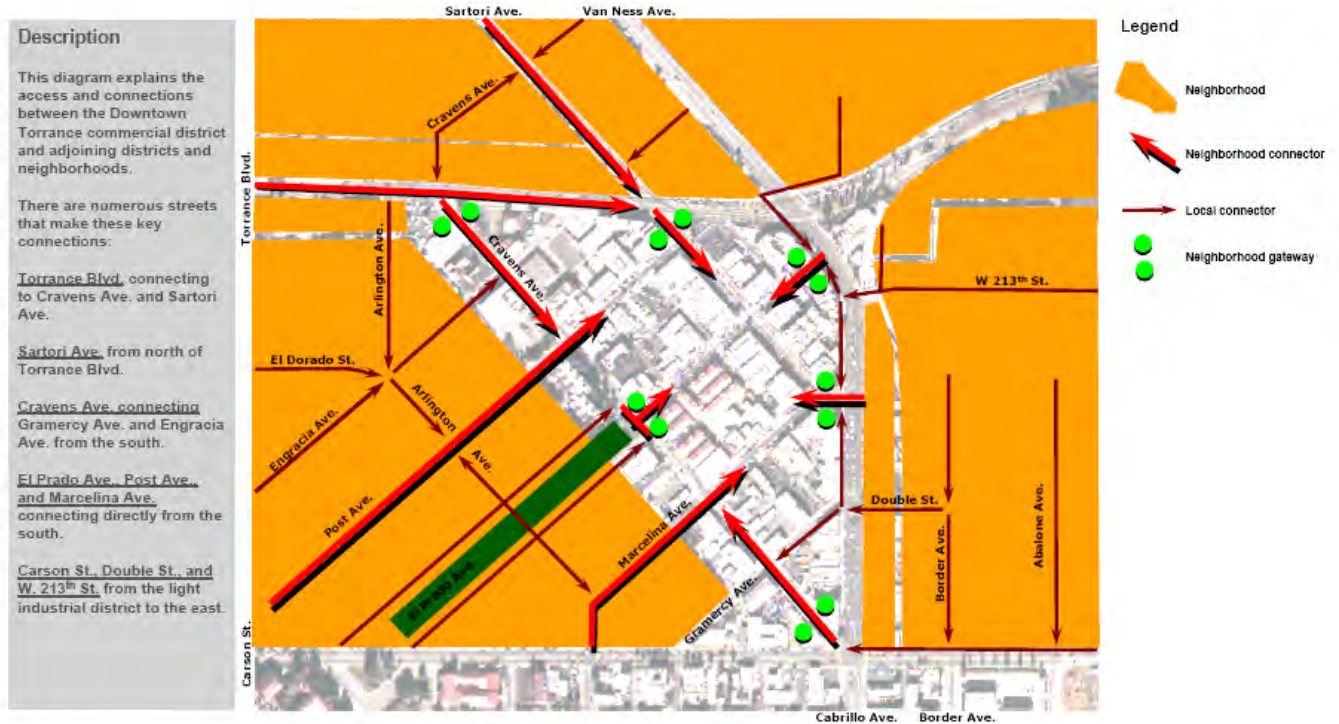
The commercial and residential districts are connected by five streets: Engracia Avenue, Post Avenue, El Prado Avenue, Marcelina Avenue, and Gramercy Avenue. Cravens Avenue and Sartori Avenue provide access into the commercial district. An entry driveway at El Prado Avenue and Cabrillo Avenue provides access to the apex of the commercial district.

Two important issues should be noted with respect to the lack of connections between the commercial district and the that 213th Street and Double Street provide access to the nearby light industrial district but are not aligned with Cravens Avenue or Sartori Avenue and therefore diminish accessibility to the commercial area.

As Figure 3.3.13 shows, the only significant existing neighborhood connection is between the commercial district and the adjoining residential district. As set forth above, this connection is due to adjacency, shared angular orientation, and shared street linkages. The commercial district does not have any other significant neighborhood connection. From an urban design standpoint, the commercial district is largely independent of the nearby light

industrial areas (east of Cabrillo Avenue and the Honda plant). Each of those areas is relatively in accessible by walking due to low densities and large parcels.

Figure 3.3.13: Torrance Neighborhood Connections

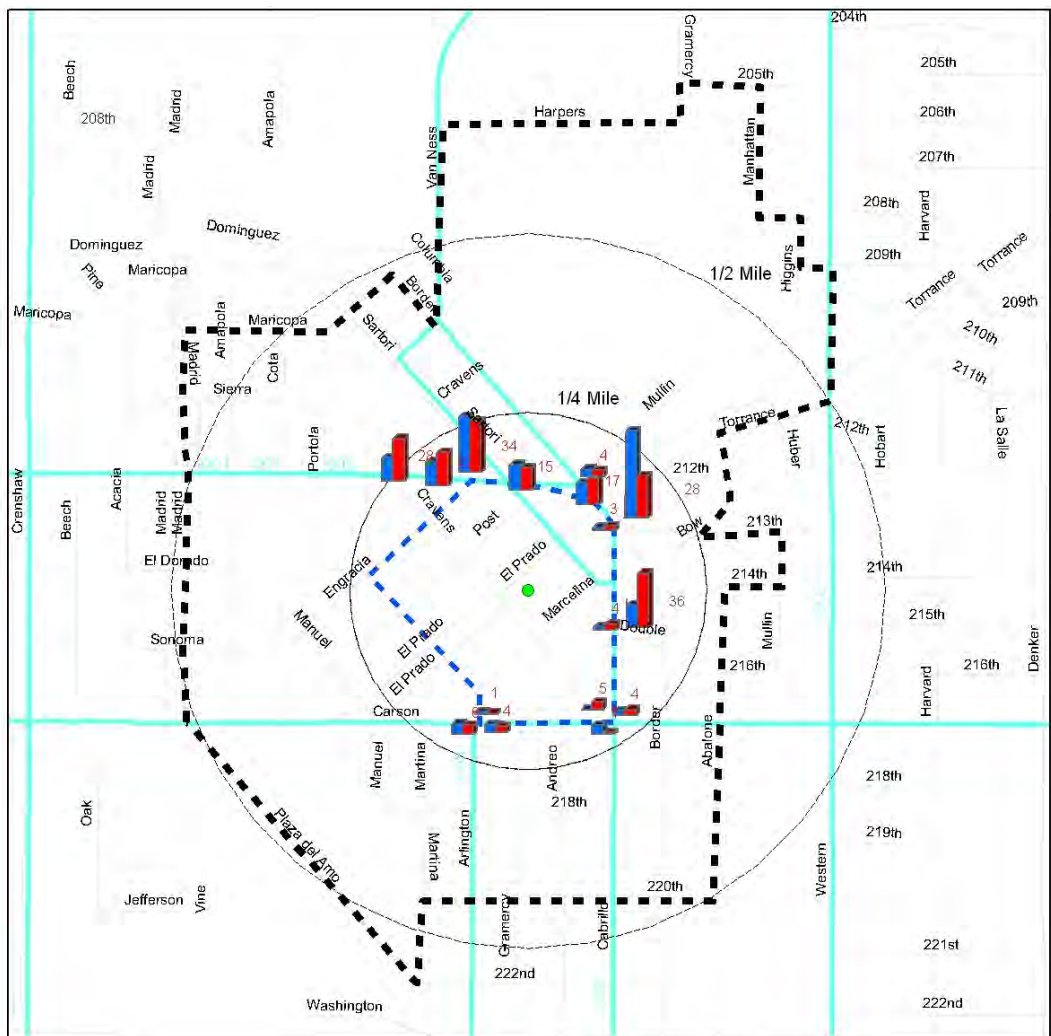


Because of the angled commercial core and its connections to the adjoining residential neighborhood, Torrance does have a unique sense of place. At the same time, it also has plentiful regional and city-wide access. Multiple access points are available connecting the commercial and residential districts to Torrance Boulevard, Cabrillo Avenue, and Carson Street. However, the commercial core is not well connected to other residential areas or to the light industrial areas located across the arterial road.

3.3.6 Pedestrians and Bus Activity

Although downtown Torrance was laid out in the Red Car days as a transit village, it is not a transit center today. The MTA does not service this area. Beach Cities Transit and Torrance Transit run several local lines, but they carry only a handful of riders each day. (Figure 3.3.14)

Figure 3.3.14: Bus Ridership in Downtown Torrance



Legend

- Center of Buffer
- Distance Buffer
- Outer Boundary
- Inner Boundary
- Muni Lines
- Boardings
- Alightings

Numbers in red area Alightings

0 0.1 0.2 0.4 Miles

map created by: Ryan Aubry
April 19, 2005



Again, however, pedestrian patterns provide insight into how people use the centers. Pedestrian traffic was considerable in all these areas that we measured pedestrian activity, averaging more than 100 pedestrians per hour overall. (Table 3.3.6.) However, each observation point had a different weekday-weekend pattern. Along Cabrillo near El Prado – a typical walkway for Honda employees at lunchtime – more than 150 pedestrians per hour were counted on Wednesday but less than 20 on Saturday. Near the Torrance Bakery on Sartori, an entry point for pedestrians from both residential and commercial areas to the south, traffic was heavy on both weekdays and weekends, with weekdays being slightly busier. At Keller Park – the connection point to the historic nearby neighborhood – Saturday traffic was heavier than weekday traffic. Overall, weekday traffic was somewhat higher, reflecting Downtown Torrance’s role as an employment center.

Table 3.3.6: Downtown Torrance Pedestrian Counts (per hour)

	Wednesday			Saturday			Average		
	In	Out	Total	In	Out	Total	In	Out	Total
Cabrillo near El Prado	111	48	159	6	9	15	59	29	87
Torrance Bakery	90	60	150	57	66	123	74	63	137
Keller Park	54	24	78	90	18	108	72	21	93
Average	85	44	129	51	31	82	68	38	106

3.4 Comparison of the Three Mixed Use Centers

As was stated at the beginning of Section 3, the three centers under study are all different and yet have some similarities. All were deliberately laid out as planned communities. Their physical layout is different, although Riviera Village and Torrance are both laid out as small village downtowns. The outer boundary context is different in each case, with Riviera Village having mostly residential neighborhoods, Torrance having a large employment base, and Inglewood having a mix. And all function more as neighborhood centers rather than regional attractions. But the data analysis of each center also provides insight into how they are different, thus helping us to understand how different types of centers function.

3.4.1 Demographic Characteristics

As stated above, the three centers all have somewhat different demographic characteristics. Inglewood is mostly African-American; Riviera Village is mostly white; and while Torrance is also mostly white there is a significant Asian and Hispanic population. All have small household sizes (usually 2.0 persons per household and below), although household size in outer Inglewood was 2.6, suggesting the presence of many families.

The population and housing patterns are also different from center to center, as Figures 3.4.1 and 3.4.2 show. In all three cases, the inner boundary – representing a radius of approximately ¼ mile from the centerpoint of the area – is mostly a business and commercial center, but the presence of housing and population varies.

Figure 3.4.1: Population Per Square Mile

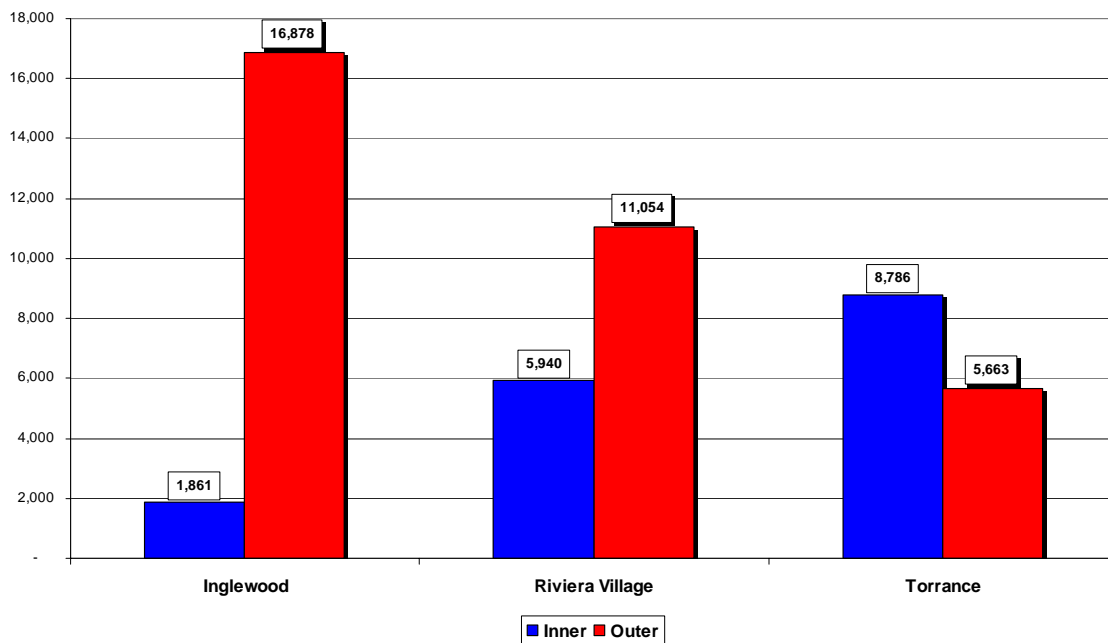
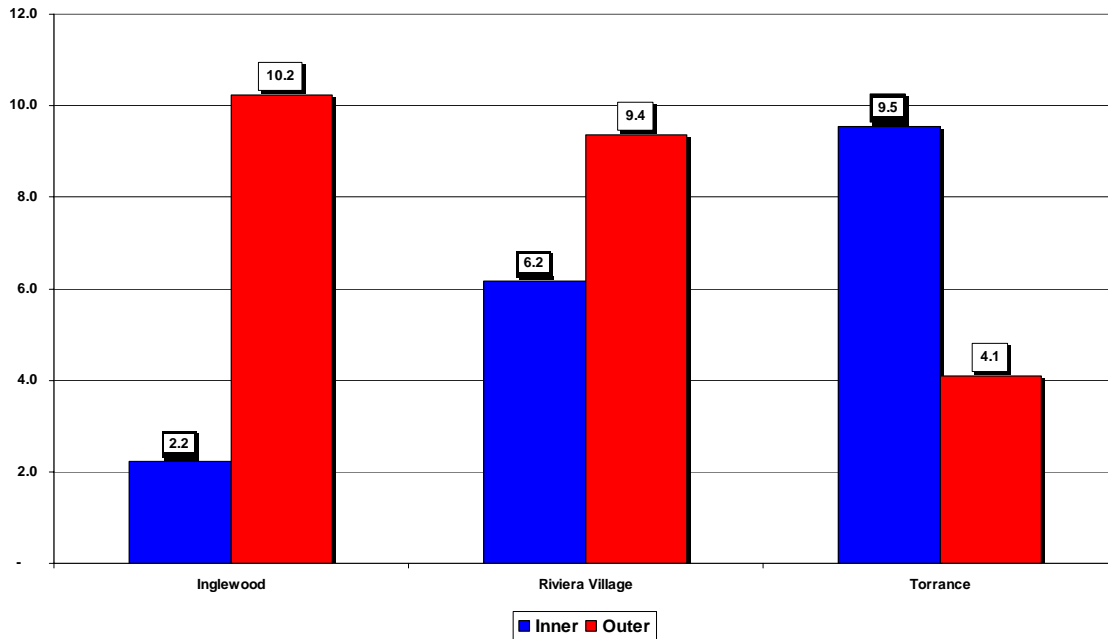


Figure 3.4.2: Housing Units Per Acre

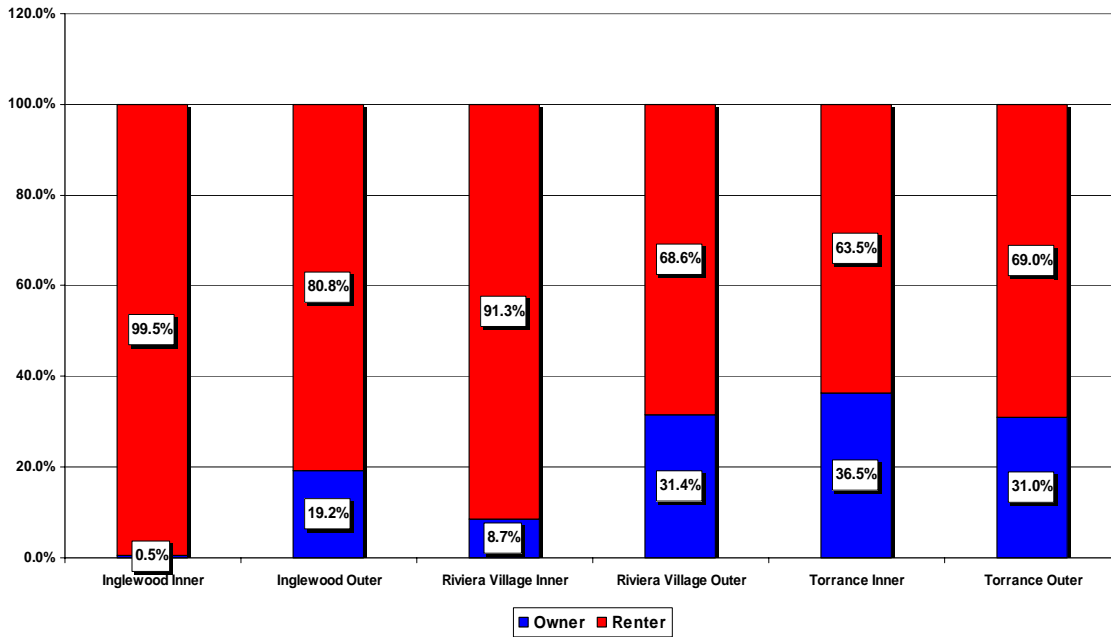


In Inglewood, which is built along arterials and has a physically larger commercial core, few people live in the inner area, but the population of the outer area is 16,000 persons per square mile – a figure that is comparable to extremely dense central cities such as San Francisco. In Riviera Village, about 6,000 persons per square mile live in the inner core and about 11,000 persons per square mile in the outer core. The larger outer number is due principally to the presence of large apartment towers along the beach. Torrance, by contrast, is the only center where housing density is greater in the inner area than in the outer area. Among other things, this is because of recent high-density construction downtown and because of the fact that so much land in the outer area is devoted to jobs.

Housing density tells a similar story, but it is interesting to note that even in outer Inglewood and inner Torrance – areas where considerable land is devoted to commercial and retail activity – the aggregate housing density (including non-residential land) is 9 to 10 units per acre, which is fairly dense.

As was noted above, all three centers are mostly renter communities, although there are significant clusters of homeowners in all the outer areas (as well as the inner area in Torrance.) (Figure 3.4.3.)

Figure 3.4.3: Housing Tenure



The three centers differ significantly in the more detailed demographic characteristics that were derived from the Census sample data, which is drawn from slightly different boundaries than the study area boundaries. Not surprisingly, Riviera Village is more affluent than the county as a whole, while Inglewood is well below the average and Torrance is fairly close to the average, skewing slightly above it.

All three areas are below the county average in using alternative transportation modes to get to work. Torrance is well above the county average in short commutes – thanks to proximity to Honda and other job centers – while the other two centers are well below the county average. This is somewhat surprising for Inglewood considering the vast array of jobs available in the immediate vicinity of the downtown, both inside the study area and just outside it. Mean commute times reflect these same patterns, while Torrance coming in well below the county average and Riviera Village somewhat above.

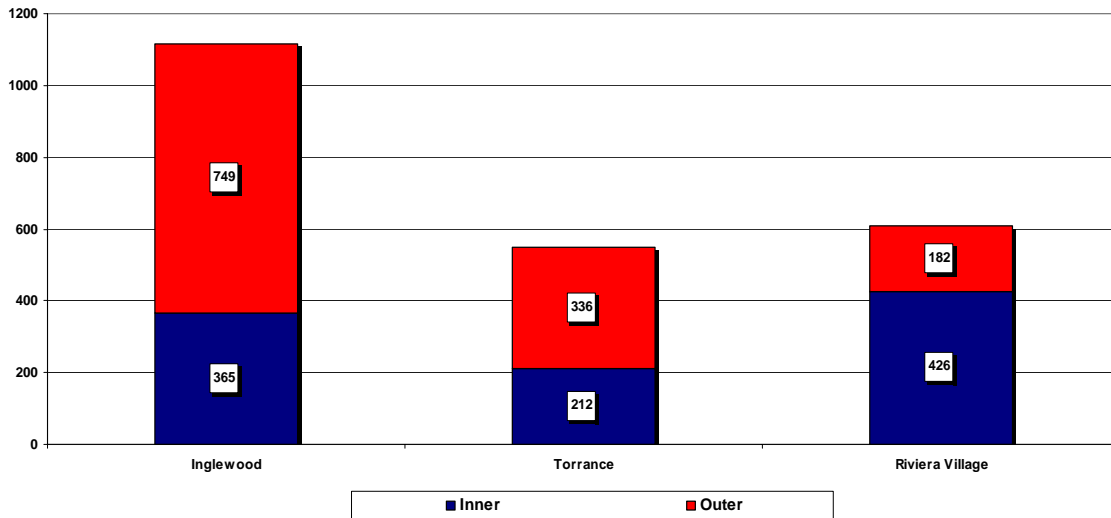
3.4.2 Economic Characteristics

Business and economic activity vary considerably in each center – driven mostly by the types of employment centers that are located in the outer area and the retail clientele for each center.

Both Inglewood and Torrance have lots of jobs and economic activity in the outer areas – the areas located from ¼ to ½ mile away from the core. As was noted above, in Inglewood this activity is driven largely by the medical sector, especially Daniel Freeman Hospital,

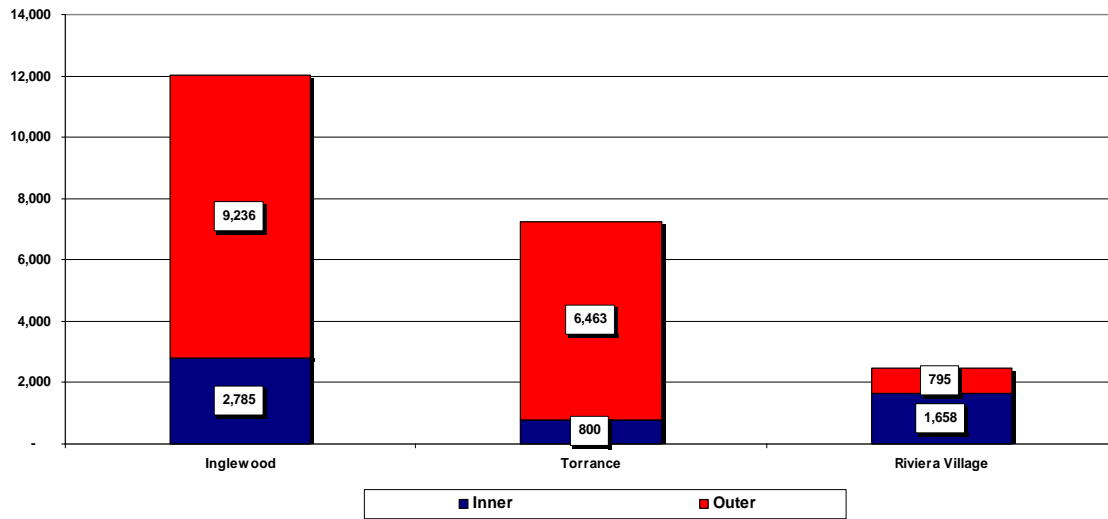
whereas in Torrance it is driven mostly by Honda. Riviera Village has no jobs base to speak out in the outer area except from retail and service businesses along Pacific Coast Highway. Thus, in both Inglewood and Torrance, an important question is whether employees from the outer area are willing to traverse a ½-mile distance to go to the center for eating and errands. (Figure 3.4.4.)

Figure 3.4.4: Number of Businesses



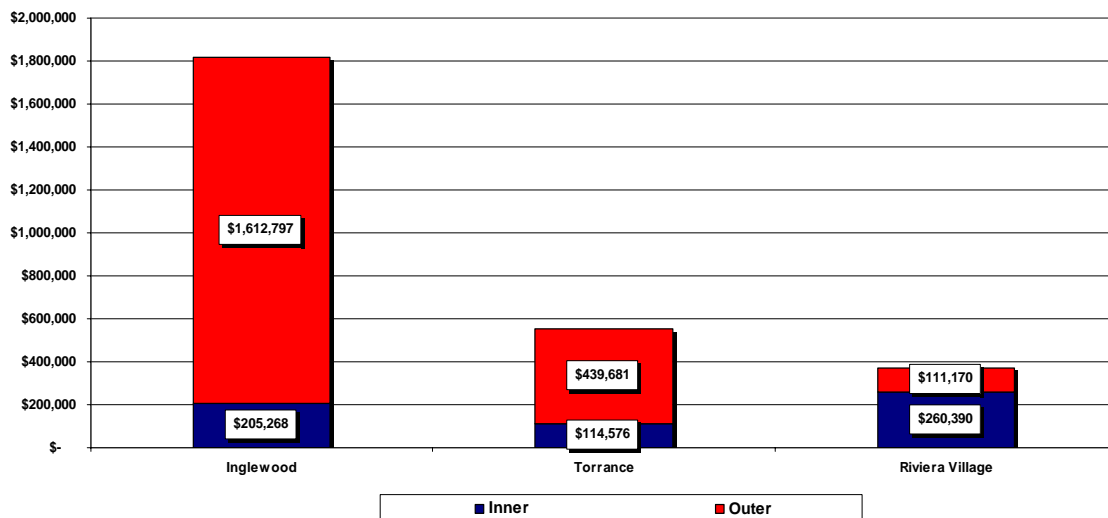
Only Inglewood has a significant jobs base (2,700 employees) in the inner core – due mostly to the presence of city and county governments and Kaiser Permanente. Torrance’s inner-area employment base consists of only 800 people, essentially the employees of the service and retail jobs. Riviera Village has a surprisingly high employment base (1,600 employees), but again these are probably mostly retail and service workers rather than office-based workers. (Figure 3.4.5.)

Figure 3.4.5: Number of Employees



The sales volume data is also instructive. All three centers have sales volumes of between \$100 million and \$260 million per year in the inner area. Because of their large business bases, Inglewood and Torrance have very large sales volumes in the outer area compared to the inner area. Only Riviera Village, with its strong business base in the core and its residential areas on the outskirts, has more business activity in the inner area than in the outer area. (Figure 3.4.6)

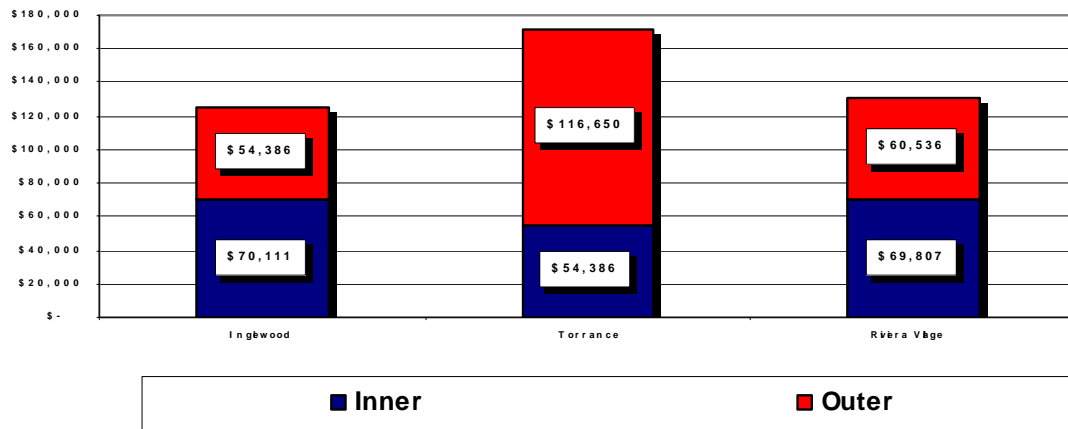
Figure 3.4.6: Sales Volume



Breaking out the retail sales volume provides greater insight. Interestingly, the inner areas of all three centers produce a similar retail sales volume - between \$60 million and \$70 million - from a very similar number of businesses (between 108 and 134 businesses.)

(Figure 3.4.7.) . But each center’s retail base is different, and interestingly the retail base in the outer area is close to or exceeds the inner area in each case. In Inglewood and Riviera Village, the outer-area retail volume is slightly less than the inner area, and in Torrance the outer-area retail volume is considerably greater than the inner area. Interestingly, retail accounts for a smaller percentage of the total sales volume in Riviera Village than in the other two centers, meaning professional and personal services are more prevalent there than in the other two locations.

Figure 3.4.7: Retail Sales Volume



Even though the three inner areas produce similar retail sales volumes from a similar number of businesses, a further breakdown reveals different patterns. (Figure 3.4.8.) Interestingly, the average retail sales volume in the inner area of both Inglewood and Riviera Village is very similar ~ \$589,000 in Inglewood and \$646,000 in Riviera Village. Although these figures are similar, they reflect very different situations. Downtown Inglewood is home to many discount retailers that cater to nearby residents with modest incomes. Riviera Village is home to many upscale boutiques that cater not only to the neighborhood but also to residents of the Palos Verdes Peninsula. By contrast, Torrance, which is home to many small restaurants and antique stores, has by far the lowest per-store sales volume ~ \$405,000.

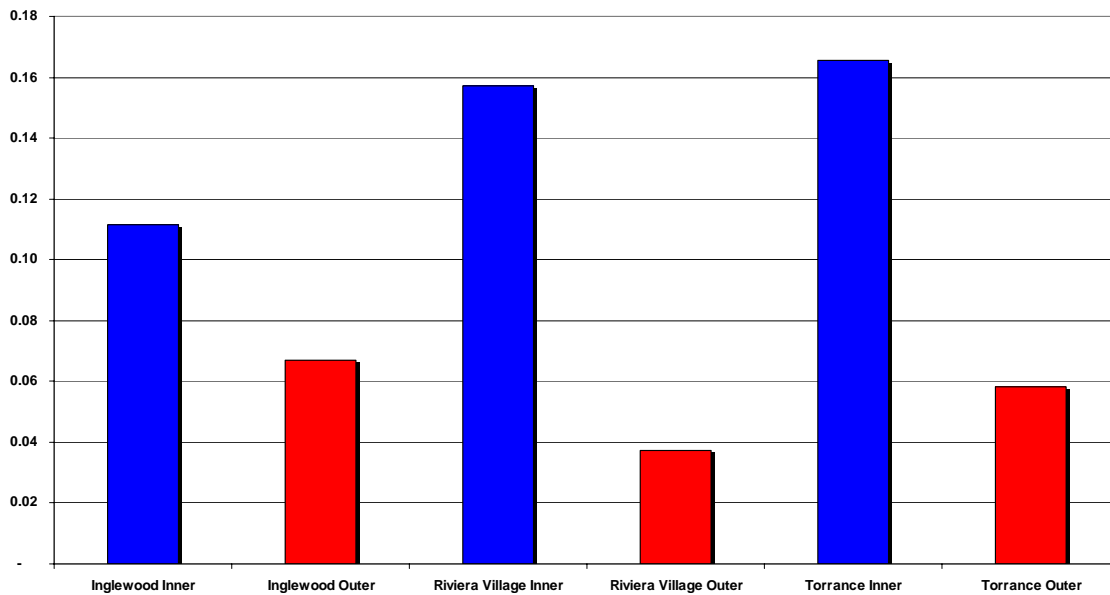
Figure 3.4.8: Average Retail Sales Volume Per Store



Interestingly, outer-area sales volume per store is lower than the inner area in Inglewood, but higher in Riviera Village and much higher in Torrance, reflecting the presence of larger general retail stores outside the core in Riviera Village and Torrance.

Even though the sales volumes are often lower, as Figure 3.4.9 reveals, neighborhood-oriented businesses are much more densely packed in the inner area in all three centers.

Figure 3.4.9: Neighborhood Business Per Acre



The analysis of neighborhood business conducted by Siembab Planning Associates (discussed in detail in Appendix B) concluded that all three centers have almost a full

complement of neighborhood services, especially in the area of personal care shops, medical and dental offices, and restaurants. However, it is clear that in almost all cases these neighborhood businesses depend on a larger market area for survival. For example, medical and dental offices in Inglewood appear to depend on traffic to the nearby hospitals, and medical offices, dental offices, and hair shops in Riviera Village appear to depend on traffic from the Palos Verdes Peninsula. These neighborhood businesses should make the mixed-use centers more attractive to residents, but it is not the residents alone who support them.

Finally, it is worth noting that the vast majority of businesses located in these centers do not fall into the neighborhood-oriented definition.

3.4.3 Urban Design Characteristics

Overall Findings

Each of the three locations studied represent neighborhood places, first and foremost. This is evidenced by the lack of regional serving entertainment uses or national chain retail or restaurant outlets. All three centers are well scaled for internal pedestrian trips and for connecting the edge of the commercial area with its center.

Downtown Inglewood comes the closest to being a citywide center due to the government center and transit center. Riviera Village and Torrance are truly “urban villages” in the grid urban fabric of the South Bay. Both of these places have a unique way of distinguishing themselves in terms of identity and use. Downtown Inglewood follows a different model, namely retaining the urban grid and adapting this to create uniqueness and identity.

Riviera Village has the strongest adjoining residential neighborhoods. In Torrance, provision of additional residential uses in the midst of downtown is a valuable addition to build in a market for local goods and services. As a neighborhood center, Riviera Village is not bounded by regional connecting streets and therefore has a better integration with its surrounding residential neighborhoods.

As urban villages, Riviera Village and Old Town, Torrance utilize urban design concepts that focus attention inward and away from the outside landscape. This is very effective to maintaining a sense of identity and place. Downtown Inglewood has a much harder job doing this largely due to its grid character, which is by definition one that expands views and perceptions outward.

3.4.4 Pedestrian Environment and Pedestrian Activity

As was stated in the individual descriptions above, we also sought to analyze and measure the pedestrian environment and the amount of pedestrian activity. The results here reinforce the idea that centers such as these lend themselves to pedestrian activity.

One measurement that is often used is “intersection density” – that is, the number of intersections in an area divided by the number of acres or square miles in the area. A high intersection density suggests a more urban or village environment, as opposed to a suburban environment. Cars are likely to be traveling more slowly and destinations are likely to be closer together.

Most recent research on intersection density has been done in the context of light-rail stations in Portland and San Jose – as a means of determining whether the opening of a light-rail station has altered the pedestrian environment. Compared to the intersection densities found in this research, all three South Bay centers stack up well. (Figure 3.4.10) The Portland and San Jose research seems to suggest that dense environments typically have between 150 and 250 intersections per square mile within a half-mile of a light-rail station, whereas suburban areas might have as few as 15 intersections per square mile. Downtown Inglewood fall slightly on the low side, as do the residential areas of outer Riviera Village, but overall the intersection density in all three centers is very high. Inner Riviera Village has an intersection density comparable to the successful Orenco Station district in Portland, while inner Torrance has an intersection density (331 per square mile) that far exceeds any other that we were able to find in previous research.¹⁴

¹⁴ Marc Schlossberg, Nathaniel Brown, Earl G. Bossard and David Roemer, *Using Spatial Indicators for Pre- and Post-Development Analysis of TOD Areas: A case Study of Portland and the Silicon Valley*. MTI Report 03-03, Mineta Transportation Institute, San Jose State University, September, 2004.

Figure 3.4.10: Intersection Density Compared to Other Areas

Intersection Density

Intersections Per Square Mile

	Inner Boundary	Outer Boundary
Downtown Inglewood	168.3	124.3
Riviera Village	243	111.1
Downtown Torrance	331.9	131.3
Comparisons From Other Studies		
	1/4 m from Transit	1/2 m from Transit
Portland		
Orenco Station (1993)	113.1	103.1
Orenco Station (2002)	244.2	212.5
Beaverton	147.6	148.9
Lloyd Center	106.9	258.4
Gresham	188.4	133.6
Silicon Valley		
Mountain View (1993)	183.3	157.8
Mountain View (2002)	249.2	178.2
Whisman (1993)	15.3	47.1
Whisman (2002)	152.7	84.0
Japantown/Ayer	157.8	164.2

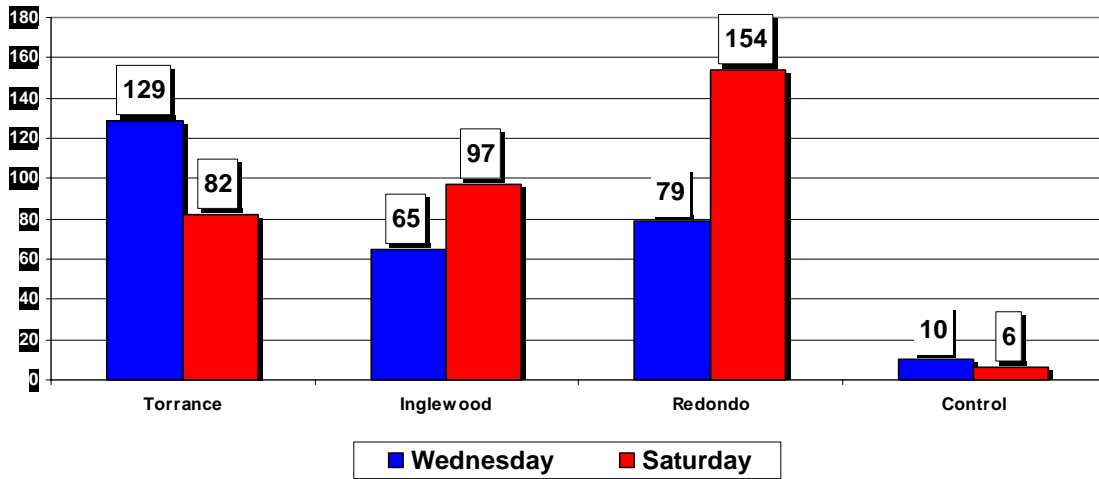
Meanwhile, pedestrian activity – although it varies from one center to the other – appears to be much higher than in surrounding suburban-style areas. As stated above, our pedestrian counts were taken in three locations in each center between noon and 1 p.m. on a Wednesday and on a Saturday in March and April of 2005. The locations were approximately equidistant from the centerpoint (about ¼ mile in three different directions) and were intended to gauge pedestrian activity at entry points to the inner area. In addition, we counted pedestrians in similar fashion at three locations in a “control area” – the vicinity of Pacific Coast Highway and Hawthorne, which was identified as high-density center No. 13 in the initial round of analysis (see Section 2.4) but was rejected as a finalist largely because of its lack of a village-type urban design. This area has similar demographics to Torrance and Riviera Village.

The particulars of pedestrian activity in each center are described in the previous sections. Overall, however, Torrance and Inglewood – the two centers with large employment bases adjacent – have more pedestrian activity on weekdays, whereas Riviera Village – the center surrounded by residential areas – has more pedestrian activity on weekends.

The most startling result, however, is the contrast between pedestrian activity in the three centers and pedestrian activity in the control area around PCH and Hawthorne. (Figure

3.4.11.) In the three centers, weekday pedestrian activity was 6 to 12 times greater in the centers than in the control area. Torrance recorded 129 pedestrians per hour on average compared to only 10 in the control area. Saturday pedestrian activity was between 14 and 24 times greater in the centers than in the control area. On Saturday, Riviera Village recorded 154 pedestrians per hour on average compared to only 6 in the control area.

Figure 3.4.11: Pedestrian Counts



4. Understanding the Travel Behavior of Center Users

The purpose of this study is to examine how existing mixed-use centers in the South Bay function in hopes of determining whether travel behavior in those centers differs from travel behavior elsewhere in the South Bay. The previous sections have sought to understand and characterize both the existing urban form of the South Bay and the physical conditions and nature of activities in the three centers selected for detailed study. But the greatest insight into the basic question will necessarily come from the users of the centers themselves – the residents, employees, and visitors.

Seeking to learn more about travel behavior directly from these “center users,” we undertook three separate surveys – one each for residents, employees, and visitors – and a series of focus groups which sought to understand (1) how people travel to and from the centers; (2) why they do so; and (3) what might motivate them to change their behavior so that they visit the center more and/or do so more often by modes other than the automobile.

The resident survey and the employee survey were extensive surveys that sought “travel diary” information as well as demographic information about the respondents. The visitor survey was a one-page document with only nine questions so that visitors could fill it out “on the fly” when approached by Solimar’s field survey team. We received almost 700 valid responses on the resident survey, as well as approximately 120 responses for the employee survey and approximately 270 responses for the visitor survey.

More detailed information about the surveys appears in Appendix E. This report presents only the results.

4.1 Survey of Residents

The resident survey was the most extensive survey we conducted. It consisted of more than 150 questions, including many “travel diary” questions asking residents to document their travel behavior in considerable detail. The survey was available online and was also mailed to residents in the three centers and in a control area – the ½-mile radius around Pacific Coast Highway and Hawthorne, which had been identified in the first round of analysis as a possible center but was later rejected because of its strip suburban nature. The control area has similar demographics to Downtown Torrance and Riviera village.

The use of a control group is an important part of this analysis. To understand whether persons travel differently in mixed use centers, travel in the centers must be compared to a base case, or control group. The control group area – the ½ mile radius around Pacific Coast Highway and Hawthorne – has a classic auto-oriented development pattern. While

the control area has both residential and shopping land uses, shopping is arrayed along arterials rather than integrated with the residential. Comparing travel behavior across the three mixed use centers and the control group allows us to test how the functionality and design elements characteristic of the mixed use centers influence travel behavior.

The resident survey combines two characteristics that are state-of-the-art in travel behavior research. First, few studies have used detailed travel surveys focused on small neighborhood areas. Much of what is known about travel behavior comes from travel diaries that cover entire cities or metropolitan areas, leaving little ability to make statistically valid inferences about very small neighborhoods.¹⁵ One of the contributions of this study is to demonstrate that detailed travel surveys can be implemented for small neighborhoods at relatively low cost. Second, few studies have used control groups to explicitly compare travel behavior across types of neighborhoods. The combination of a control group with a detailed travel survey has been used only rarely, and is unique in its application to southern California.

The survey, administered to residents in both the mixed use centers and the control group neighborhood, asked respondents questions about commuting (mode and distance), travel from their homes to the neighborhood center nearest their house, and the purpose of the trips. It also asked detailed questions about daily trips in order to obtain information that could be used to model travel behavior. Finally, the survey asked residents to respond to questions about what types of changes to their center would be most likely to encourage them to travel more often to that center.

4.1.1 Respondent Details

We received 693 valid survey responses from residents, allowing for an extremely detailed and statistically valid analysis of the results. These responses also gave us the ability to model probable travel behavior in the centers and the control area.

Of these, 234 came from Riviera Village (80 in the inner area, 154 in the outer area); 173 from Torrance (54 from the inner area, 119 from the outer area, 70 from Inglewood (7 in the inner area and 63 from the outer area), and 216 from the PCH/Hawthorne control area. The response rate was excellent, especially in the inner areas of Torrance and Riviera Village, where 7% of all residents and 10% of all households filled out the survey. (Figure 4.1.1.) The number of responses is high enough to permit meaningful statistical analysis in all areas except for the inner area of Inglewood. It should be noted that although only 7

¹⁵ Among the few studies that have used detailed travel surveys for small neighborhoods are Handy, Susan, "Understanding the Link Between Urban Form and Travel Behavior," *Journal of Planning Education and Research* 15,3: 183-198, 1996; Handy, Susan, Kelly Clifton, and Janice Fisher, *The Effectiveness of Land Use Policies as a Strategy for Reducing Automobile Dependency: A Study of Austin Neighborhoods*. Research Report SWUTC/98/467501-1, University of Texas, October, 1998; Kitamura, Ryuichi, Patricia Mokhtarian, and Laura Laidet, "A Micro-Analysis of Land Use and Travel in Five Neighborhoods in the San Francisco Bay Area," *Transportation* 24: 125-158, 1997.

residents of the inner area in Inglewood responded to the survey, this represented a response rate comparable to the other areas. Very few people live in the inner area of Inglewood. Nevertheless, the number of respondents is so small that we cannot attach statistical significance to any results from the inner area of Inglewood.

Figure 4.1.1: Resident Survey Sample Size

	Population			Housing		
	Total	Responses	% Response	Total	Responses	% Response
Inglewood	15,631	70	0.45%	6,173	70	1.13%
Inner	287	7	2.44%	219	7	3.20%
Outer	15,344	63	0.41%	5,954	63	1.06%
Riviera Village	7,092	234	3.30%	4,017	234	5.83%
Inner	1,139	80	7.02%	756	80	10.58%
Outer	5,953	154	2.59%	3,261	154	4.72%
Torrance	4,543	173	3.81%	2,273	173	7.61%
Inner	746	54	7.24%	518	54	10.42%
Outer	3,797	119	3.13%	1,755	119	6.78%
Total	27,266	477	1.75%	12,463	477	3.83%
Control Area		216				

In most respects, the demographic profile of the respondents was not significantly different in statistical terms from the demographic profile of the residents. The most significant problem was that Hispanic residents are underrepresented in the survey. (Figures 4.1.2 to 4.1.5.) The survey was not translated into Spanish, an oversight we would surely correct next time.

Figure 4.1.2: % of African Americans in Census and survey

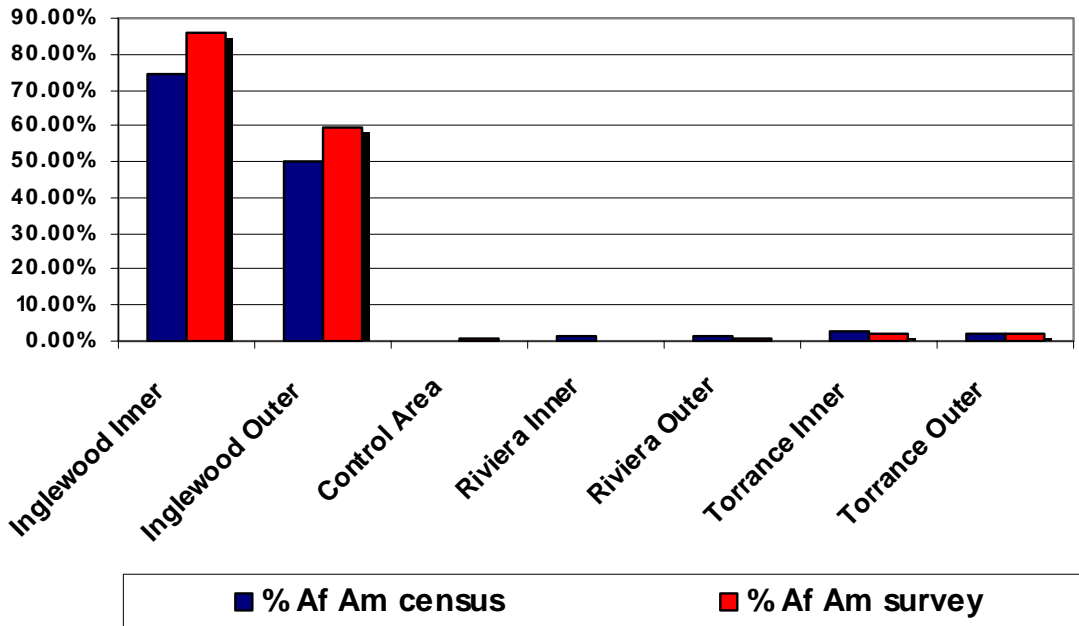
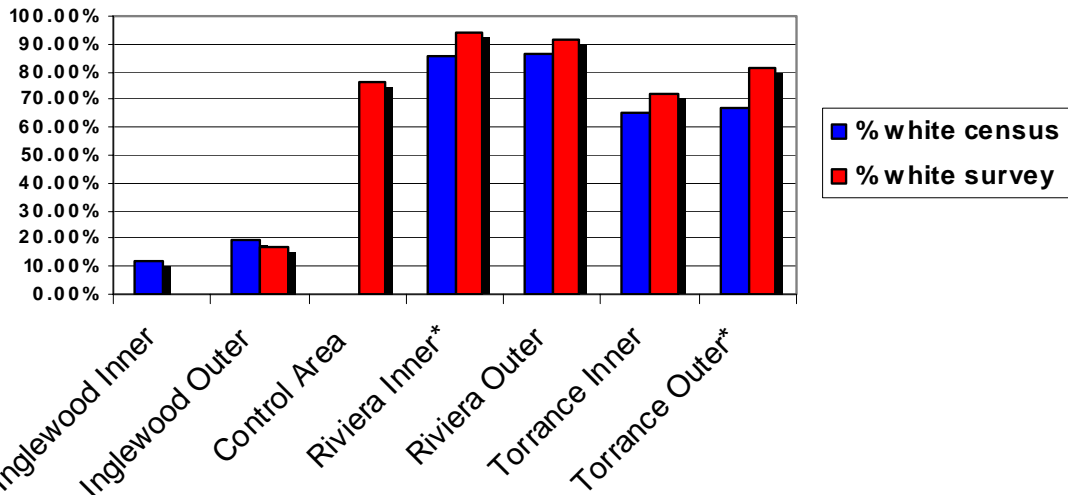
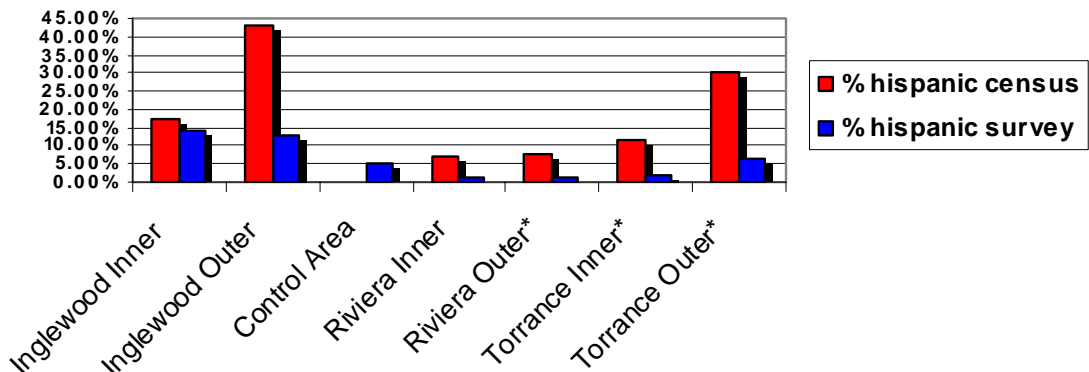


Figure 4.1.3: % White, Census and Survey

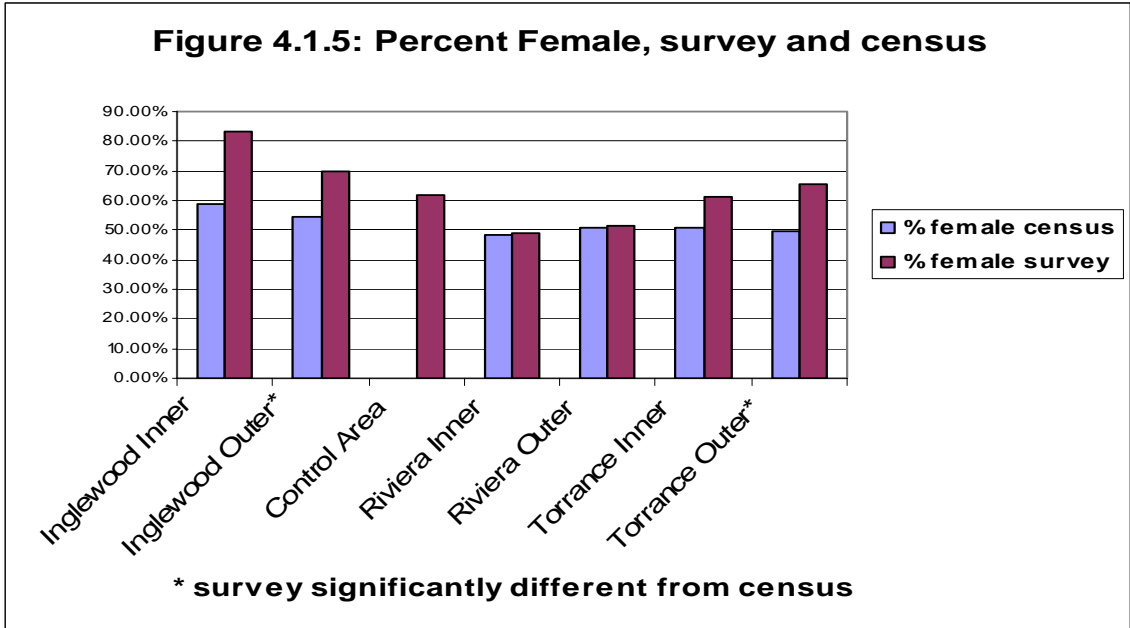


* survey significantly different from census

Figure 4.1.4: Percent Hispanic, survey and census

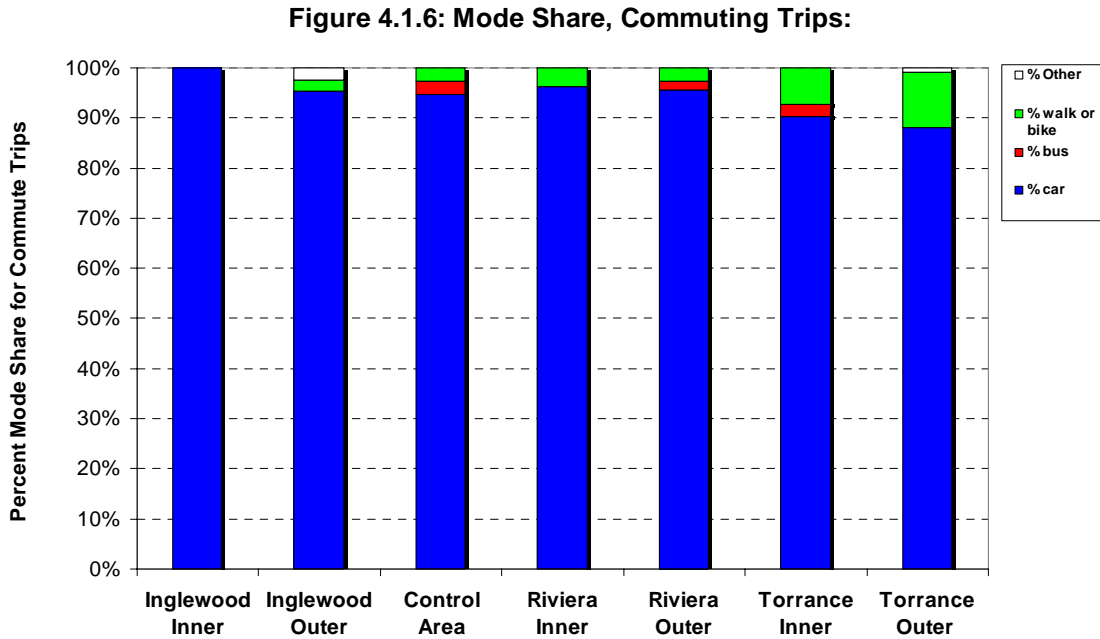


* survey significantly different from census; survey and census data not comparable



4.1.2 Travel Behavior of Residents

The survey asked respondents to describe their travel behavior in many different ways. Highlights are depicted in Figures 4.1.6 through 4.1.15.



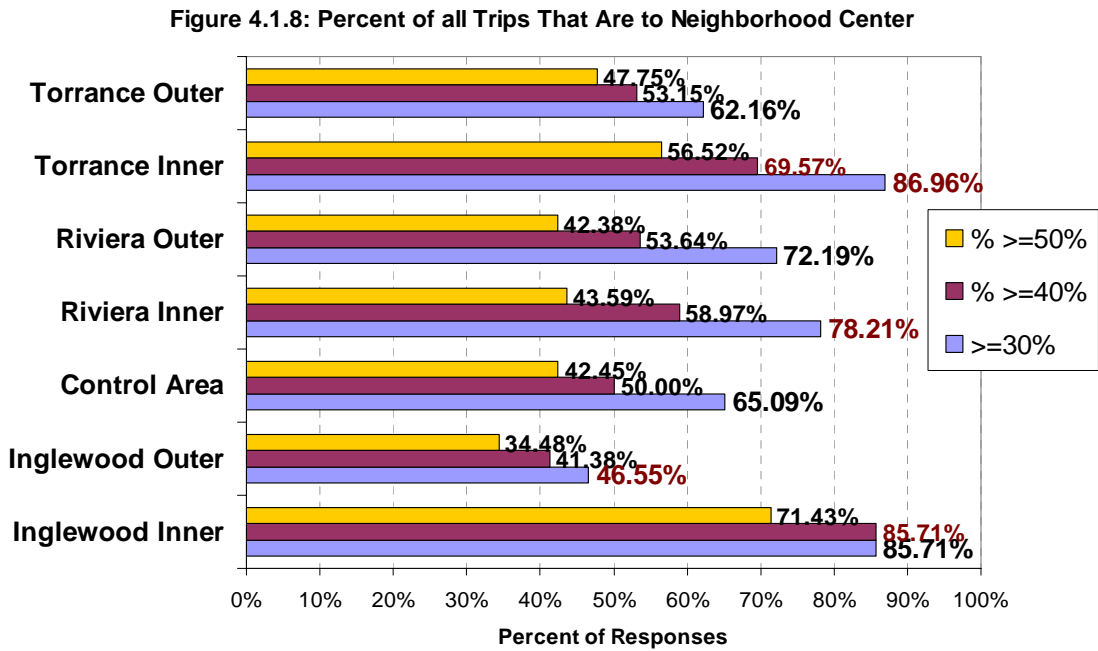
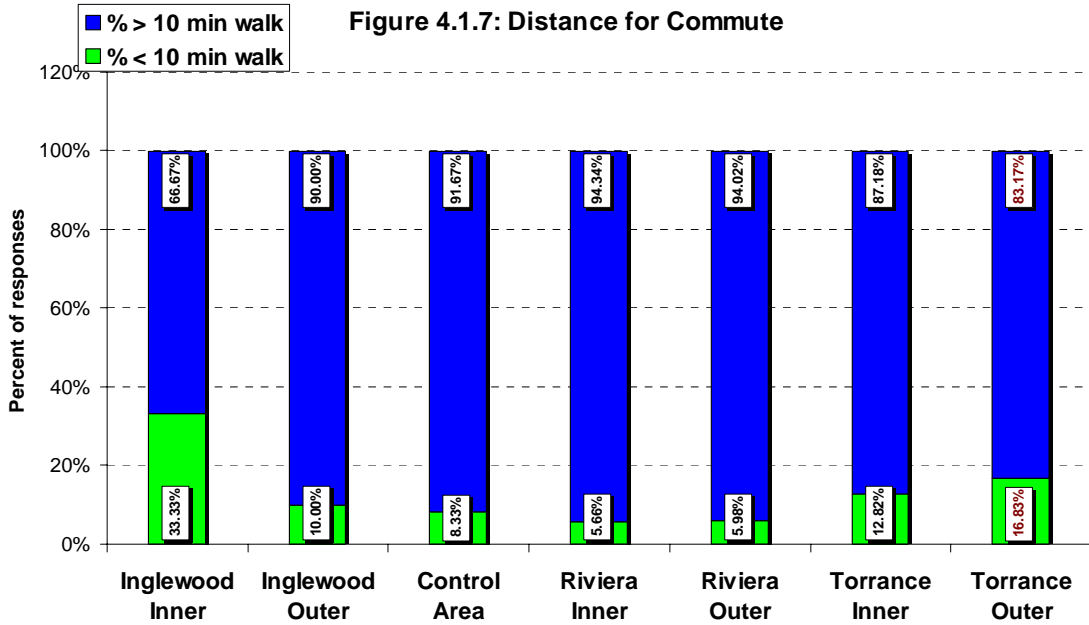


Figure 4.1.9: Usual Mode for Trips to Center

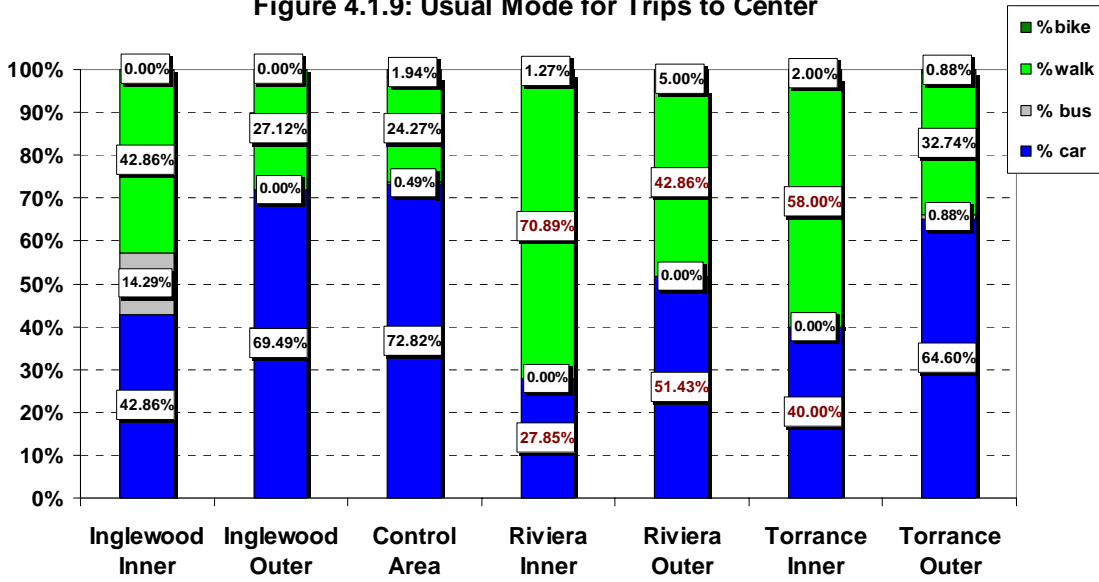


Figure 4.1.10: Typical Weekly Trips to Center to Eat a Meal

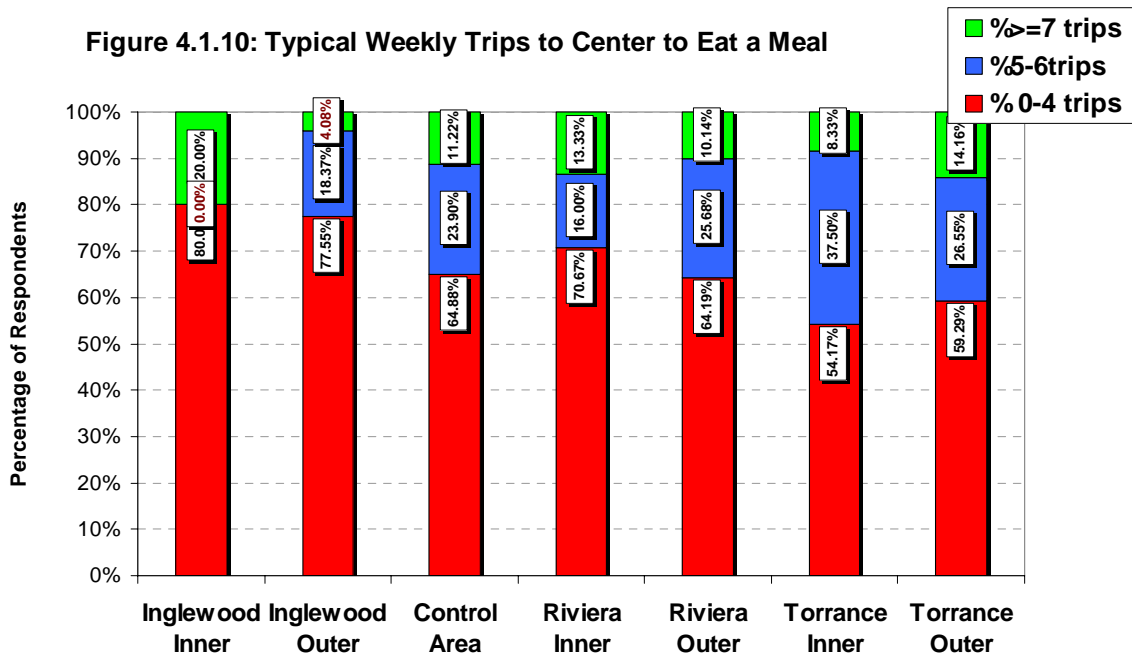


Figure 4.1.11: Typical Distance to Eat Meal

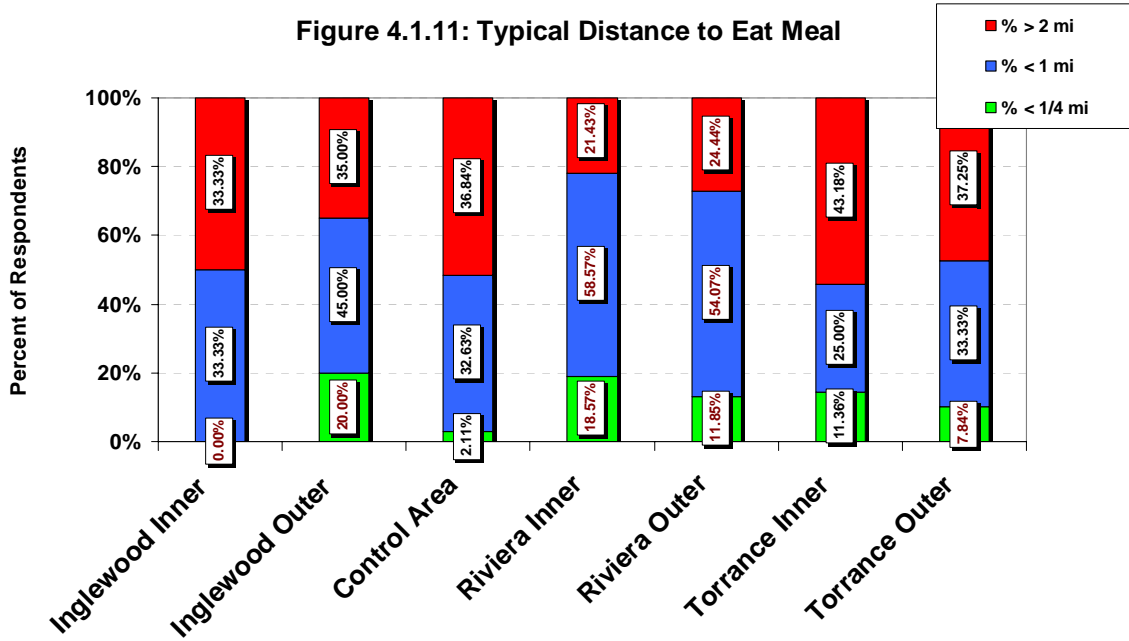


Figure 4.1.12: Usual Mode to Eat Meal

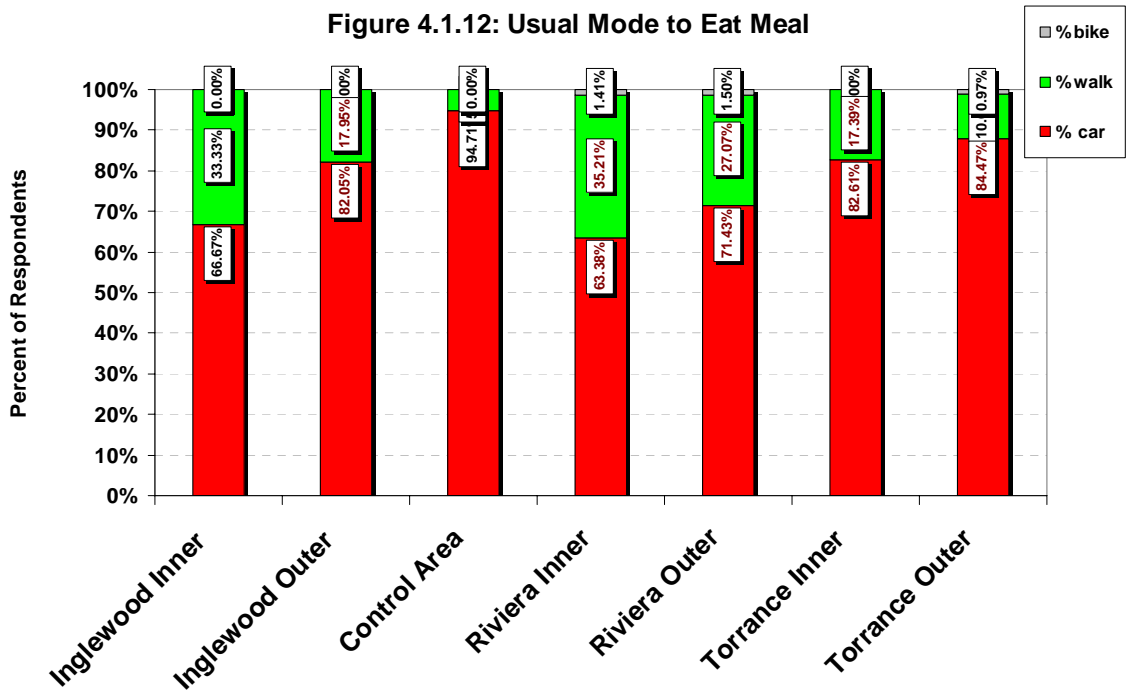


Figure 4.1.13: Typical Weekly Trips to Center to Buy Groceries

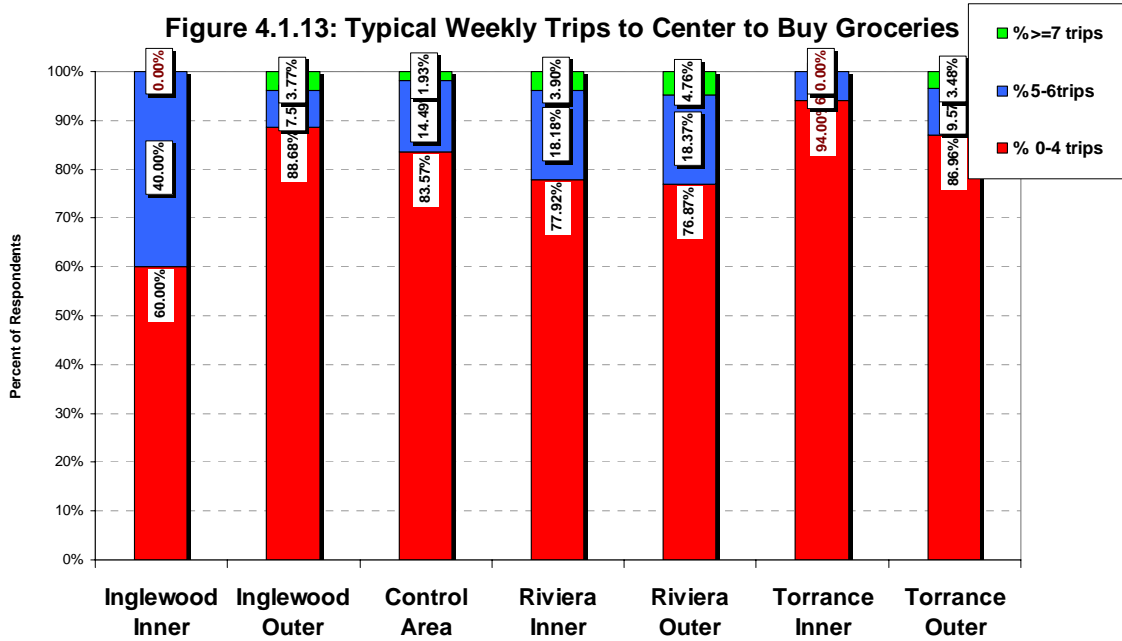
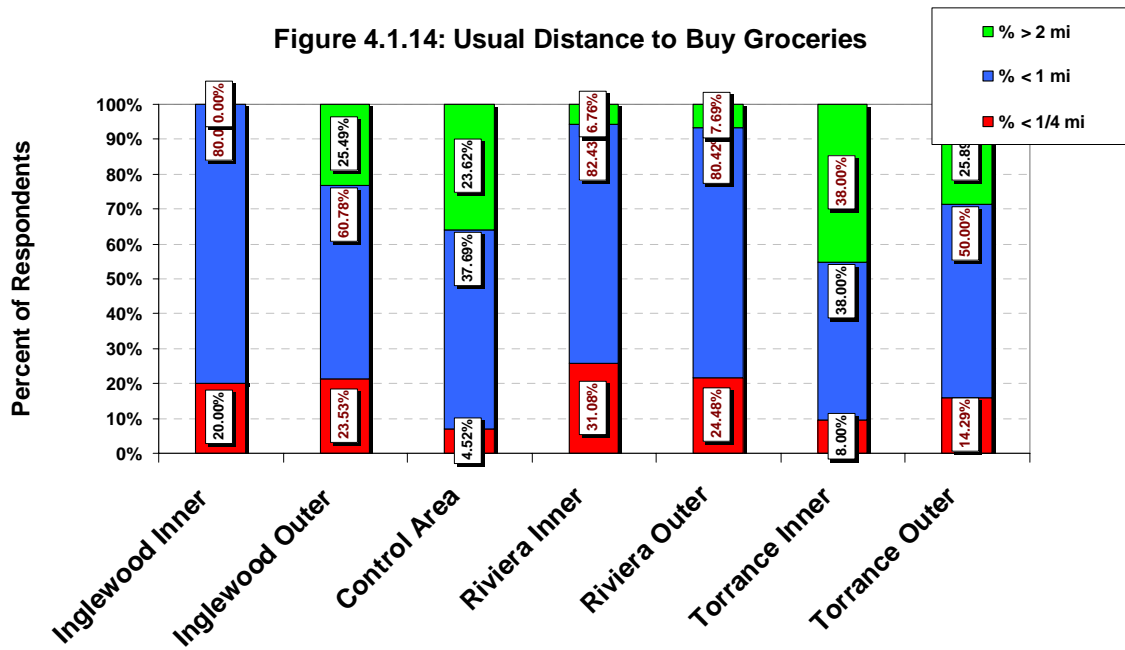
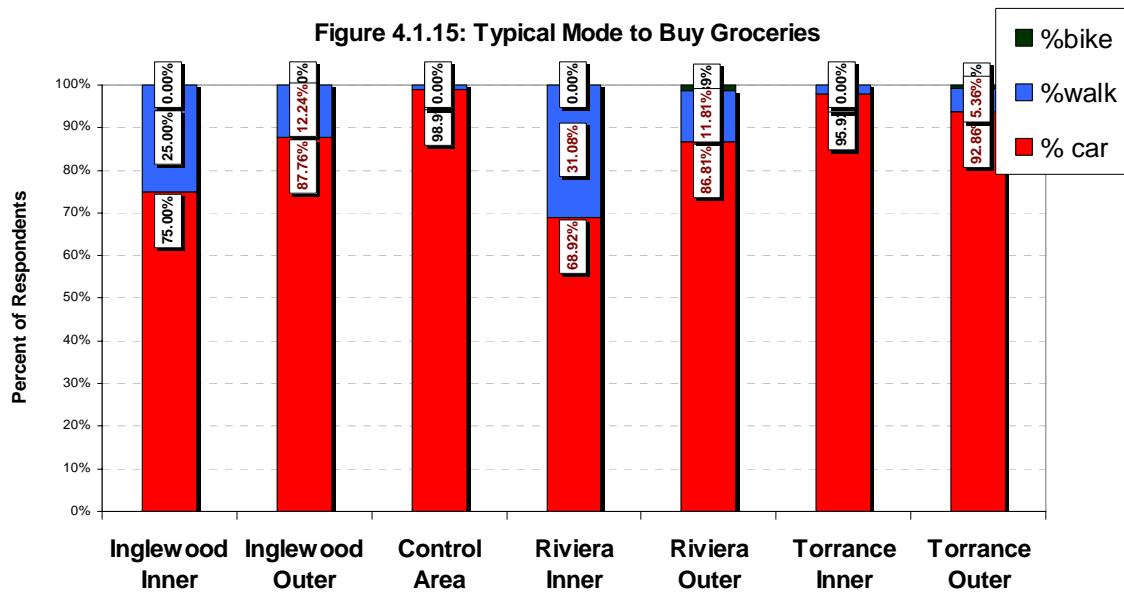


Figure 4.1.14: Usual Distance to Buy Groceries





Work Trips

Overall, 93% of residents said they drive to work, and this did not differ significantly between the control area and most of the centers. (Figure 4.1.6.) The proportion commuting by car does not vary much across the centers (the car commute mode share was below 90% only in Torrance outer ring), and the proportion commuting by car is almost identical to the car commute mode share for the SCAG region. The SCAG State of the Region report shows that in 2000 91% of workers in the SCAG region commuted by car, and in 2003 92% commuted by car.¹⁶

Virtually no respondents in the study areas commute by bus, even in Inglewood, where bus ridership is high and bus ridership was picked up in other surveys. The only center was a noticeable percentage of the work force walks to work is in Torrance, where 7% of the inner-area residents and 10% of the outer-area residents walk to work. This is higher than the walking commute mode shares for the other centers and also higher than the 2.1% walking commute mode shares for the SCAG region in 2003.¹⁷ This reinforces the idea that, even today, Torrance maintains some of its original “planned industrial suburb” character.

¹⁶ Ping Chang, *The State of the Region 2004: Measuring Regional Progress*, Southern California Association of Governments, December, 2004. The figures for commute mode share for the SCAG region exclude persons who work at home, to make the data comparable to the mode shares reported in Figure 4.1.6.

¹⁷ Chang, 2004.

A similar pattern emerges when examining distance to work. (Figure 4.1.7.) About 10% of all respondents said they live within a 10-minute walk of their job. But the figures were higher in Torrance and lower in the PCH control area and in Riviera Village. In Torrance, 13% of inner-area residents and 17% of outer-area residents said they live within a 10-minute walk (a statistically significant difference in the case of outer Torrance). The figure for the control area was 8% and for Riviera Village it was about 6% for both the inner and outer areas – a reflection of the fact that, unlike the other two centers, Riviera Village does not have a significant jobs base nearby. Again, Torrance’s “planned industrial suburb” character emerges, as does Riviera Village’s character as a neighborhood commercial village surrounded by residences.

Trips to Center

There were also significant differences between the centers and the control group in how frequently they travel to the center. (Control group residents were not asked about a specific center, but rather were simply asked about trips to “your neighborhood center.” The control area does have several strip centers along the arterial streets.)

Figure 4.1.8 depicts the percentage of residents in each area for whom their local center is the destination for a certain percentage of their daily trips (30%, 40%, or 50%). We will use the 30% threshold as an example, meaning that the nearby center is the destination for about a third of all trips daily trips.

Overall, 68% of all respondents said the center is their destination 30% of the time. This figure varied widely by area, however. (Figure 4.1.8.) Surprisingly, almost 66% of the respondents in the control area said their neighborhood center is their destination at least 30% of the time. In outer Inglewood, the figure was much lower – only 47% – suggesting that downtown Inglewood does not provide these residents with either the activities or commodities they need. The figure was higher in most other places, but in the inner area of both Torrance (87%) and Riviera Village (78%), the figure was so high as to be statistically significant.

The most striking differences, however, came in the statistics about what transportation mode residents use to go to the center. Overall, 39% of all survey respondents said they typically travel to the center by walking, while 58% said they travel by driving. (Very few respondents said they either bicycle or ride a bus.) However, there were statistically significant differences between the control area and several of the centers. (Figure 4-1-9.) In the control area, 73% of respondents said they drive to their center, while 24% said they walk. In the inner area of Riviera Village, however, the numbers were reversed – 71% said they walk, while 28% said they drive. Statistically significant differences in the mode were also found in the inner area of Torrance (58% walking v. 40% driving) and the outer area of Riviera Village (43% walking and 51% driving). By contrast, the statistics for outer Inglewood were very similar to the control area.

Travel Behavior for Common Personal Trips

The survey asked many questions about common personal trips such as eating a meal, grocery shopping, going to school, doing personal shopping, and seeking out entertainment and recreation opportunities. These results too showed significant differences between the control area and some of the centers. In this discussion we will highlight the patterns in two representative types of personal trips – eating a meal and grocery shopping.

Dining out close to home is often viewed as one of the most attractive aspects of living close to a center. One hypothesis would be that people who live close to a center that has restaurants will eat a meal in those restaurants more often than others. As Figure 4.1.10 shows, however, proximity to a center does not seem to affect the frequency of dining out. About 65% of all respondents, for example, said they dine out between 0 and 4 times per week, and this pattern did not differ significantly from center to center.

Proximity to the center does, however, affect both the distance that residents travel to eat a meal and the transportation mode they use. Regarding distance, in the control area only 2% of respondents said they travel ¼ mile or less to eat a meal, while 32% traveled a mile or less and 36% traveled 2 miles or more. But as Figure 4.1.11 shows, the numbers were quite different in some of the mixed-use centers.. In the inner area of Riviera Village, almost 20% said they travel ¼ mile or less and 58% said they travel 1 mile or less. The same pattern was found to be significant – though less pronounced – in outer Riviera Village; and the pattern repeated itself more gently (without statistical significance) in Torrance.

Perhaps the most pronounced difference came in the travel mode for eating a meal. In the control area, only 5% said they walk to eat a meal while 95% said they drive. But as Figure 4-1-12 shows, in Riviera Village, the numbers were starkly different – 35% of inner-area residents walk to eat a meal, as do 27% of outer-area residents. In inner Torrance and outer Inglewood, the walker figure was 17%.

The statistics on grocery shopping were somewhat similar, but they clearly point to the value of having grocery markets in or near the centers. Given the need to transport groceries from store to home, one hypothesis would be that travel behavior for grocery trips would not be very flexible. However, significant differences were found in Riviera Village and to a lesser extent in Inglewood and Torrance.

As Figure 4-1-13 shows, the number of weekly marketing trips seems mostly unaffected by proximity to the center, though it is interesting to note that inner Torrance residents are significantly more likely to make fewer such trips. However, the presence of several large grocery stores (including Trader Joe's, Bristol Farms, and Vons) in both the inner and outer areas of Riviera Village strongly affects other aspects of travel behavior. As Figure

4.1.14 shows, four out of five Riviera Village respondents do grocery shopping within one mile of their home – compared to only less than 50% in the control area and Torrance and about 60% in outer Inglewood.

Proximity to the center, however, affects travel mode, especially in Riviera Village and outer Inglewood. In Torrance and the control area well over 90% of respondents drive to the grocery store. In outer Inglewood, however, 12% walk. In Riviera Village, 11% of respondents in the outer area walk – and an astounding 31% of inner-area residents walk.

Modeling Travel Behavior Across Centers

The detailed questions contained in the resident travel survey permitted us to use regressions and other statistical techniques to create models of travel behavior across centers. In essence, these models permit us to separate out residence in a center as a determinant of travel behavior while holding other factors constant, such as age, gender, and income. Before presenting the results of these regression models, we compare some basic travel indicators for our survey respondents with data from other travel surveys.

On average, respondents took 2.64 trips during their one-day travel diary. The average number of daily trips per person varied from a low of 1.73 in the outer ring of Inglewood to a high of 3.41 for the Pacific Coast Highway control group. Inglewood residents took fewer daily trips – approximately 1.8 – compared to other centers where the average number of daily trips, per person, ranged from 2.76 to 3.41. In travel behavior jargon, the number of daily trips is a trip generation rate. The trip generation rates in this study are slightly below national rates. The National Household Travel Survey found that, in 2001, persons took on average 3.74 trips.¹⁸

Among 693 survey respondents with usable travel diary data for walking, 12.4% took a walking trip during their one-day diary period. This is remarkably consistent with data from other urban areas. Approximately 25% of Portland residents took at least one walking trip sometime during a two-day travel diary period, and 12.4 percent of a sample of Minneapolis-St. Paul residents took a walking trip during a one-day travel diary period.¹⁹ Overall, the data for commute mode, total trip generation, and fraction of the sample that took a walking trip are consistent with values from other studies. The fact that the survey

¹⁸ Hu, Patricia S. and Timothy R. Reuscher, *Summary of Travel Trends: 2001 National Household Travel Survey*, U.S. Department of Transportation Federal Highway Administration, December, 2004, p.12. available at <http://nhts.ornl.gov/2001/pub/STT.pdf>

¹⁹ For Portland walking data, see Greenwald, Michael and Marlon G. Boarnet, “The Built Environment as a Determinant of Walking Behavior: Analyzing Non-Work Pedestrian Travel in Portland, Oregon,” *Transportation Research Record*, number 1780, pp. 33-42, 2002. For Minneapolis-St. Paul walking data, see Krizek, Kevin J. and Pamela Jo Johnson, “The Effect of Neighborhood Trails and Retail on Cycling and Walking in an Urban Environment,” *Journal of the American Planning Association* 72,1, Winter, 2006 (forthcoming).

gives a basic picture of travel that is similar to other more extensive and more expensive travel survey efforts provides some confidence in the quality of the resident survey.

Yet the focus of this study is on variation in travel across the mixed-use centers and especially on comparisons between the mixed-use centers and the control group, and we return to that topic now. We modeled driving and walking trips as a function of age, gender, and income. These models suggest that residence in one of the three mixed-use centers is likely to result in less overall travel, fewer driving trips, and more walking trips than residence in the control area around PCH and Hawthorne. For details on the modeling technique, see the appendix.

Figure 4.1.16 shows the predicted number of trips taken per day by a female age 26-40 with an income of between \$55,000 and \$75,000 in each of the centers. The model predicts that such a woman living in the control area will take 3.36 trips per day – a figure well within the normal range of travel found in the literature. However, residence in any mixed-use center will cause the trip forecast to drop. This woman would likely take only about 2.2 trips per day in the outer area of Inglewood and 2.7 trips per day in the outer area of Riviera Village – both of which are statistically significant. Residence in the other centers would cause a trip rate of about 3 per day – still lower but not statistically significant.

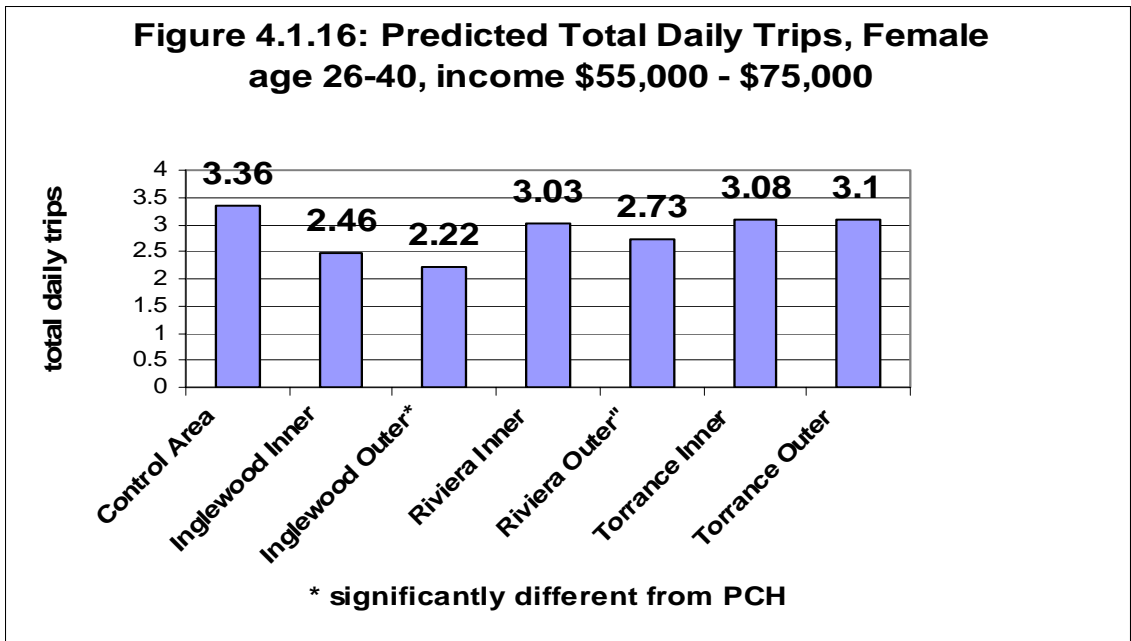


Figure 4.1.17 shows the predicted number of driving trips taken by our hypothetical woman. She would take 3 driving trips a day in the control area, but only about 2.7 driving trips in Torrance and 2.5 driving trips in the inner-area of Riviera Village – lower but not statistically significant. She would take only about 2.3 driving trips in outer Riviera Village and only 1.6 in outer Inglewood – both statistically significant numbers.

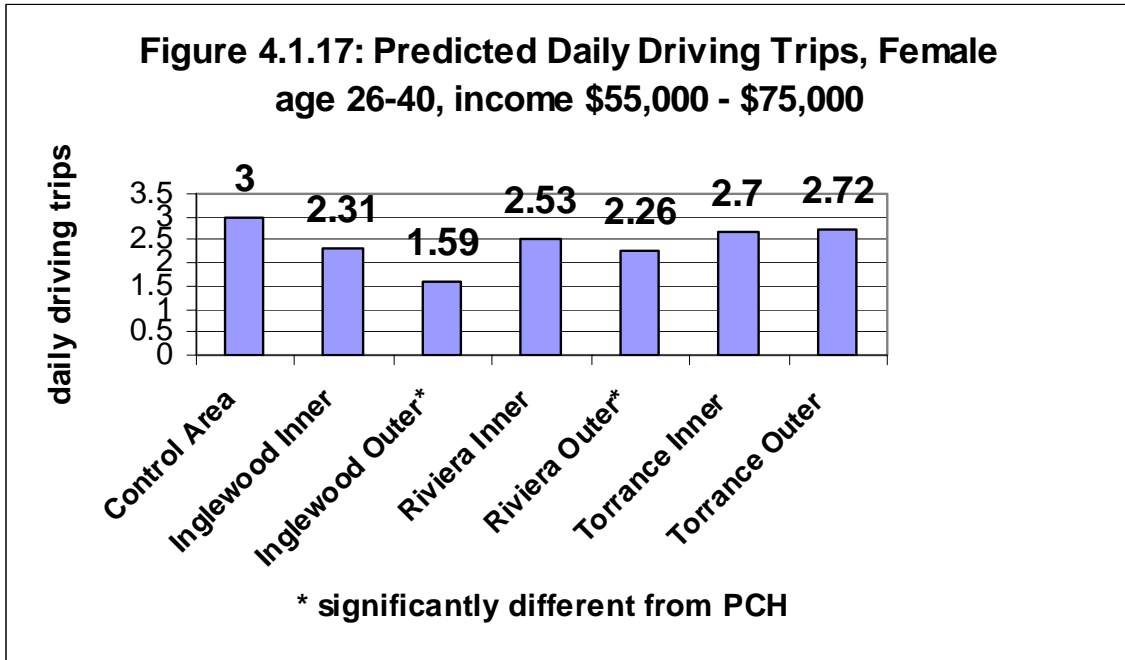
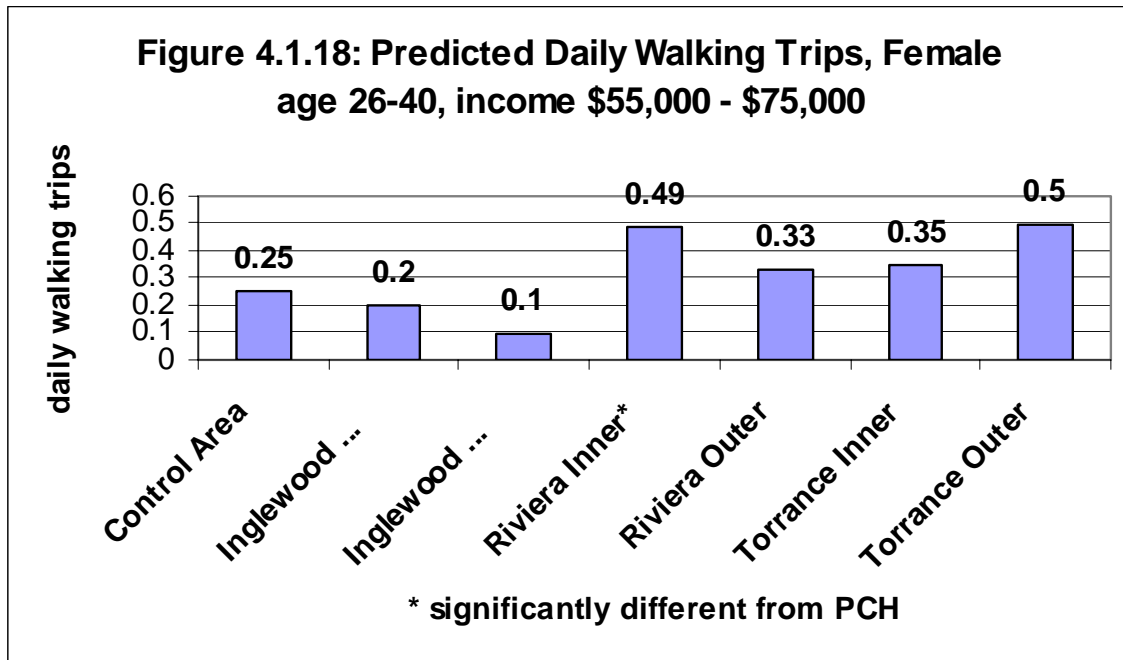


Figure 4.1.18 shows the predicted number of walking trips this woman would take. In the PCH control area, the forecast would be about 0.25 walking trips – one every four days, a figure that once again is supported by other literature. This figure would be much lower in outer Inglewood, where fewer trips would be made at all. In outer Riviera Village and inner Torrance, the forecast would be for about 0.3 walking trips – one walking trip every three days, a figure that is lower but not statistically significant. In inner Riviera Village and outer Torrance, the prediction would be for 0.5 trips – one every two days – twice as many as in the control area. This figure is statistically significant in the case of inner Riviera Village.



Factors That Would Increase Travel to the Center

In addition to asking residents to document their actual travel behavior, the resident survey also asked residents a series of questions about what changes might encourage them to use their center more. In general, these questions fell into four categories:

1. Changes in the physical design of the center (more public spaces, slower traffic, more night lighting).
2. Changes in the activities and businesses located in the center (entertainment, shopping, groceries, jobs)
3. Changes in the transportation choices available for travel to the center (more and more frequent bus and shuttle service)
4. Changes in the local crime rate.

Figures 4.1.19 to 4.1.22 document how respondents in each center ranked the importance of these different changes. To make reading these charts easier, we have depicted these four categories in different colors as follows:

1. Physical design changes are depicted in red.
2. Activity changes are depicted in yellow.
3. Transportation changes are depicted in green.
4. "Less crime" is depicted in blue.

**Figure 4.1.19: What Would Encourage More Walk Bike Trips?
(Inglewood)
Percent Stating Factor "Important" or "Very Important"**

Inglewood (Inner)		Inglewood (Outer)	
MOREEAT	71%	LESSCRIME	76%
MOREENT	71%	NITELITE	60%
MOREWORK	71%	MOREPLAZA	60%
MOREPLAZA	71%	MOREENT	59%
FREQSHUT	57%	SLOTRAF	56%
BUSDEST	57%	MOREAMEN	56%
NITELITE	57%	MOREEAT	54%
SIDEWALK	57%	MORESHOP	52%
SLOTRAF	57%	SIDEWALK	49%
MORESHOP	57%	MOREPSERV	48%
MOREAMEN	57%	MOREWORK	46%
MOREBIKE	57%	SHUTTLE	43%
LESSCRIME	57%	BUSDEST	41%
SHUTTLE	43%	MOREGROC	41%
FREQTRANS	43%	FREQSHUT	40%
MOREGROC	43%	TRANSIT	37%
MOREPSERV	43%	FREQTRANS	37%
TRANSIT	29%	MOREBIKE	32%

**Figure 4.1.20: What Would Encourage More Walk Bike Trips?
 (Riviera Village)
 Percent Stating Factor “Important” or “Very Important”**

Riviera Village (Inner)		Riviera Village (Outer)	
LESSCRIME	56%	MOREPLAZA	57%
MOREPLAZA	51%	MOREAMEN	55%
MOREENT	49%	LESSCRIME	52%
MOREAMEN	49%	MOREBIKE	49%
SLOTRAF	41%	SLOTRAF	48%
MOREEAT	41%	NITELITE	39%
MOREBIKE	41%	MOREENT	35%
SIDEWALK	31%	SIDEWALK	33%
MORESHOP	30%	MOREEAT	33%
MOREWORK	28%	BUSDEST	24%
NITELITE	26%	MORESHOP	23%
SHUTTLE	25%	MOREWORK	22%
BUSDEST	24%	MOREGROC	19%
FREQSHUT	19%	SHUTTLE	18%
MOREGROC	19%	FREQSHUT	17%
MOREPSERV	18%	TRANSIT	16%
TRANSIT	16%	FREQTRANS	14%
FREQTRANS	11%	MOREPSERV	12%

**Figure 4.1.21: What Would Encourage More Walk Bike Trips?
(Torrance)
Percent Stating Factor “Important” or “Very Important”**

Downtown Torrance (Inner)		Downtown Torrance (Outer)	
LESSCRIME	57%	LESSCRIME	68%
MOREEAT	50%	MOREPLAZA	62%
MOREENT	50%	MOREAMEN	57%
MOREPLAZA	48%	MOREEAT	52%
MOREGROC	46%	SLOTRAF	51%
MOREAMEN	43%	NITELITE	49%
NITELITE	41%	MOREENT	49%
SLOTRAF	41%	MOREBIKE	47%
MORESHOP	41%	SIDEWALK	45%
BUSDEST	39%	MOREGROC	45%
SHUTTLE	37%	MORESHOP	42%
MOREWORK	37%	BUSDEST	29%
FREQSHUT	31%	MOREWORK	29%
MOREBIKE	31%	SHUTTLE	26%
TRANSIT	30%	MOREPSERV	24%
FREQTRANS	30%	FREQSHUT	24%
SIDEWALK	26%	FREQTRANS	18%
MOREPSERV	24%	TRANSIT	17%

**Figure 4.1.22: What Would Encourage More Walk Bike Trips?
(PCH/Hawthorne Control Area)
Percent Stating Factor “Important” or “Very Important”**

PCH/Hawthorne (Control)	
LESSCRIME	66%
MOREPLAZA	58%
SLOTRAF	54%
MOREAMEN	51%
MOREBIKE	46%
SIDEWALK	44%
NITELITE	40%
MOREENT	31%
BUSDEST	31%
MOREGROC	29%
MOREEAT	28%
MORESHOP	26%
SHUTTLE	26%
FREQSHUT	23%
MOREWORK	20%
TRANSIT	20%
FREQTRANS	19%
MOREPSERV	19%

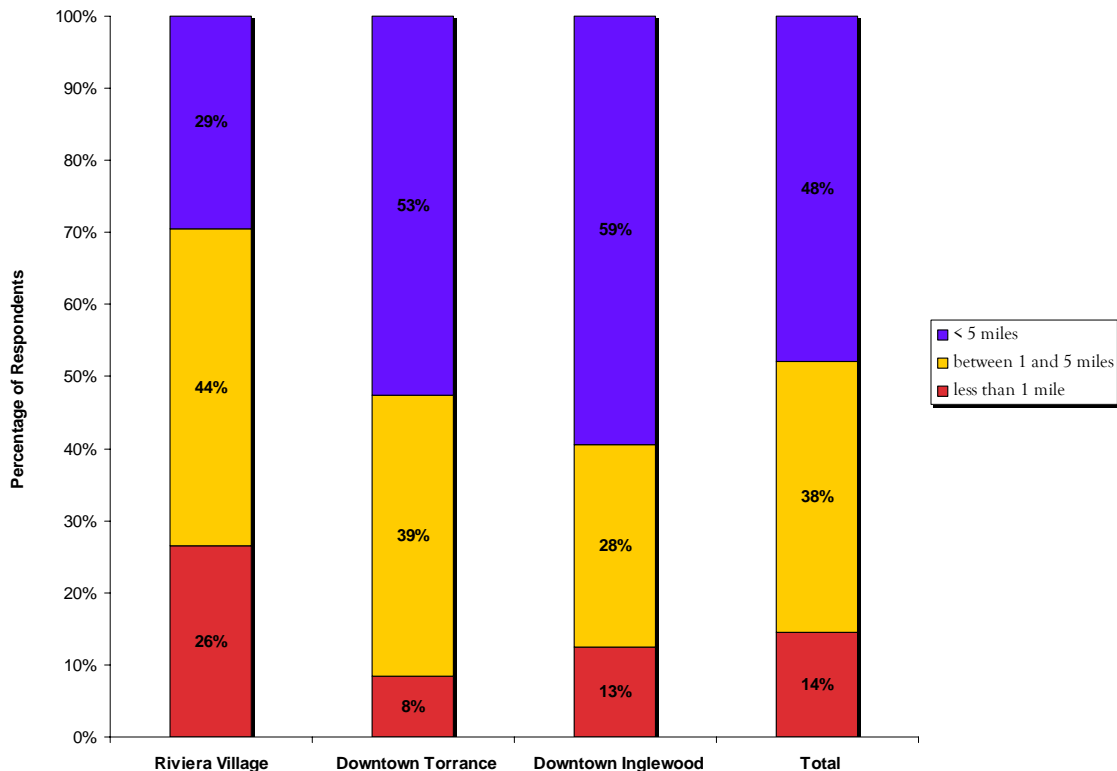
Not surprisingly, less crime ranked very high in all areas – ranking first in five of the seven centers, including the control area. Setting the crime issue aside, however, the general pattern was that changes in activities and physical design ranked high, whereas changes in transportation choices ranked low. More public plazas and slower traffic ranked high in most centers, as did more amenities and more entertainment opportunities. Interestingly, this was less true in the control area than in the other centers; in the control area, more bike lanes and more sidewalks ranked high. The control area is, of course, more auto-oriented than the other centers.

4.2 Survey of Employees

As part of the travel behavior study, we also disseminated a similar survey to employees in each center. The distribution effort for employee surveys was not as extensive as the distribution effort for resident surveys, and as a result approximately 124 employees in the three centers responded to the survey (32 from Inglewood, 33 from Riviera Village, and 59 from Torrance). The demographic profile of the respondents was not similar to the demographic profile of the resident respondents. Respondents were mostly women and high education; also, 20% of respondents were Asian, a much higher figure than in the resident survey. These surveys were not distributed in the control area.

As in figure 4.2.1, about 14% of the respondents overall said they live within one mile of the Center where they work. This figure was highest in Riviera Village and lowest in Torrance – surprising considering that Torrance has the most jobs and also other surveys suggested a high level of residents who both live and work in the same center. Most of the Torrance respondents worked at the American Honda Co. Virtually all employees reported driving to work. This is consistent with the resident commute results shown in Figure 4.1.6.

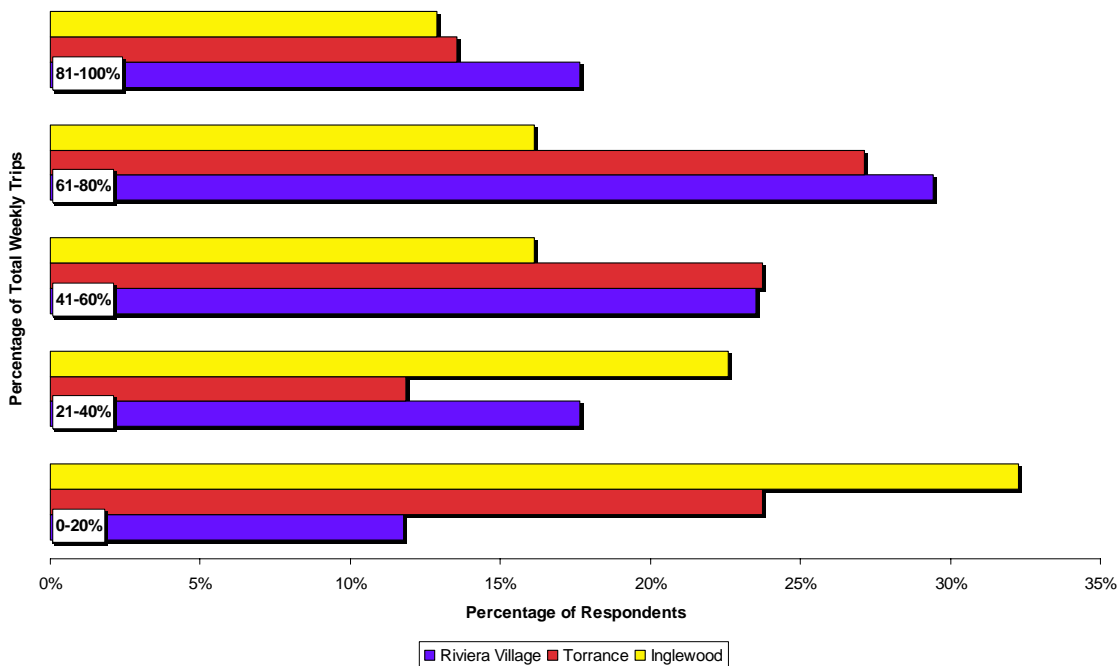
4.2.1 Employee Survey: Commute Distance



Once employees are at work, however, their travel behavior varies considerably from center to center, and does suggest that proximity to the center encourages both more trips and more walking.

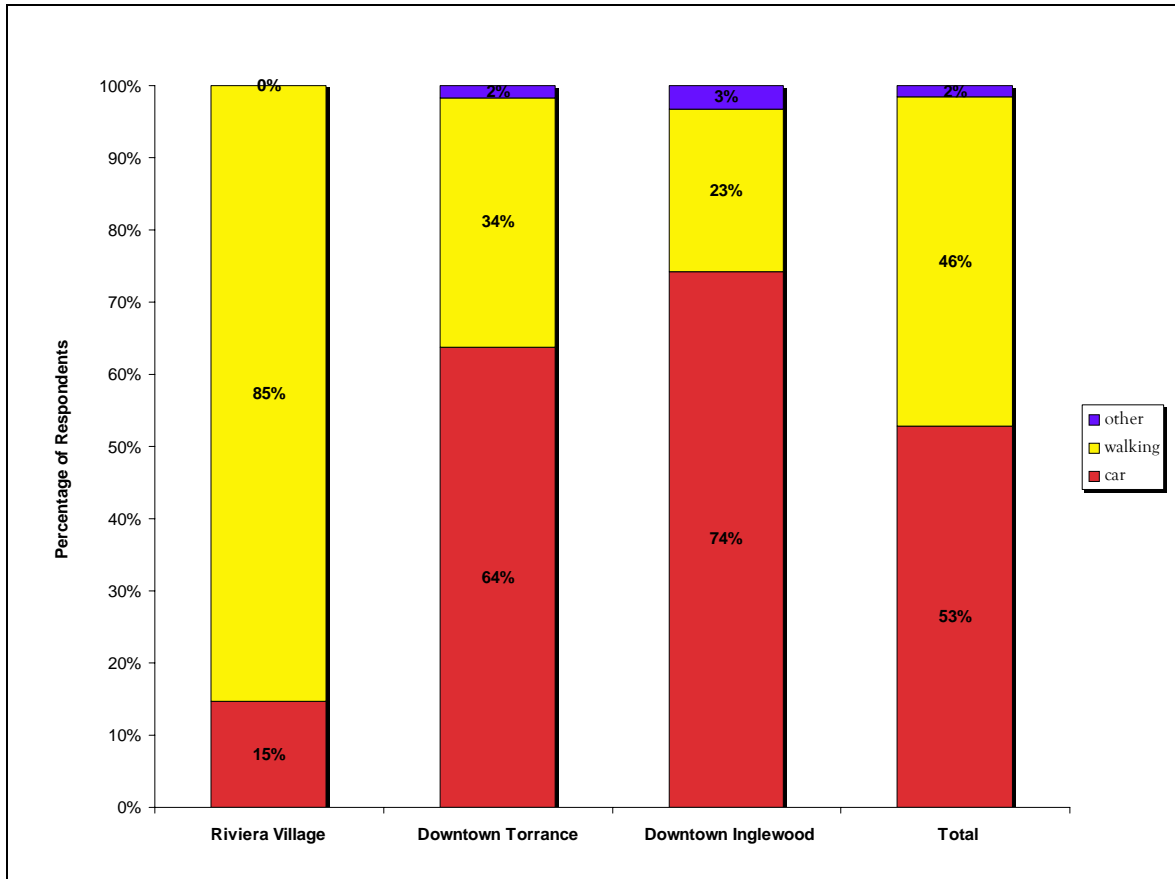
When asked how frequently their mixed-use center serves as the destination on a trip from work, about 40% of all respondents said the center is their destination at least 60% of the time. (Figure 4.2.2.) This figure was slightly higher in Riviera Village and much lower in Inglewood. In general, Riviera Village workers travel mostly to and within the center during the work day, while Inglewood workers travel mostly outside the center, and Torrance workers fall somewhere in between.

4.2.2 Employee Survey: What % Of Your Workday Trips Are To The Center?



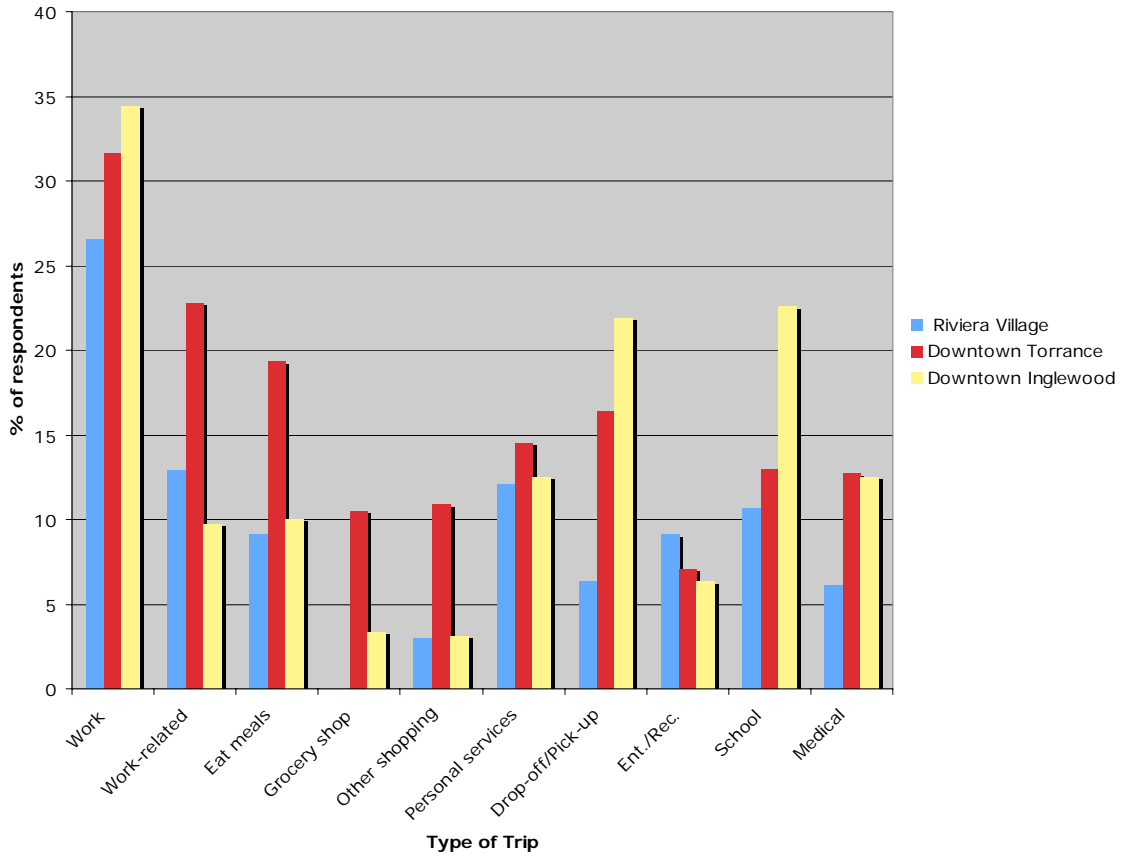
More than half of all employees said they walk on their trips to the center during the workday. (Figure 4.2.3.) But figures for the individual centers are dramatically different. In Riviera Village, 85% of workers walk. By comparison, the figure was 34% in Torrance and 23% in Inglewood. This probably a reflection, at least partly, of the fact that in Torrance and Inglewood large job centers lie outside the inner boundary, whereas in Riviera Village most jobs are located within the pedestrian-oriented inner boundary.

4.2.3 Employee Survey: Travel Mode for Workday Trips

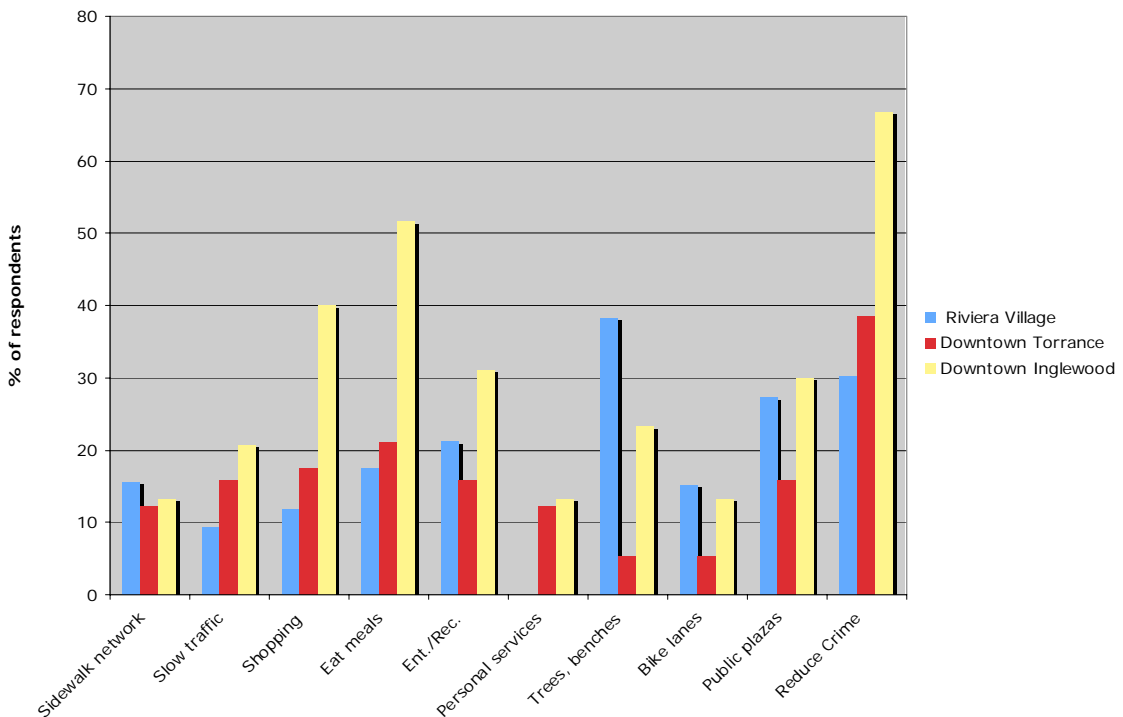


Interestingly, workers in all three areas agreed that reducing work- and work-related auto trips was a desirable goal. (Figure 4.2.4.) But there were differences among the three centers as to what types of improvements would be most helpful in encouraging people to switch modes. (Figure 4.2.5) Inglewood workers were concerned about basic items – crime reduction, shopping, eating, and entertainment. Riviera Village workers were most focused on streetscape improvements – trees, benches, public plazas.

4.2.4 Employee Survey: "Very Important" to Reduce These Trips



4.2.5 Employee respondents who say these factors are "very important" in encouraging more bike/walk trips

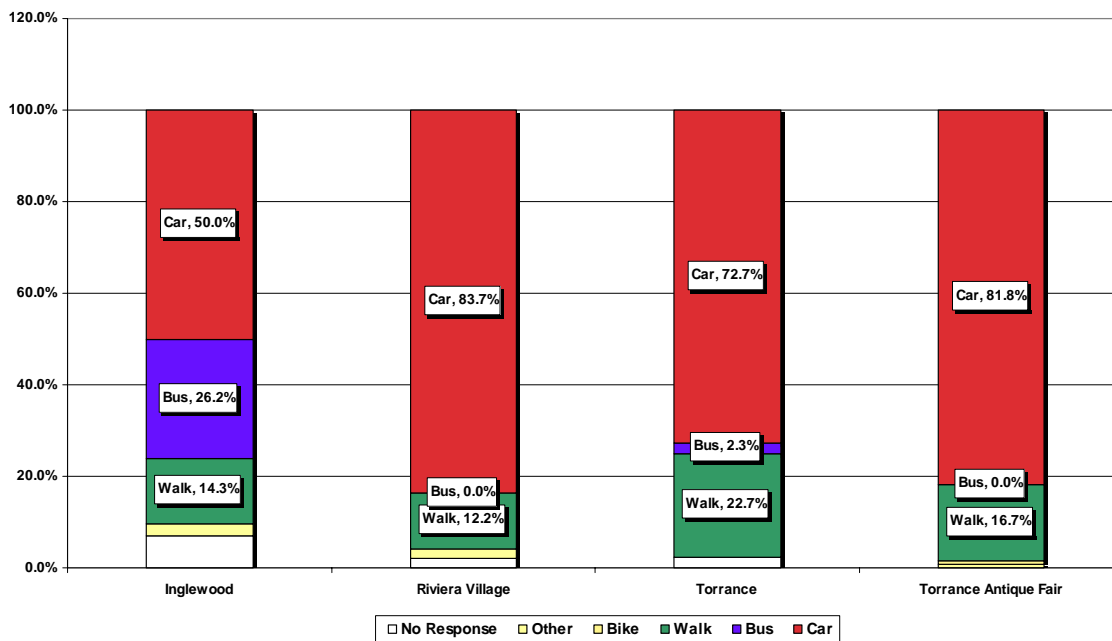


4.3 Survey of Visitors

In addition to resident and employee surveys, we also conducted a less rigorous but still useful survey of visitors. This one-page survey was handed out to passers-by on the sidewalk, mostly by the field crew after completing the pedestrian counts, and filled out on the spot. As with the employee survey, the overall number of respondents was much lower than in the resident survey. Overall, 267 surveys were completed, including 42 for Inglewood, 44 for Torrance, 49 for Riviera Village, and 132 at the Torrance Antique Fair in April 2005. The Antique Fair yielded such different results that we separated those results out from the other Torrance results.

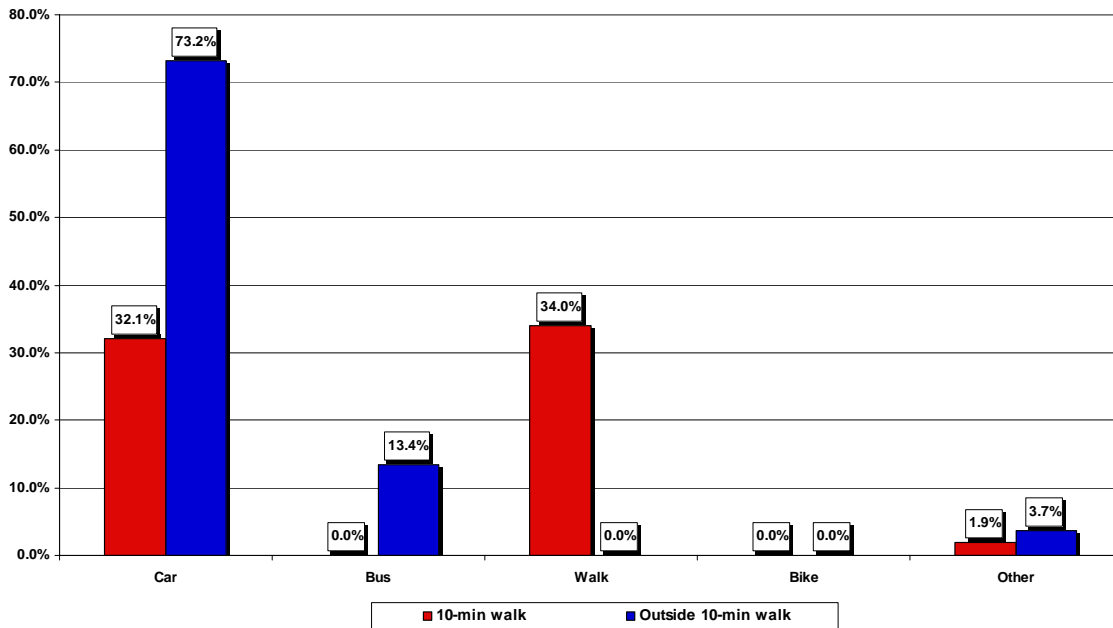
Although most visitors arrived by car, there was an underlying 14-17% of respondents who walked to the center (22% in Torrance). (Figure 4.3.1.) In addition, in Inglewood 26% of respondents arrived by bus, meaning only half of respondents in Inglewood drove. It is possible that bus riders were overrepresented in Inglewood because the survey was handed out to pedestrians. Interestingly, when respondents were asked how they *typically* travel to the center, as opposed to how they traveled on that day, more people said they walk and fewer people said they drive.

Figure 4.3.1: Visitor Survey: How Did You Get Here Today?



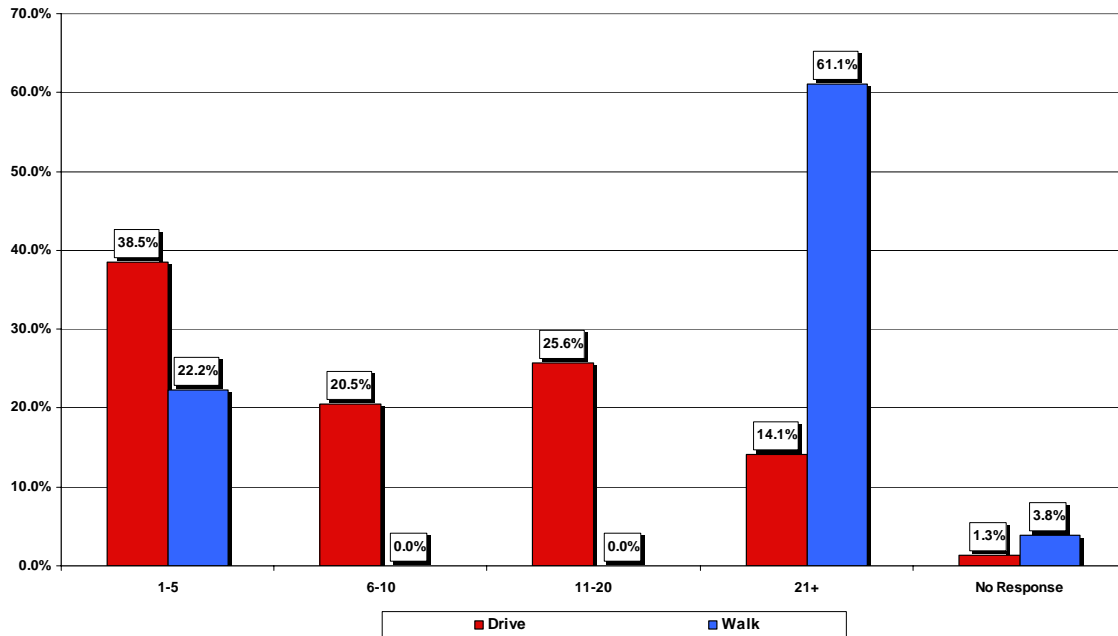
Proximity to the center appears to play a powerful role in determining the mode. When asked how they typically travel to the center, 73% of those residents who live beyond a 10-minute walk from the center said they drive. Among those who live within a 10-minute walk, however, respondents were evenly split between walking and driving. (Figure 4.3.2.)

Figure 4.3.2: Visitor Survey: Mode By Place of Residence



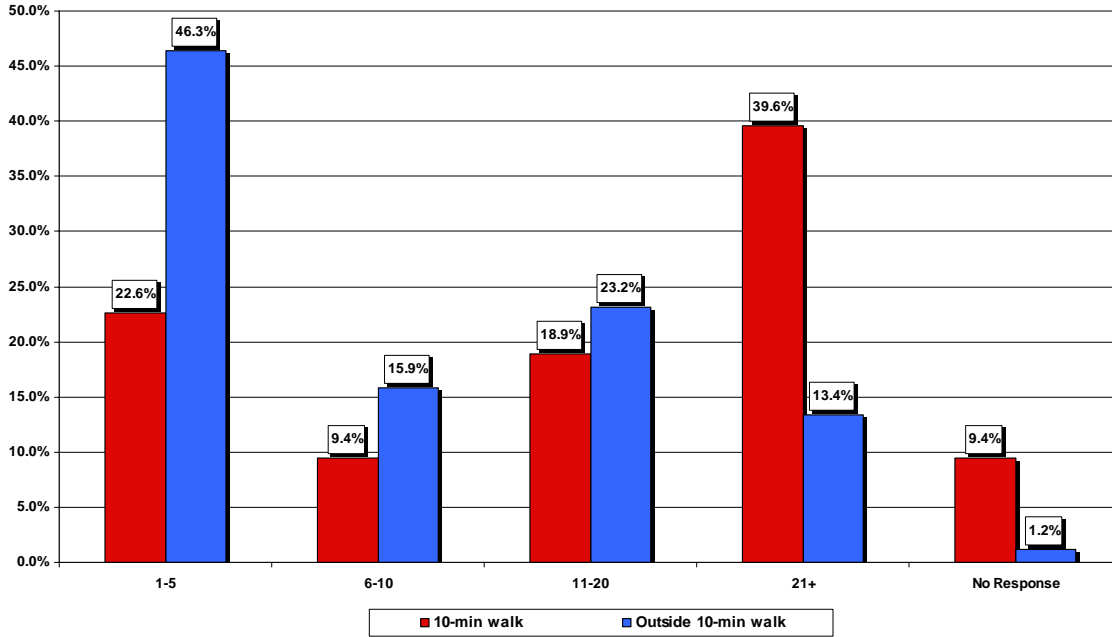
Both the mode of travel and the place of residence also appear to affect how frequently people visit the center. Frequency of trips varies greatly among those who drive to the center. Among those who walk to the center, however, more than 60% said they visit the center 21 times per month or more – essentially, every weekday. (Figure 4.3.3.) Similarly, among those who live more than a 10-minute drive away, almost half said they visit the center no more than 5 times per month. By contrast, 40% of those who live within a 10-minute walk visit 21 times per month or more – compared to only 14% of those who live further away.

Figure 4.3.3: Visitor Survey: Monthly Trips to the Center by Typical Mode of Travel



Finally, those respondents who work within 10 minutes of the center (but filled out the visitor survey) are much more likely to visit the center frequently. (Figure 4.3.4.) Among those who work within a 10-minute walk, more than half said they visit the center 21 times per month or more – essentially, every work day. By contrast, more than 40% of those who said they work 10 minutes away or more said they visit the center no more than five times per month.

Figure 4.3.4: Visitor Survey: Monthly Trips to the Center by Place of Residence



4.4 Focus Groups

In addition to the three surveys, we also conducted two focus groups – one in Riviera Village and one in Downtown Torrance – to seek a deeper understand how and why residents and employees use these centers.

Torrance

The Torrance focus group included eight people – some residents, some employees, and some business owners. Many had longstanding ties to Torrance and especially to Downtown Torrance. All the residents lived in the inner area of Torrance, close to the commercial downtown.

In general, the participants expressed a great deal of satisfaction with their involvement in Downtown Torrance. Many of the residents said they moved there to buy a charming older house. They described their area as an “oasis” but also said that Downtown Torrance’s geographical position within the South Bay and Southern California – close to freeways and many other destinations – was also attractive.

The residents said they frequent the area’s bars and restaurants as well as neighborhood businesses such the dry cleaner and the drug store. Some also bank or use professional

services such as an accountant located in the downtown. One resident said Downtown Torrance reminds him of his small hometown in Illinois. Longtime residents said that the commercial area had been more rundown perhaps 15 years ago, but streetscape improvements and the return of angled parking had restored much of the original charm. One resident said “everything I do is here,” while a Honda employee said “we all walk over here.” A restaurant owner said the area is a regional draw for lunch, with patrons coming from all the automobile companies, not just Honda, and arriving by car.

Many residents acknowledged that they go elsewhere for general retail shopping – mostly strip centers in Torrance and Redondo Beach – and for grocery shopping. One resident said he must go elsewhere even for small-scale chain retail such as Jamba Juice and would use the center more if such businesses were located in the downtown. Several residents made the same statement about Starbucks. Several focus group residents noted that many of the retail businesses in Downtown Torrance appear somewhat marginal and not suited to their needs. Many participants said they occasionally walk to visit the Antique Fair but usually they don’t make purchases because they have seen the inventory before or because they could not carry large items home on foot.

When asked what improvements might make the downtown area more attractive to them, many focus group members mentioned community-oriented activities, such as a community theater and a meeting area for local service groups. A Honda employee suggested that streetscape improvements at Torrance and Cabrillo, the intersection Honda workers must traverse to get to the center, would also help. A number of participants expressed some ambivalence about

Yet the focus group participants seemed somewhat ambivalent about the addition of more activities and more chain retail. They feared additional traffic and the loss of the small-town feel. “We don’t want this to become Old Town Pasadena,” one resident said. When asked whether neighborhood vehicles or other transportation alternatives might encourage them to use the center more, the participants had a mixed response. Most said that so long as they did not have to cross an arterial – “stay in the box” – they would feel safe, but these residents mostly walk within “the box” anyway. One participant said her parents, who live across an arterial but use the center frequently, would be interested.

Riviera Village

The Riviera Village focus group was smaller and, in all likelihood, less representative than the Torrance group. It included three residents – two longtime homeowners and one recent arrival – but all were at least semi-retired. The focus group also included a Riviera Village business owner who had also lived in the inner area for many years and, ironically, had recently moved to buy a house in Downtown Torrance.

Like the Torrance focus group participants, the Riviera Village focus group participants said they like the small-town feel of the area. All three residents said they walk to the center

of Riviera Village every day – often to take advantage of small-scale chain retail such as Jamba Juice and Starbucks. All focus-group participants said they frequently run into people they know on their daily rounds. The business owner said that he runs daily errands on foot in Riviera Village but not in Downtown Torrance, where he lives.

As the focus-group conversation unfolded, however, an interesting dynamic emerged: The participants said that they both walk and drive to the center frequently. They walk for recreation and people-watching and to engage in small-scale retail activities such as going to the pharmacy. They drive when they do “real” shopping and Riviera Village is one of several stops on their regular retail rounds. Unlike the Torrance participants, the Riviera Village participants said they use the center for grocery shopping – an easy matter, since virtually all major supermarket chains and boutique groceries are located in either the inner or outer area. However, like the Torrance participants, the Riviera Village participants said they drive to surrounding shopping centers for general retail services and most other daily activities.

The participants also debated the mix of retail uses in Riviera Village. They acknowledged that Riviera Village often functions as a “boutique” shopping area for residents of the Palos Verdes Peninsula, who drive there to take advantage of markets such as Trader Joe’s and Bristol Farms, as well as the many salons. They noted that many dentists, but few doctors, have their offices in Riviera Village. They also said they like the restaurants in Riviera Village but claimed new restaurants are discouraged from opening there because of stiff parking requirements imposed by the City of Redondo Beach.

Some focus group participants expressed a desire to have fewer boutique salons and more general retail that caters to their needs rather than the residents of the Palos Verdes Peninsula. Longtime residents mentioned several general retail stores that used to be located in the center. Their loyalty to the center was evidence in their comments. “I would rather go to Riviera Village for anything that’s there, and I will pay more,” one resident said. Another said: “There’s too much traffic outside – I would go to the Village for everything.”

When asked what other improvements would encourage them to use the Village more, some participants specifically mentioned improving a small parking lot at Trader Joe’s that is difficult to navigate. When asked whether neighborhood transportation alternatives might be attractive, some participants said that a trolley or tram that connected the surrounding neighborhoods to the Village would be attractive, especially as they get older.

Inglewood

The Inglewood focus group included eight participants, including four who both worked and lived in Downtown Inglewood, one who lived there, and three who worked there. The group was predominantly African-American but also racially diverse, with both white and Hispanic representation; and it included a range of occupations, including a medical care

center director, a police investigator, a pastor, and a bank employee. Almost all of them drive to and within the downtown even when walking is convenient.

All of the participants had at least some positive associations with Downtown Inglewood. One participant who grew up in the area called it her “comfort zone”. In addition, several participants pointed to very practical neighborhood businesses – jewelers, watch repair shops, and so forth – as a major attraction. (Half of the participants said they use hair salons in Downtown Inglewood.) At the same time, some participants also had some negative connotations about Downtown Inglewood based on past perceptions of the crime factor.

When participants discussed what was lacking and what could be improved, they spoke principally of two factors – the stores and services available, and the streetscapes. Each factor, in its own way, would contribute to enhancing a “village feel” that many participants said would be required to improve the downtown’s attractiveness as a location.

Regarding stores and services, most participants tended to compare the retail stores available in Downtown Inglewood to the stores available in nearby shopping centers that they frequent, including Marketplace on Century, a city-sponsored redevelopment project near Hollywood Park. Several residents mentioned movies, cafes, restaurants – one in particular mentioned the feel of Downtown San Diego.

Many participants added that there are other services available downtown that are an attraction but there are some problems. One participant mentioned the city’s senior center as an asset. Several mentioned the Kaiser medical center but noted that it closes at 6 p.m. and therefore is not available for after-hours urgent care. Others said that food stores in particular would be a welcome addition. Overall, however, the participants seemed to suggest that the critical mass simply wasn’t there; as one said, there are not enough compelling attractions to warrant paying for parking.

Most participants also mentioned the need to “spruce up” downtown. They agreed that the streetscape improvements on Market Street are nice but suggested that these improvements should be expanded to elsewhere in the downtown, along with façade improvements and better street lighting.

The focus group participants had a negative view of additional housing density in the downtown, fearing a “public housing project” atmosphere. They also expressed relatively little interest in neighborhood vehicles.

4.5 Summary of Travel Behavior Findings

Among “smart growth advocates, it is an article of faith among “smart growth” advocates that compact, mixed-use development patterns will alter travel behavior by reducing car trips and encouraging people to take other transportation modes. Nevertheless, up to now there has been very little empirical evidence that this is true.

Our South Bay travel behavior research suggests that there is, in fact, some truth to this assertion, at least in the areas that we have researched. We undertook several research methods, including three different surveys as well as focus groups. Of these, only the resident survey was statistically valid, but nevertheless all of our findings pointed toward the same conclusions. These conclusions can best be summarized as follows:

- 1. People who live and work near mixed-use centers visit those centers frequently, and they walk more and drive less when they do so.*

In the resident survey, the difference in the driving/walking mode split between the control area and some of the mixed-use centers, especially Riviera Village, was striking. The visitor and employee surveys, though less statistically valid, pointed toward these same conclusions. The pattern appears to be that the center’s proximity to residences and to employment centers shortens trips sufficiently to encourage a shift in mode from driving to walking.

The reason appears to be different for each center because each center has a different character. Riviera Village is a true “village” environment, with a commercial core surrounded by residential neighborhoods that have good pedestrian connections to the center. Thus, residents are drawn to the center partly because it is a good walking environment and partly because there is less competition for their walking trips. Meanwhile, the “planned industrial suburb” character of Torrance generates a significant number of walking commutes, as well as walking trips during the day among employees.

This pattern not nearly as strong in Inglewood, especially in the outer area where statistically significant survey results can be gleaned. The travel behavior of outer Inglewood residents were similar to the travel behavior of control area residents – that is, they drive to the center the vast majority of the time. Without a focus group, it is unclear exactly why this would be.

- 2. Living near a mixed-use center seems to have little effect on commute mode, although the presence of major employment may make a minor difference.*

More than 90% of all residents surveyed said they drive to work, and this pattern held across almost all centers. Despite their high propensity to walk to the center, for example, residents of Riviera Village had an even higher commute-by-car figure than did the control area. This is probably because there are few office-based jobs in or near Riviera Village.

The only center where there was a high percentage of walking commutes was in Torrance – and, interestingly, the figure was even higher among outer-area residents than inner-area residents. (Honda and other employers are located in the outer area.) By contrast, however, very few Inglewood residents walk to work despite the presence of very large employers in both the inner and outer areas.

3. The design and layout of the center may play some role in travel behavior

This is a very tentative conclusion, but there are several indications that the design and layout of a mixed-use center may play a role in whether residents, employees, and visitors walk or drive. It is unclear how important this role might be, however.

For one thing, the travel behavior of residents in the two “village-style” centers – Riviera Village and Torrance – was different than the travel behavior of residents in Inglewood, which is an “arterial downtown”. Riviera Village and Torrance residents walk to their center more, whereas the behavior of Inglewood residents was more similar to the control area. This difference may be due to some factor that we have not explicitly addressed in this report; for example, one hypothesis would be that Inglewood residents perceive the risk of crime or an unpleasant experience as higher because Downtown Inglewood is a lower-income area than the other two centers.

In the focus groups, however, participants in both Torrance and Riviera Village clearly felt strongly connected to their center as “an oasis” – clearly a reference to the fact that the village-style street layout relegates arterial traffic to the edges of the center. Furthermore, in the resident survey, respondents placed a surprisingly high priority on design and streetscape improvements, as opposed to transportation alternatives, in listing factors that would cause them to use their centers more.

4. Travel behavior around the centers is extremely sensitive to the presence or absence of certain types of businesses, and trips to the center would increase if certain types of businesses or activities were added.

In both the surveys and the focus groups, most indications are that people gravitate to the centers to engage in specific types of personal activities – eating meals, running minor errands, or visiting certain businesses. It was clear from the focus groups that in both Torrance and Riviera Village the experience of being in the center – the “stretching your legs” experience of walking, along with people-watching and visiting – also played a role.

In the resident survey, additional business and activities in the centers – entertainment and recreational activities, for example – rated very high as changes that would cause respondents to use the center more.

Focus group participants frequently suggested that they would use the center more frequently if more or different types of retail businesses were located there. But most of the time this involved a desire for small-scale chain retail – Starbucks, for example – that would enhance the center for local residents without attracting a large number of outsiders to the area.

The contrasting results from Torrance and Riviera Village clearly suggest that the presence or absence of grocery marketing opportunities plays a significant role. A surprising number of Riviera Village residents walk to one of the many grocery stores in the area; and for both walkers and drivers the grocery stores are clearly a major draw. In Torrance, by contrast, residents must drive to grocery stores elsewhere and their percentage of people who walk to the center for shopping is lower.

5. It is unclear what type of transportation alternatives would be attractive to people who live or work near the centers, but this area would benefit from further study.

Our travel behavior research concluded that virtually everyone who comes to the center does so either in a car or on foot. Virtually no survey respondents traveled by bicycle. With the exception of a small number of people in Inglewood, virtually no survey respondents traveled by bus. Furthermore, when asked what types of improvements might encourage them to use the centers more, respondents to the resident survey ranked transportation alternatives below design improvements and an increase in businesses and activities.

Nevertheless there does appear to be a need to examine additional transportation alternatives even for those who live or work close to the center. The resident survey, which was filled out only by people who live within ½-mile of the centerpoint, found that most people drive to the center. The visitor survey found that visitors who live within a 10-minute walk of the center are equally likely to drive or walk to the center. And anecdotal evidence suggests that these centers are heavily used by residents and employees who are located slightly further away – say, in a radius of ½- to 1 ½- miles.

Focus-group conversations found no consensus about what type of transportation alternative might be best – neighborhood vehicles, shuttles, buses – but participants clearly expressed some interest in such alternatives.

6. If properly designed and managed, mixed-use centers may reduce overall vehicle trips.

This is potentially the most significant finding from the travel behavior research, so it is important not to overstate the findings. However, our modeling of travel behavior, based on multivariate analysis of the resident survey results, clearly shows that – all other things being equal – residents near mixed-use centers are more likely to walk and less likely to travel overall than their counterparts in an arterial strip location such as the control area. Our modeling found that living in outer Riviera Village generates 25% fewer driving trips than living in the control area; and living in outer Inglewood generates 47% fewer driving trips than living in the control area. Living in inner Riviera Village and Torrance generates fewer trips as well, but not to a level of statistical significance. However, living in inner Riviera Village generates a doubling of walking trips compared to the control area.

5. Conclusion

The goal of this report is to obtain more empirical knowledge about the South Bay specifically – not by advocating a different development pattern or assuming that a different pattern will change people’s travel patterns, but by *examining mixed-use centers that already exist in the South Bay and determining whether travel behavior in those centers differs from travel behavior elsewhere in the South Bay.*

In addition, this report also seeks to dig deeper and examine how travel behavior in such centers might be further altered with future changes. What businesses or activities would such centers need to offer in order to capture a greater number of trips taken by adjacent residents – presumably reducing travel to other locations? And are there other transportation alternatives – either public transit or other neighborhood transportation options – that would increase travel to the center by adjacent residents?

In the context of SCAG’s “2% Strategy,” this is largely a housing question. Given the fact that the South Bay has run out of raw land, the placement of additional housing has become a very sensitive question. As in the rest of Southern California, there are many locations in the South Bay where older arterial strips and older shopping centers might provide the land required for new housing. But simply adding more housing on underutilized land may not be the solution. Building denser housing on recycled land, but doing so in a traditional suburban fashion, may create more problems associated with growth, especially traffic problems.

For this reason, even though the problem is a housing problem, we have conceptualized this study mostly in terms of access to jobs and services. As older centers in the South Bay densify and add more housing, is it possible to do so in a way that reduces or minimizes the traffic impact? This translates into two more specific questions:

1. Can these centers attract some trips that would otherwise go to more dispersed locations, thus lessening the traffic impact on the regional road system (arterials and freeways)?
2. Can these centers create a shift in mode, so that visitors, nearby residents, and nearby workers travel to these centers more frequently by other means than the automobile?

Given the nature of this study, we cannot answer these questions comprehensively and we cannot seek to quantify the possible effects. The study examined three longstanding mixed-use centers in the South Bay: Downtown Inglewood, Riviera Village, and Downtown Torrance. These areas are not “vertical” mixed-use centers as envisioned by New Urbanists but, rather, “horizontal” mixed-use centers that are characterized by a commercial core with housing and jobs surrounding it. Furthermore, they are not, generally speaking, “regional” centers. At least in their commercial core, they function more like “neighborhood” centers,

although both Torrance and Inglewood have regionally significant employment centers surrounding them.

In addition, our survey respondents, while fairly representative of the communities where they are located, are not a perfect reflection of the population of either the South Bay or Southern California. Respondents were relatively affluent and well-educated; they were more likely to be white; and they generally lived in smaller households.

However, we can provide considerable insight into how certain types of centers work and their impact, in general terms, on traffic generation. And we can provide the beginnings of a “roadmap” that will make these centers more effective in reducing traffic impacts as they add more housing.

Four Major Conclusions

Based on all of our research, including the surveys of residents, employees, and visitors, we can state the following conclusions with some confidence:

- 1. People who live or work near a mixed-use center will travel to that center more frequently.*
- 2. People who live or work near a mixed-use center are more likely to walk to the center rather than drive.*
- 3. People who live near mixed-use centers are likely to take fewer trips overall and fewer auto trips in particular.*
- 4. The centers appear to have more potential to minimize traffic on non-work trips than on commuting trips.*

This suggests that some housing could be added to mixed-use centers in the South Bay with less impact on traffic than if that housing were added elsewhere. This conclusion will be discussed below.

1. People who live or work close to a mixed-use center will travel to that center more frequently.

One of the questions raised above is whether a mixed-use center is likely to absorb some of the trips that would otherwise go to more dispersed locations. The answer from both the resident survey and the employee survey is yes.

In the resident survey, which is the more statistically valid of the two surveys, we found that residents in most of the centers are more likely to go to the center than residents of the control area. For example, in asking residents whether they take at least one-third of their

trips to the neighborhood center, we found that 86% of residents in the inner ring of Riviera Village and 78% of residents in the inner ring of Torrance said yes, compared to only 65% in the inner ring of the control area. *Thus, it would appear that in the immediate vicinity successful mixed-use center, perhaps 10-15% more residents frequently take trips to the center as opposed to other places.*

These conclusions do not necessarily mean that auto traffic in and around the centers will be lessened by the construction of additional housing or the creation of additional jobs. Many residents or employees will drive to the centers even if they live in close proximity to them. However:

- These auto trips will be shorter and will not involve driving on arterial or freeways, a benefit to the regional transportation system.
- As the next section suggests, these short trips are more likely to be taken on foot rather than in a car.
- Finally, it is possible that residents who take short trips in the neighborhood via car might be interested in using an alternative form of transportation, such as a shuttle or a neighborhood vehicle, even if they are not interested in walking.

2. People who live or work near mixed-use centers are more likely to walk to those centers.

. The survey results found that people who live or work near mixed-use centers are much more likely to walk to those centers. Our modeling predicts that a person living near a mixed-use center is more likely to take walking trips.

In the resident survey, 72% of residents in the suburban-style control area drove to their neighborhood center while only 24% walked. The overall figures for all the mixed-use centers was 52% driving and 45% walking – and in inner Riviera Village the figure was even higher, with over 20% walking. *Thus, it would appear that in the immediate vicinity successful mixed-use center, at least 20% more residents will walk to the center than in a suburban-style neighborhood.*

The visitor survey, though unscientific, yielded similar results on the propensity of workers whose jobs are located near mixed-use centers to walk.

3. People who live near mixed-use centers are less likely to drive and, in fact, less likely to travel.

The trip modeling that emerged from the travel diaries in the resident survey only reinforced these results.

Modeling for a middle-income female aged 26 to 40 years old, we found that in the suburban-style control area she could be expected to make 3.36 trips of all kinds per day. The figure for the mixed-use centers (inner and outer) ranged from 2.22 to 3.10 trips per day. This female would be expected to make 3 driving trips per day in the control area, compared with anywhere between 1.6 and 2.7 driving trips per day in the mixed-use center. Furthermore, this female would be expected to make about 0.25 walking trips per day in the control area, compared with anywhere between 0.1 and 0.5 in the mixed-use centers.

Not all of these differences are statistically significant. But, taking only those that are statistically significant, it would appear that the most successful mixed-use centers might reduce driving trips by one-third, while doubling walking trips.

4. The centers appear to have more potential to minimize traffic on non-work trips than on commuting trips.

We found virtually no evidence to suggest that either living or working near a mixed-use center minimizes the likelihood of driving to work.

The Census 2000 statistics that we derived for the three centers found that the percentage of residents commuting alone in a car was about the same as the county average in Inglewood and somewhat higher in both Riviera Village and Torrance. But our surveys also found that commuters do not walk or use alternate modes if they live closer to the center.

In the resident survey, 93% of all respondents drive to work and this figure was virtually the same for the control area along Pacific Coast Highway as it was for the mixed-use centers. The employee survey found a similar result.

The only important difference we found was that respondents who live in Torrance walk to work in significantly greater numbers. Walkers totaled 4-5% in the control area, Inglewood, and Riviera Village, but more than 11% in Torrance. These results were similar for both the inner and outer area. This would suggest that at least some Torrance residents take advantage of the fact that large job centers are located in extremely close proximity to their homes. It is important to note, however, that this difference did not show up in either the Census figure or in the employee survey (which had only 59 responses from Torrance).

We have no empirical data on why people might be more likely to walk to work in Torrance as opposed to Inglewood, which is also a large regional job center. We can only speculate that the match between the jobs and the nearby resident population is better suited in Torrance to the pattern of local residents actually occupying local jobs. This is only a hypothesis, however.

What These Conclusions Mean

This study has found that people who live or work near existing mixed-use centers in the South Bay are likely to have different travel patterns than other people. They are just as likely to drive to work, but they are likely to travel to the mixed-use center frequently during the work day or during their personal time, and they are quite likely to walk rather than drive for those trips.

This suggests that more housing (and, indeed, more jobs) could be added to mixed-use centers in the South Bay in a way that might create less overall travel demand – and therefore less travel impact – than if that housing were added in other locations.

It is important not to overstate this conclusion. Based on current travel behavior, it is unlikely that adding more housing in mixed-use centers would lessen rush-hour auto commuting, either on the arterial highways or on the freeways. Furthermore, these results would suggest that concentrating housing in the centers would not decrease traffic in those centers; obvious, traffic would increase over current levels.

But it seems very likely that adding more housing to mixed-use centers would reduce overall travel from the levels that would result from locating housing were elsewhere, and would decrease auto traffic associated with off-work personal trips. It also seems likely that adding more jobs to the mixed-use centers would decrease auto trips during the workday for meals and personal errands than would be the case if those jobs were located far from these centers. In practical terms, of course, this means that it may be possible to slow the rate at which traffic congestion worsens as a result of additional housing if the housing is added to a mixed-use center that has similar characteristics to the mixed-use centers studied here.

However, our research also suggests that simply adding new housing (or new jobs) in a concentrate fashion will not create the desired outcome unless other factors are taken into account. Simply put, if the South Bay cities are going to absorb more housing and more jobs in older arterial strip areas and shopping centers, they must pay attention to three other factors in making those centers work:

1. The physical design of the centers.
2. The mix of businesses and activities within the center.
3. Neighborhood-level transportation alternatives to driving and walking.

1. Physical Design of the Centers

An underlying assumption of the “Smart Growth” and “New Urbanist” movements is a kind of physical determination – the idea that the behavior of individual residence can be influenced by physical design. Most particularly, the argument goes, if development patterns are more compact, include a greater mix of uses, and are not designed around the car, people will drive less and walk, bike, and ride public transit more often.

As we noted at the beginning of this report, there is considerable debate about this point. Many critics of New Urbanism argue that a more compact development pattern will simply lead to more traffic congestion in centers. But there is considerable evidence in this report that physical design does play a role in people’s willingness to travel to – and within ~ a center by alternative modes.

This study identified two different types of centers that are typical of Southern California – the “set-piece village,” such as Riviera Village and Downtown Torrance, and the arterial downtown, such as Downtown Inglewood. Both are common in Southern California, and both hold great potential for the future. Older shopping centers throughout the nation are being converted to a village design, and there is broad consensus that commercial strips on older arterials in Southern California represent a major source of land that could be recycled for housing and other urban uses.

These two types of opportunities require different approaches. However, the basic building blocks are similar. These building blocks appear to be:

- More pedestrian amenities
- Slower traffic through the centers
- More public and civic gathering spaces, and
- More nightlighting

These elements emerged consistently in the surveys as features that would motivate residents to go to the center more often and use alternatives to the car.

All of the items above are expensive and probably require cities and other public agencies to take the lead. In the last three decades, cities have often abandoned or scaled back such efforts because capital projects are so expensive to undertake and there is less general tax money available. But all are necessary as part of a trip-reduction-oriented strategy

concerning centers, which may put such investments in a new perspective. Also, they possibly could be funded as part of an overall transformation (including private development) of a single-function center into a mixed-use center.

On additional point about the design of centers would be this: There is a fundamental difference between the design challenge of village-type centers and arterial-type centers. Village-type centers have the advantage of being more self-contained and not bisected by any arterial streets. This gives them an internal focus and helps to provide the “oasis” feeling that focus groups participants in both Torrance and Riviera Village alluded to.

Many newer single-use centers, particularly open-air shopping centers, seek this same oasis feeling, and these lessons could be transferred as such centers add housing. Arterial-based centers such as Inglewood have a tougher time because they are bisected by busy arterial roads, on which it is not always feasible to slow traffic down or narrow the overall driving lanes. They also have a less oasis-like feel. But this issue also must be dealt with because so many opportunities for additional development are located on aging commercial strips.

2. The Mix of Business and Activities Within the Center

As we stated above, survey respondents and focus group participants seemed extremely sensitive to the mix of businesses and activities within each center. They often stated that they were drawn to the center because of a particular business or group of businesses, and that they would come more often if certain businesses were present.

Most often, these businesses were small-scale eating and drinking places such as Starbucks or Jamba Juice. Especially in Torrance, however, the presence of neighborhood-style restaurants and bars was viewed as a significant attraction. In the resident survey, “more eating places” and “more entertainment” came up consistently as one of the highest priorities for additional activities that would attract people to the centers.

Less often, residents mentioned neighborhood services, such as grocery stores and dry cleaners. But it is not clear how best such demand should be handled. The Riviera Village focus group participants said that when they run such errands, even in the center, they drive, partly because they expect to run other errands in other locations. There is little question that if more general retail stores were placed in the centers, neighboring residents and employees would spend more time there and engage in more activities. But they might still drive, and these activities might also attract other residents and employees from other neighborhoods, who would also drive.

Another issue is whether a center can attract and maintain neighborhood-style businesses if boutique businesses are driving up rents. In Riviera Village, focus group participants lamented the gradual loss of general retail businesses. But they also acknowledged that the Village now attracts many boutique shops and salons catering to affluent residents of the

Palos Verdes Peninsula, who drive into the Village to take advantage of those services even when neighborhood residents do not use them. This pattern, in turn, appears to attract dentists, lawyers, and accountants who feed off of the same clientele. Maintaining long-term equilibrium in any retail district is difficult because the clientele changes and rents go up and down.

In other words, the reason people visit a mixed-use center frequently has to do with lifestyle. Nearby residents tend to frequent drinking and eating establishments that allow them to people-watch and hang out, and they sometimes do small errands if that is convenient. Outsiders tend to visit these centers if the mix of businesses and activities fits in with their lifestyle.

In any event, the cities in the South Bay should carefully monitor the presence of neighborhood businesses and institutional activities to ensure that a mix of functions attractive to nearby residents and workers is retained. The goal of public policy should be to ensure not only that high-profile attractions are included in these centers but also that day-to-day activities (mostly businesses that cater to typical personal errands) be retained in these mixed use centers as well. This will ensure that nearby residents are drawn to these mixed use centers as well. This will ensure that nearby residents are drawn to the center for trips that would otherwise require auto travel on the citywide or regional system.

3. Neighborhood-Level Transportation Alternatives

To our surprise, almost all people using the three centers arrive in those centers by one of two modes – walking and driving. Virtually no one bikes to these centers, and, except in Inglewood, very few people take the bus.

This pattern means that residents and employees who live or work in extremely close proximity to the center will walk there some – or perhaps even most – of the time. However, virtually everyone who lives or works beyond a certain distance – probably about a half-mile – will drive to the center in their car. This market of people located perhaps ½ to 1 ½ miles away from a center ought to be prime candidates for bus- and bike-riding, each of which are ideally suited for such small trips, but there are many disincentives to these modes. Buses may have long headways; bikes must be parked and locked.

Clearly, there is some potential for neighborhood-level transportation alternatives – perhaps shuttles or trams, perhaps small “neighborhood-scale” individual vehicles. Although the resident survey showed little interest in shuttles or trams, there was some interest in the focus groups. Neighborhood vehicles sparked some enthusiasm as well, but focus group participants expressed the typical concern about traversing or crossing arterial streets – i.e., having to drive the neighborhood vehicles “out of the box”.

Nevertheless, a wide variety of neighborhood vehicles is emerging, and other research suggests that Californians are receptive to the idea of using them for short neighborhood trips. (See Appendix H.) If more housing and jobs are placed in close proximity to mixed-use centers – and more activities and services are placed in those centers – then interest in neighborhood vehicles in these centers might increase. Many neighborhood vehicles do not run on internal-combustion engines. They are small and therefore consume much less space both for driving and parking.

Next Steps and Future Directions

This report has been pathbreaking in the sense that it has provided new evidence that will permit South Bay cities to move beyond the rhetoric both for and against additional housing, jobs, and other services in mixed-use centers. The information contained in this report should help cities in the South Bay and throughout Southern California craft mixed-use strategies that are realistic in their goals. However, this report also points toward other types of “next steps” in increasing the knowledge about mixed-use centers and providing cities with more specific information about how to create and expand them. These include the following:

- ***More detailed analysis of data compiled in this report.*** The resident survey in particular produced a large amount of data that we were unable to analyze fully for this report. South Bay and Southern California cities would benefit from the insights that additional analysis would provide.
- ***Analysis of additional factors and additional centers.*** This study was unable to expand many factors in mixed-use centers, including commercial real estate factors (square footage, rents, etc.) and detailed analysis of parking. In addition, this study focused on only certain types of centers and was unable to examine a wide range of centers. Again, South Bay and Southern California cities would benefit from additional analysis along these lines.
- ***Identifying issues specific to village and arterial centers.*** Most experts would agree that future mixed-use opportunities in the South Bay lie either in converting old shopping centers into “villages” or reusing underutilized land along arterial corridors. This study examined both types of centers, but a more detailed analysis of the issues specific to each one is needed.
- ***Quantification of traffic savings.*** This report suggests that certain types of development patterns might actually generate fewer automobile trips, especially for nonwork activities, if jobs, housing, and services are concentrated in centers. It will be important to South Bay and Southern

California cities to be able to quantify these savings so they can be analyzed in planning and development review processes.

- ***A Neighborhood Vehicle demonstration project.*** It is clear that there is considerable potential to use neighborhood vehicles in and around the centers to further minimize traffic and therefore expand their capacity. The South Bay cities should undertake a demonstration project in a mixed-use center to assess this potential.
- ***Revisit and refine the standard mixed-use “toolbox”.*** In recent years, both the South Bay Cities COG and many other organizations have produced “toolboxes” of mixed-use strategies. In general, these toolboxes are not informed by empirical knowledge of the sort included in this report. Based on the information in this report and in subsequent analyses such as those mentioned above, the South Bay cities should revisit and refine these toolboxes to maximize the effectiveness of the tools.

There is no question that the South Bay is now deeply embedded in the “post-suburban” era – where some additional growth must be accommodated, but suburban development patterns must be left behind. This report provides a useful foundation for the next steps mentioned above to build on in assisting the South Bay cities address this new challenge.

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