Analyzing Policy, Land Use and Zoning Characteristics:
Understanding the Potential to Build Housing Near Rail in the City of Los Angeles

By

Erin M. Camarena
BA in Urban Studies and Planning
University of California San Diego
San Diego, CA (2000)

Submitted to the Department of Urban Studies and Planning
in partial fulfillment of the requirements for the degree of
Master in City Planning
at the
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
June 2005





Author_____
Department of Urban Studies and Planning
Mav 19, 2005

Certified by_____
Professor Ralph Gakenheimer
Department of Urban Studies and Planning
Thesis Supervisor

Accepted by_____
Professor Dennis Frenchman
Chair, MCP Committee
Department of Urban Studies and Planning

Analyzing Policy, Land Use and Zoning Characteristics:
Understanding the Potential to Build Housing Near Rail in the City of Los Angeles

By
Erin M. Camarena
BA in Urban Studies and Planning
University of California San Diego
San Diego, CA (2000)

Submitted to the Department of Urban Studies and Planning
in partial fulfillment of the requirements for the degree of
Master in City Planning

# Abstract

Firstly, the author provides an overview and analysis of the City of Los Angeles political framework and implementation strategies to encourage the housing development near rail stations. Secondly, the author discusses the capacity for Los Angeles' rail system to support housing development. Thirdly, the author presents housing density and land use characteristics for neighborhoods located within a ¼ mile radius of the City of Los Angeles' 41 rail stations. Fourthly, the author conducts a more specific land use and zoning analysis for 5 station neighborhoods varying in neighborhood and transit type. Although the city of Los Angeles has made various policy and development efforts to concentrate new development near rail investments, these polices and projects have only recently begun to incorporate housing as a component. The finding in this report demonstrates the range of residential densities within all station neighborhoods as well as highlights the zoning and land use limitations on building new medium-high density infill housing near rail. Although many of the rail station neighborhoods are still very much in transition and residential density is expected to increase especially along the Red Line station neighborhoods, the report makes various recommendations encouraging the city to take a more proactive and comprehensive approach in TOD development in order to address the barriers of the city's current Euclidean zoning code and facilitate further infill housing developments.

Thesis Supervisor: Ralph Gakenheimer
Professor of Urban Studies & Planning

# Key Findings

The following are the main findings of the research:

# Preface

After deciding to move to LA to intern for the summer with Livable Places, I worried about how I was going get by without a car. However, I would soon discovered not only that LA actually had a rail system, but that my fellow coworkers also relied on rail to get to work at our downtown office. Although I would feel strangely stared at every time I walked the ¼ mile from my house down Hollywood Boulevard past empty auto dealerships and sun baked streets to the Hollywood/ Western station, I was amazed by just how possible it was to actually live and work in LA without a car. Of course, my ability to get by without a car was largely made possible because I not only lived in Hollywood, one of LA's most dense neighborhoods, in walking distance to various shops, restaurants and a Red Line station but also worked downtown.

The Transit-Oriented Development goals and research strategies in this thesis were inspired by my summer internship with Livable Places, a Community Development Corporation committed to developing work force affordable housing using Smart Growth principals. The zoning barriers discussed in Chapter 8 of this report were inspired by various interviews with the staff at Livable Places as well as from interviews with other planners and developers in Los Angeles. My original research as an intern has been elaborated in order to utilize the spatial analysis tools of Geographic Information System (GIS) and create visualization tools to be used by planning practitioners and community TOD advocates.

# Acknowledgments

I would like to thank the following professionals and academics for their help and guidance throughout my thesis process. To Ralph Gakenheimer, Eran Ben-Joseph, and Terry Szold for their continuous research advice and feedback. To Beth Steckler, Ryan Lehman, Clair Bowin, and Christian Peralta at Livable Places for giving me guidance and inspiration to envision a more equitable and sustainable Los Angeles as well as the inspiration for my thesis topic. To Dan Rosenfeld, Jane Blumenfeld, and Con How who helped me understand the complexity of transit-oriented development and housing in Los Angeles. To Daniel Sheenan at MIT for his help and guidance with ArcMap, for without it, much of my thesis research would not have been possible. To all my fellow classmates at DUSP, for keeping the bar so high and for pushing me to surprise even myself.

# Table of Contents

# Figures

# 1. Analyzing the Policy Potential for TOD Housing in LA

## 1.1. Introduction

As the City of Los Angeles grapples with increasing traffic congestion, air pollution and housing needs, policy makers are realizing that suburban style land uses are no longer appropriate for a growing city in the midst of a housing crisis. Many Transit-Oriented Development advocates claim that creating medium to high-density housing near Los Angeles' transit system can provide needed housing without creating additional traffic congestion and pollution. This concept has even been incorporated into the City of Los Angeles' General Plan Framework which aims at concentrating new growth in transit stations and commercial corridors to accommodate new growth and preserve existing neighborhoods. By the end of this decade, the Los Angeles County's Metro Transit Authority will have spent 8.2 billion dollars expanding Los Angeles' rail system to include a total of 41 transit stations located within the City of Los Angeles itself. However, the ability for individuals or housing developers to construct medium to high-density residential buildings near transit is often limited by many obstacles including neighborhood opposition, financing, and non supportive public policies. Public policy barriers to creating transit-oriented housing can take the form of inappropriate Land Uses prohibiting higher density uses or Zoning criteria such as height restriction and parking requirements. This study will look specifically at the extent in which the City of Los Angeles' land use and zoning codes inhibit the development of medium high-density housing near rail stations.

## 1.2. Aim

The City of Los Angeles' General Plan Framework reflects Transit-Oriented Development goals such as encouraging new mixed-use development with pedestrian friendly design within walking distance of transit. While locating this type of development near transit would not only support the city's previous investments in transit, it would also help alleviate the city's growing housing crisis and encourage increased transit ridership reducing the city's traffic congestion. However, nearly a decade after the Framework and Transportation & Land Use Policy were adopted, many of Los Angeles rail transit stations still appear largely surrounding by low-density non-transit supportive development. I hypothesize that the City of Los Angeles' existing land use and zoning policy are not supportive to the desired density goals set by both the city's Land Use and Transportation Policy and other TOD advocates. In order for Los Angeles to realize its potential to concentrate medium to high-density housing near rail transit, existing policy needs to be analyzed in order to see if it is a barrier to development. With this new understanding of how land use and zoning act as barriers to the actual development of housing near transit, policy tools can be more appropriately crafted.

### 1.2.1 Research Questions

The study will attempt to answer the following questions:

1) What is the relationship between TOD and Housing and what are some housing standards for successful TOD developments;
2) What is the potential to build housing near rail in LA according to existing policy goals, transit infrastructure, and TOD development trends;
3) What are the land use and housing characteristics for the ¼ mile walking radius all of Los Angeles's existing and proposed rail stations
4) How do these characteristics relate to previous goals and standards and vary by neighborhood, rail type, and rail line; and
5) To what degree is zoning a limitation for new Transit-Oriented Development housing near rail in the City of Los Angeles.

### 1.2.2 Research Objectives

The research will work towards the following five goals:

1) To provide an *overview* of the policy framework, transit capacity and development trends for Transit-Oriented Development in the City of Los Angeles;
2) To understand the development *potential* and *limitations* of the city's current land use and zoning policies in Los Angeles in increasing housing development near transit as prescribed in the General Plan Housing Framework and Land Use and Transportation Policy;
3) To create spatial *visualization tools* (i.e. GIS maps) to be used by both planning practitioners and community residents to better understand and communicate the existing housing, land use and zoning characteristics for the neighborhoods surrounding rail transit in the City of Los Angeles; and
4) To suggest *implementation policies* that provide more appropriate transit supportive land uses and proactive policy practices creating a real increases in housing densities near transit for the City of Los Angeles.

## 1.3. Scope

The report will first look at the land use and housing characteristics for the area located within a ¼ mile (1,320 feet) radius of all of the City of Los Angeles's rail stations. Next the report will go into a more in depth at the station area level, closely analyzing the zoning within a ¼ mile radius of five rail stations varying in stage, neighborhood and transit type.

## 1.4. Organization

The report will be organized into the following nine chapters:

*Chapter 1: Introduction* will explain introduce the study presenting the scope, aim and organization of the report.

*Chapter 3: Research Design* will provide an overview of the research methodology used to analyze, collect and measure the data in this report.

*Chapter 2: Relationship between Transit-Oriented Development and Housing* will introduce the relationship between Transit-Oriented Development and Housing

*Chapter 4: LA's TOD Policy Framework & Analysis* will provide a general overview of LA's policy framework as well as an analysis of each policy's implementation and development strength.

*Chapter 5: LA's Transit Capacity for TOD Housing* will provide LA's rail transit system outlining both the potential and limitations for rail in the City of Los Angeles.

*Chapter 6: Housing & Land Use Characteristics: Rail Station Neighborhoods* will present the general land use and housing density patterns for the land in walking distance of all of LA's existing and proposed rail stations.

*Chapter 7: Zoning & Current Land Uses* will present the neighborhood characteristics, existing TOD plans and incentives, housing density and zoning characteristics, development limitations and potential for the five case study station areas.

*Chapter 8: Summary of Findings* will present a summary of the land use, housing and zoning findings.

*Chapter 9: Conclusion: Observations, Recommendations & Questions* for Further Study will discuss some of the main observations regarding the challenges and opportunities for building housing near rail in the City of Los Angeles as well as present some policy recommendations and questions for further research.

# 2. Research Design

## 2.1. Introduction

The following chapter will provide an overview of the research design, the data collection and selection criteria, data measurement and criteria used for analysis, as well as the limitations of the study.

## 2.2. Overview

The analysis provides a general overview of the general framework for Transit-Oriented Development and housing and then look more specifically at land use, housing and zoning at the city-wide and individual station level.

a) *TOD Framework* - Chapter 3 looks at the relationship between housing and Transit-Oriented Development. Chapter 4 provides an overview of policy, development progress, and transit capacity in order to frame Los Angeles's TOD framework, progress and future potential to develop housing near transit. Chapter 5 looks at LA's exiting rail transit system in attempt to understand the city's capacity to build housing near transit.

b) *Land Use & Housing Maps: LA City* - Chapter 6 uses the Geographic Information Systems (GIS) tools to create land use and housing maps in order to highlight land use and housing trends city-wide as well as within 15 square mile neighborhood areas

c) *Station Area Case Studies: Five Rail Station Neighborhoods* - Chapter 7 looks more in depth at five specific station areas in order to look more at depth at rail station developments and actual land use characteristics, comparing actual station characteristics with desired TOD goals.

## 2.3. Data Collection and Selection

The data used in this report was taken from the following sources:

a) *Station Radius* - The walking radius area of ¼ mile (1,320 feet) of rail transit stations was chosen in accordance with the City of Los Angeles' General Plan Framework, Transportation and Land Use Plan (1994), California Transit Village Act as well as Boarnet and Crane (1995) and Loukaitou-Sideris (2000).

b) *Land Use* -The parcel level land use data was collected from the City of Los Angeles Planning Department.

c) *Zoning* -Zoning and assessor data was collected at the parcel level from the City Planning Department's online zoning database (http://zimas.lacity.org/).

d) *Housing Density* - Dwelling unit data was collected at the block group level for each station area using the 2000 U.S. Census Factfinder online database (http://factfinder.census.gov/).

e) *General Background* - Information on Los Angeles was collected from various sources including various internet sites and interviews with Los Angeles City planners and developers working within the City of Los Angeles.

## 2.4. Data Measurements & Criteria for Analysis

The following section discusses the methods used to collect data and criteria used for analysis:

### 2.4.1 Land Use & Zoning

Zoning Mix was calculated by hand from maps created using the City of Los Angeles' Zimas parcel level data. Actual land use data was taken from the assessor data on the Zimas website.

### 2.4.2 Housing Density Measurements

The following three density measurements measured in dwelling units per acre (du/acre) are used in this study to analyze existing and potential density characteristics:

a) *Residential Density* represents the number of dwelling units per residential acre of land located with the defined area used in this report to calculate both individual parcel development or total residential and mixed-use residential development with the ¼ mile radius area. Residential density is calculated by dividing the total number of dwelling units by the total acres of land for a specific development project. For example, if a project provides 40 dwelling units on 0.5 acres of land it has a residential density of 40 du/ acre). The Los Angeles Land Use and Transportation Policy (1993), discussed in Chapter 3, uses residential density to set its minimum desirable and maximum permitted density goals for individual new development. (i.e. sets a maximum of 40 du/acre for new development projects in Neighborhood Centers) (ii) The density of a project area (1/4 mile radius) is calculated by dividing the total number of dwelling units by the total acres of land available for residential development (residential and mixed-use commercial land). For example, with a total number of 629 dwelling units located within the 50.16 acres available for residential development within the ¼ mile station radius, the La Brea/ Exposition station area has a residential density of 5 du/res acre. Calthorpe (1993) also uses residential density to recommend the minimum residential densities within walking distance to light and heavy rail for an urban neighborhood type.

b) *Net Residential Density* represents the total number of dwelling units for all acres[1] of land located within the total ¼ mile radius area. For example, with a total number of 629 dwelling units located within the 125.6 acres of land located within the ¼ mile station radius, the La Brea/ Exposition station area has a net residential density of 14 du/acre. For purposes of this report, it is assume that net residential density can be estimated from the surrounding block groups[2]. As further discussed in Chapter 3, various reports and Pushkarev and Zupan (1997) use net residential density to discuss the minimum number of dwelling units per acre of land needed to support light and heavy rail.

---

[1] The total ¼ mile radius area is equivalent to 125.6 acres (equivalent to 0.196 sq. mi.. or 5,471,136 sq. ft.)

[2] Because all housing units and land area were counted for each block group intersecting the ¼ mile radius area (even if the majority of the block resided outside of the ¼ mile radius), the total number of housing units was multiplied by the ratio of land area in excess of the 125.6 acres.

### 2.4.3 Housing Capacity

Housing Capacity data for each case study area was calculated by multiplying the maximum dwelling units per acre allowed each residential and mixed-use commercial zoning type by the total land area within each station area zoned accordingly.

a) *Housing Capacity Characteristics*- Zoning capacity data was measured by multiplying the percentage of available residential land multiplied by the minimum dwelling unit per acre for each zoning type as specified by LA City's zoning code. For example, with a total of 26.62 acres zoned R3-1 (which allows up to 54 du/acre) Vermont/ Beverly has a zoned housing capacity of 1,177 dwelling units for this zoning type (Figure 9.4-2). The City Planning Department's Housing Element uses this similar method to calculate its unadjusted housing capacity (Department of City Planning, 2002).

## 2.5. Limitations

It was not possible to access zoning information in a form necessary to import into GIS, the zoning characteristics for the case study stations were estimated by hand and subject to of human measurement error. This report acknowledges that transit-oriented development potential can't be analyzed in isolation from additional in depth analysis of political, market, financial, and infrastructure factors that affect the ability to create infill residential developing near transit. This report acknowledges that these other factors also play a significant role but looks specifically at land use and zoning as limiting factors on residential development.

# 3. Relationship Between Transit-Oriented Development & Housing

## 3.1. Introduction

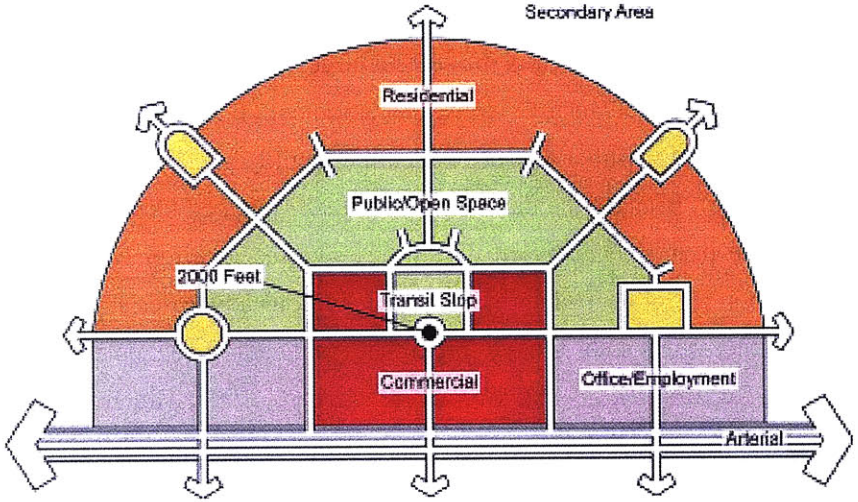
Many TOD advocates argue that crafting appropriate densities and land use mixes have a large influence not only on the success of individual Transit-Oriented Development (TOD) projects but on a city's ability to use Transit-Oriented Development to improve the quality of life, housing affordability and automobile congestion for the whole city. Dittmar & Ohland state that the conscious placement of homes in proximity to transit systems, is crucial to building a region that is both equitable and efficient especially when owning a car is the second largest costs, behind housing, for most Americans (2004). Accordingly, the California Department of Transportation defines Transit-Oriented Development (TOD) as "moderate to higher-density development, located within an easy walk of a major transit stop, generally with a mix of residential, employment and shopping opportunities." While the ability to evaluate individual TOD projects may prove difficult because the definition of Transit-Oriented Development varies widely from project to project and from city to city, Dittmar & Ohland use performance-based definitions such as *location efficiency* (includes key components like density, transit accessibility, and pedestrian friendliness) to define TOD projects. While various advocates stress the importance of including residential development as a component of the land use mix, various studies have found that residential densities are one of the most important variables influencing actual transit ridership (Pushkarev & Zupan, 1977, 1982; Bernick & Cervero, 1997; Holtzclaw & Dittmar, 2004). The following chapter will attempt to provide an overview of various residential development concepts and standards to provide a guideline for analysis of the City of Los Angeles TOD potential.

## 3.2. Housing Development Concepts

### 3.2.1 Walking Radius of Transit

TOD plans are intended to incorporate the area within a 5-minute (1/4 mile or 1,500 to 2,00 feet) and 10-minute (1/2 mile) walking distance of transit nodes so that the new development including residential can support transit ridership. In some cases, policies set a primary and secondary radius of influence around transit stations, with higher densities within the primary radius area (Figure 3.2-1).

**Figure 3.2-1 Transit-Oriented Development Concept**




Source: Calthorpe, 2000

### 3.2.2 Development Types

As Calthorpe describes, TODs can vary by development or location type: (a) redevelopable, (b) infill, and (c) new growth area. Redevelopment site and infill sites have the potential to convert outdated auto-oriented uses like parking lots while new growth areas are often the first use to be placed on the site. In general, redevelopment and infill TODs can be subject to additional barriers such as lot assemblage, the costs of eminent domain, and demolition of existing structures. The type of development sites in light rail station areas is important for setting targets and because developers often specialize in one or two types; development costs may vary by type of site; and neighborhood support and/or opposition may vary by type of project site (Figure 3.2-2). National developers with institutional funds often want to build large projects, for residential, which often means building a minimum of three hundred units.

**Figure 3.2-2 TOD Development Types & Site Characteristics**

| Types | Development Characteristics | Incentive for Dev | Barriers to Dev |
|---|---|---|---|
| Greenfield or New Growth | New development on vacant land | Average parcel size of ten acres or larger | Land availability, Hard to justify large public investment in less built up area |
| Infill | New development on vacant land parcels in developed areas | Available land when city boundaries fixed | zoning limit possibilities for infill development, fear of the high density infill project's impact on school infrastructure and congestion, small lots with fragmented ownership, private lending institutions and commercial banks do not view infill schemes favorably, markets for infill developments are limited to isolated/small sectors within the market |
| Brownfield | Sites that are under-utilized or not active, encompass inner city industrial sites, & abandoned, contaminated | Attractive location | High clean up costs, cost of environmental permits and preparation of EIR, future liability associated with clean up of contaminated sites, and risks associated with foreclosure, sites located within urban areas are generally more expensive than vacant sites and greenfields in rural areas and suburbs. |
| Redevelopment | Change in development | Land acquisition costs sometimes subsidizes by gov | Have improvements whose value is lower than the land value, expensive to bring building to code |
| Rehab | Includes buildings that can be updated or converted to new use | Lower hard costs due to existing structures | Updating structure to modern building codes can require extra costs |
| Joint-Development | Owned by a public agency and offered for development on a competitive basis | Larger parcels of land can be acquired at lower a lower cost, avoid expensive land assemblage costs | Agreement between what government is willing and developer is willing to pay |

## 3.3. Residential Density Goals & Characteristics

Several studies conducted in different cities have found that residential densities are one of the most important variables influencing transit ridership (Pushkarev and Zupan, 1977, 1982; Bernick and Cervero, 1997). For example, a resident is 30% more likely to use transit if he or she lives in a medium to high-density neighborhood rather than a single-family neighborhood (Pushkarev and Zupan, 1982). For this reason many TOD advocates argue the both residential densities and land use characteristics have large influences on the success of a city's rail system as well as the ability of a city to reduce it's dependency on the automobile.

### 3.3.1 Minimum Rail Supportive Densities

For rail transit to be viable it is essential that a sufficient number of people not only work but also live close to the transit station. Pushkarev and Zupan (1977) suggest minimum net residential densities of 9 du/acre for light rail and 12 du/acre for heavy rail as necessary to support minimum rail service (Figure 3.3-1).

**Figure 3.3-1 Density Thresholds for Transit**

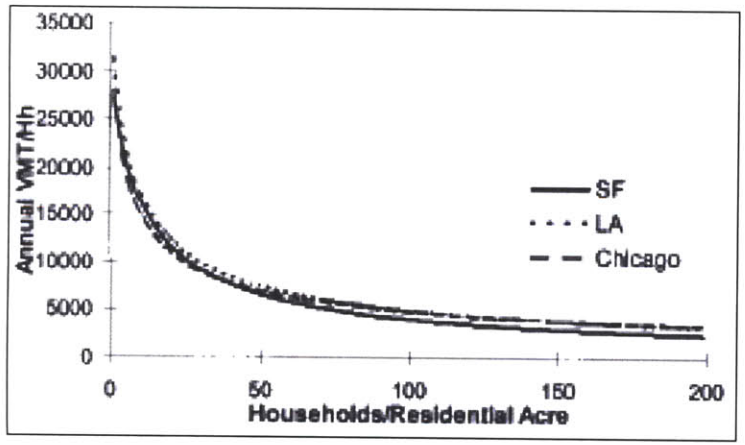
| Density Level | Service or Benefit | |
|---|---|---|
| 4-6 du/acre | Minimal bus service (subsidized) | 1 hour headway |
| 6-7 du/acre | Vehicular Use<br>Walking<br>Transit use | 5.0 daily trips/household<br>0.6 daily trips/household<br>0.2 – 0.3 daily trips/household |
| 7-8 du/acre | Intermediate bus service | 30 minute headway |
| 9+ du/acre | Light Rail | 5 min peak headway |
| 12+ du/acre | Heavy Rail | 25 – 100 sq. mile corridor |
| 12 du/acre | Rapid Transit | 5 min. peak headway<br>100 – 150 sq. mile corridor |
| 15 du/acre | Frequent bus service - High multi-modal potential | 120 buses / day |
| 50 du/acre | Vehicular Use<br>Walking<br>Transit use | 1.2 daily trips/household<br>1.5 daily trips/household<br>1.3 daily trips / household |

Source: Pushkarev & Zupan (1977), Holtzclaw (1994)

### 3.3.2 Decreasing City-Wide Traffic & Congestion

While Pushkarev and Zupan (1977) suggest minimum densities to make rail viable, Hotzclaw and Ditmmar (1994, 2004) suggests that daily trips per household using transit increases substantially when densities reach approximately 50 du/acre (Figure 3.3-1). In Los Angeles, for example, Hotzclaw and Ditmmar (2002) found that as residential density increases, annual vehicle miles traveled decreases and that doubling residential density above the minimum threshold level (i.e. 12 for heavy rail, 9 for light rail) reduces household auto ownership by approximately 35% (Figure 3.3-2). If the city plans to concentrate new development near it's rail system, as specified in the General Plan Framework, it is critical that residential densities increase high enough to decrease daily vehicular trips per household so that automobile traffic does not also increases in the area.

**Figure 3.3-2 Driving v. Residential Density**




Source: Hotzclaw & Dittmar, 2002

### 3.3.3 Appropriate Neighborhood Typologies

Cervero states that densities should gradually decline with distance from the stops, and non-transit compatible (low-intensity) uses should be located away from transit stops through up-zoning or increasing the permitted intensity of land uses in the areas near transit. According to Calthorpe (1993), TODs located near light and heavy rail should be developed with high commercial intensities, job clusters, and moderate to high residential densities. For TODs incorporating light or heavy rail, a minimum residential density of 18 du/res acre is recommended (Figure 3.3-3).

**Figure 3.3-3 Neighborhood Densities**

| Neighborhood Type | Residential Density (du/ res acre) |
|---|---|
| Urban TODs | 18 |

Source: Calthorpe, 1993

### 3.3.4 Mix of Land Uses

The Transportation Research Board (1996) found that people who live in mixed-use blocks with non-residential uses within 300 feet of their residences are 1 to 2 percent more likely to commute by transit, 10 to 15 percent more likely to commute by walking or bicycling, and 3 to 4 percent less likely to commute by car. Calthorpe recommends that urban TODs have anywhere from 20% to 60% of their land devoted to housing (Figure 3.3-4). The importance of providing housing within the TOD radius area can be reflected from the findings that people who live in TOD residential developments are more likely to commute via rail transit then people whom simply work in TOD offices[3].

**Figure 3.3-4 Desired TOD Mix**

| Use | Urban Type |
|---|---|
| Public | 5% - 15% |
| Employment | 30% - 70% |
| Housing | 20% - 60% |

Source: Calthorpe, 1993

[3] Lund, Cervero & Wilson (2004) found that about 26% of state-wide TOD residents commute to work via transit, while only 18% of TOD workers do so.

### 3.3.5 Attractive Design

While sometimes envisioning higher-density residential development stirs up negative images of high-rise housing developments. However, transit supportive densities can be both attractive and appropriate for a mixture of housing type and density needs. For example, residential densities of eight, ten and even twelve units per acre, the minimums typically required to support light and heavy rail service, can be achieved through attractive single-family cluster, zero-lot line or small-lot single-family homes. Two-story townhouses and single-family homes with accessory units can achieve densities of 12-20 units per acre while attractively designed 3- to 4-story flats above parking have been built at densities of 30-70 units per acre.

# 4. Policy Framework & Implementation Analysis: City of Los Angeles

## 4.1. Introduction

Although the idea of building higher density residential development near transit is not a new idea, it has been revisited in recent years as cities realize the sustainability problems associated with the previous auto-oriented suburban developments schemes. Integrating land use and transportation decisions have profound benefits for the community and for the transportation system – achieving the equivalent of billions of dollars in transportation investments. Given LA's growing housing crisis, traffic problems, and environmental concerns, it is no surprise that planners even in Los Angeles embraced the initial Transit-oriented Development momentum felt all around California, as an alternative to the city's previous auto-oriented development patterns. Nearly 30 years after Pacific Electric Railway ended the original streetcar system in Los Angeles, the first segment of light rail, the Blue Line opened in 1990. In order to direct LA's new growth into these transit investments, Los Angeles embarked on an ambitious campaign to steer new development into neighborhoods surrounding rail stations. (Bernick, 1997) This initial momentum sparked two major policy changes: The General Plan Framework and Land Use and Transportation Policy. However, to date various developments have taken place near Metro's rail stations. However, given the initial policy momentum, growing need for new housing and billions of dollars investment in rail infrastructure, many reports have been disappointed at the actual low numbers of housing being built near rail in the City of Los Angeles (Loukaitou-Sideris & Banerjee, 2000; Livable Places, 2002; Ohland,, 2002, etc.). This report will examine, to what extend does zoning and land use limit new medium-high density residential development near rail stations. However, in order to understand this, it is important to understand LA's Policy framework.

## 4.2. Policy Framework

### 4.2.1 Land Use and Transportation Policy

*Overview*

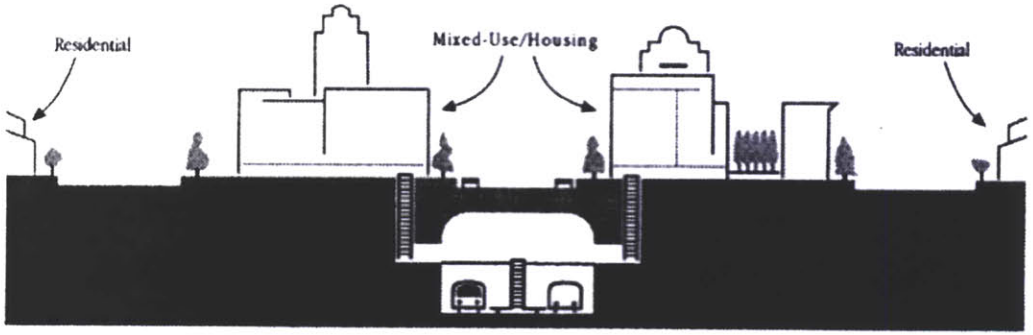
In 1993, the City Council approved the Land Use /Transportation Policy: A Guide to Transit-Oriented Development for the City & the County Metropolitan Transportation Authority (1993) as recommended by the City Planning Commission[4]. The policy aims at directing 75% of all new residential growth onto 5% of the city's land, primarily within a ¼ mile radius of rail stations and major bus stops. The policy create a model city-wide transit-district overlay making suggestions for desired minimum and maximum densities and FARs (Figure 4.2-2) as well as creating transit station area prototypes: Major Urban Centers, Urban Complex, Major Bus Center, Neighborhood Center, Regional/Suburban Center, and Industrial Complex (Figure 4.2-1). In general the Major Urban Center (downtown) has the highest desired densities and FARs while the Suburban Center prototype has the lowest residential densities and commercial FARs.

*Progress*

While the policy has been cited as precedent for various Transit-Oriented District Plans, the policy in itself has no real implementation power at the station area level. While the policy does a good job of laying out basic TOD principals including incorporating different scales of community, appropriate densities, mix of land uses & amenities, required levels of transit service as well as recognizing the uniqueness of various economically challenged neighborhoods along the Blue Line. However, the minimum and maximum density criteria has no regulatory power and ultimately only voluntary in nature that makes actual implementation of the desired density criteria subject to inconsistent compliance (Seattle Department of Transportation).

[4] City Clerk, Council File No. 93-0478.

**Figure 4.2-1 Station Area Prototype for Urban Complex**




Source: Land Use and Transportation Policy, 1993

**Figure 4.2-2 Transportation & Land Use Residential and Commercial Desired Density Criteria**

| Density Criteria | Residential Density (du/res acre) | | | | | |
|---|---|---|---|---|---|---|
| | Major Urban | Urban Complex | Major Bus | Neighborhood | Suburban | Industrial |
| Minimum Desirable Residential Density | 80 | 40 | 20 | 24 | 12 | - |
| Minimum Desirable Mixed-Use Residential Density | 80 | 40 | 20 | 24 | 20 | - |
| Maximum Zoned Residential Density | 100* | 60* | 40* | 40* | 40* | - |
| Minimum Commercial FAR | 6:1 | 4.5:1 | 2:1 | 2:1 | 2:1 | 3:1 |
| Maximum Permitted FAR | 13:1* | 10:1* | 3:1* | 3:1* | 4:1* | 6:1* |

* subject to discretionary approval for increases in FAR or height
Source: Land Use and Transportation Policy, 1993

### 4.2.2 General Plan Framework

*Overview*

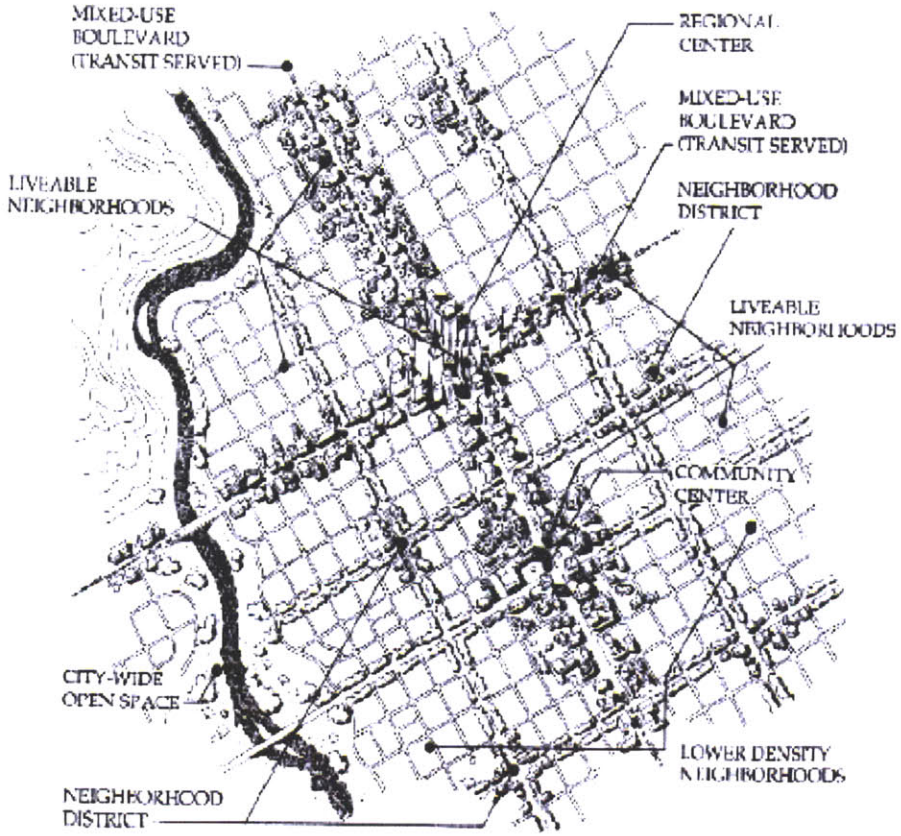
The city's new adopted General Plan Framework (1995) appeared to support many innovative TOD concepts. Especially for a previously auto-oriented Los Angeles, the city seemed to realize the potential for TOD to relive many of the city's growing pains including increasing housing costs and traffic congestion. In general the Framework calls for an increase in density generally within 1/4 mile of transit stations, determining appropriate locations based on consideration of the surrounding land use characteristics to improve their viability as new transit routes and stations. The plan's Land Use, Housing Element, and Urban Form and Neighborhood Design sections all reinforce the idea of concentrating new development near transit and increase the density generally within 1/4 mile of transit stations.

*Progress*

Currently, 42% of the city's land devoted to residential uses of which, a large majority, 84% (104,884 acres), is devoted to single-family use, while only 16% (19,938 acres) is allowed for multi-family buildings including condominiums. According to the Housing Crisis Task Force (1999) approximately 2.3 million residents who live in multifamily dwellings are squeezed into only 16 percent of the residential land, while the remaining 84 percent of residential land is reserved for the 1.5 million residents who own or rent single family homes. Despite the extreme need and demand to build more housing and the documented fixed supply of land, the City's urban form remains shockingly low in density. According to the Census (2000), the City of Los Angeles has a net residential density of 4.5 du/acre (1,337,706 total housing units on 300,005 total land) and a residential density of 10.7 du/ res acre (1,337,706 total housing units on 124,822 acres of residential land).

Although the General Plan Framework attempts to encourage both developing new housing along transit corridors while still protecting single-family neighborhoods, even local elected officials reported that the city's housing policies are still aimed at maintaining or reducing density (Guerra & Marks, 2001).

**Figure 4.2-3 Urban Form Elements**




Source: General Plan Framework Elements, Urban Form & Neighborhood Design

## 4.3. Implementation Strategies

### 4.3.1 LA Zoning Code

*Overview*

LA's current Euclidean-based zoning code, which serves as the main implementation tool for LA's General Plan, was first implemented in Los Angeles in 1909 in order to protect residential uses from surrounding commercial and industrial nuisances. [5][6][7] The basic ordinance includes zoning district and use provisions, with dimensional standards including required lot width, setbacks, maximum heights, densities, FAR, and parking. Incentive zoning is provided in very limited instances, including density bonuses for affordable housing near transit.

*Progress*

In 1986, Los Angeles voters approved a proposition to limit floor area ratio of new buildings in many neighborhoods to 1.5, a ballot box downzoning from the planning department previous 3.0 (Zoning News, 1986). Over the years, LA's zoning code has been expanded to provide several "incentive" based zoning techniques (i.e. Affordable Housing density bonus incentive). Los Angeles' zoning has changed to the extent in which ballot box initiatives have been passed, Community Plans has been updated, new public infrastructure has been implemented on private

---

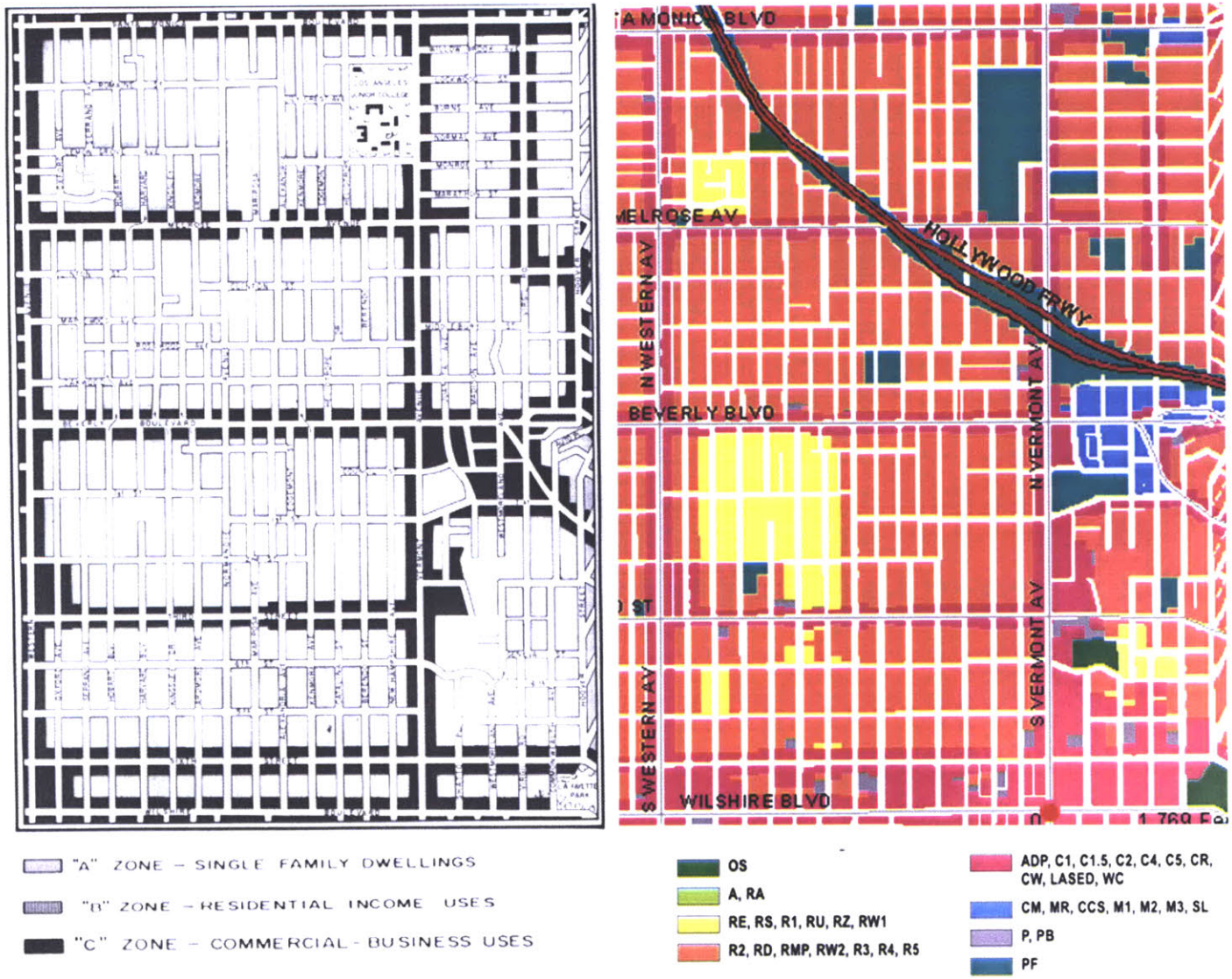
[5] Comprehensive zoning that separates land uses (i.e. residential from commercial) was first upheld by the Supreme Court in 1926 in the case of *Ambler Realty Co. v. Euclid* and is sometimes referred to as "Euclidean zoning."

[6] The city was divided into commercial and residential districts in order to protect the exclusive "single-family" only residence zones from surrounding commercial and industrial zones (e.g., "light," "heavy," "warehousing") considered nuisances to single-family neighborhoods. Multi-family zones were created only with the intent to create buffers from commercial and industrial uses. Zoning in Los Angeles was largely designed to protect the social sensitivities and land values of the new, affluent, auto-oriented suburbanites. The subsequent impact of automobile ownership further encouraged the isolation of uses and more exclusive zoning patterns. (Fogelson, 1993)

[7] Police power is granted by the 5th and 14th amendments, giving government's authority to use zoning to prevent conflicting land uses nuisances and regulate a community's health, morals, safety, or general welfare.

land, and individual property owners have successfully received zoning variances and changes. However, when comparing the zoning maps from 1930 and 2005, although the zoning criteria has become more specific to individual land use types, it is apparent that the City's zoning patterns have remained relatively consistent (Figure 4.3-1).

**Figure 4.3-1 LA's Zoning Past & Present: Hollywood 1930-2005**




Source: Fogelson (1993), Zimas (2005)

### 4.3.2 Density Bonus

*Overview*

The State of California enacted the Transit Village Act (1994) which required cities to grant a minimum of 25% density bonus for housing projects for housing projects that set aside 10-20% of the units for affordable housing. With few developers taking advantage of the density bonuses, in 2005, the state increased the incentive by permitting an additional 10% increase in the density bonus[8]. Los Angeles' Planning Department is currently preparing a draft ordinance and new guidelines for adoption by the Planning commission and City Council.

*Progress*

With relatively few density bonus projects to date, the 25% density bonus created little more than a one to one trade-off (increased density for subsidizing affordable housing units near transit), providing little added incentive for development. It is too early to know if the increase from 25% to 35% will provide a more attractive tradeoff ratio to spur actual development.

### 4.3.3 Transit-Oriented District Plans

*Overview*

In 1995, as recommended by Mayor Richard Riordan, an Ad Hoc committee was formed to prepare an ordinance which would increase density for commercial and residential uses at or near MTA transit stations and rail corridors consistent with the City's Land Use Transportation Policy in as much as the General Plan Framework and Community Plans through Station area Plans and Community Plan updates. Despite efforts made by the Planning Department to create a citywide TOD overlay[9] from the Land Use/ Transportation Policy framework, they found that it was difficult to

---

[8] Density Bonus, SB 1818, Effective January 1, 2005.

[9] Overlay codes are very common in transit districts, because they are often in developed areas. These codes overlay new requirements without changing the requirements of the existing code. Usually, there is a phrase in the overlay code that says that in the case of a conflict, the more restrictive requirement will apply.

craft an appropriate citywide overlay ordinance. On the ground, even between similar station prototypes (i.e. neighborhood centers), the potential for TOD development varied widely by land use, market demand, and availability of available land. Accordingly, despite attempts to make specific provisions for economically disadvantaged communities like those found along the Blue Line, the Planning Department found it impossible to craft a city-wide ordinance that could account for these unique station characteristics to provide the appropriate incentives to attract desired development. Especially at a time in which the transit system was still relatively new, the Planning Department was concerned about enforcing minimum densities in areas where the market wasn't strong enough to support minimum development density requirements especially[10].

Accordingly, the city relied on the individualized efforts of local communities to adopt station specific overlays or Transit-Oriented District plans. These plans would provide additional development incentives, regulations and design standards to encourage transit supportive and appropriate development for that specific station neighborhood. In general these provisions offer density bonuses for affordable housing, reduced parking requirements, and streetscape improvement standards. For example, both of Los Angeles two active Transit-Oriented District Plans: Vermont-Western TOD Station Neighborhood Area Plan (2001) and Avenue 57 TOD Neighborhood Plan (2002) both allow a 15% parking reduction within 1,500 feet of Metro Rail Red Line.

*Progress*

The City Planning Department originally designated a special TOD Planning Unit that attempted for several years to develop transit-oriented districts around rail stations, originally designating seven districts in a variety of stations. However, to date, only 2 out of 41 (5%) of the communities surrounding the light and heavy rail stations have adopted plans (Figure 4.3-2). The fact that these plans require extensive community momentum for both design and approval makes implementation dependent on strong leadership at the community level (California Department of Transportation, 2002). Furthermore, many surrounding neighbors have fear of what following the General Plan's goals of increasing density near transit means for their communities. At many community meetings, density and parking are at the forefront of many

---

To combat the ineffectiveness of Euclidean zoning, overlay zoning offers a more discretionary and flexible approach. Municipalities can use overlay zoning to supplement the Euclidean zoning scheme to combat the ineffectiveness of Euclidean zoning (Jones & Bavoso, 1996).

[10] Interviews with Jane Blumenfeld and Con Howe

community meetings discussing TOD projects[11]. After Loukaitou-Sideris & Banerjee (2000) documented the low residential densities and diverse land uses around the Blue Line, the County created a Blue & Green Line Transit-Oriented District Ordinance providing density bonus and parking reductions for development near four Long Beach Blue Line stations and two Norwalk-El Segundo Green Line stations. Even so, Livable Places (2002) found that although the Blue Line TOD is a step in the right direction, since its adoption in 1994, virtually little real development has occurred in the area eight years later[12]. While it seems that the county was successful at designating transit-oriented districts around four Blue Line and Green Line stations, the County did not follow through with a program to proactively create real development opportunities (California Department of Transportation, 2002).

**Figure 4.3-2 Transit-Oriented District Plans**

| Transit-Oriented District Plans | Transit Type | Agency | Status | Adopted |
|---|---|---|---|---|
| Blue Line Transit-Oriented District Ordinance | Light Rail | City | Drafted in 1994 | |
| Blue & Green Line Transit-Oriented District Ordinance | Light Rail | County | 1994, no real proactive dev incentives | X |
| Northridge Neighborhood Implementation Plan and Strategy | Metrolink | City | Unknown | |
| Broadway & Manchester Transit-Oriented Neighborhood Plan | Bus | City | Drafted in 2000 | |
| Vermont-Western TOD Station Neighborhood Area Plan | Light Rail | City | 2001 | X |
| Avenue 57 TOD Neighborhood Plan | Light Rail | City | 2002 | X |
| La Brea Light Rail Station Area Plan | Light Rail | City | In planning | |

Source: City of Los Angeles Planning Department, 2005; Southern California Association of Governments, 2005.

### 4.3.4 MTA & Joint Development Program

*Overview*

Part of Metropolitan Transportation Authority's (MTA) mission has focused on aligning transit stations and development in order to promote transit-linked development and "activity centers" around stations. The MTA Joint Development Program was adopted in 1994 and established

[11] Informal interviews with Livable Places staff

[12] Livable Places looked at the existing residential densities and development barriers within a ¼ mile radius area of three light rail stations along the Blue Line: Washington Boulevard, Florence/ Firestone, and Long Beach Boulevard and make various recommendation for encouraging TOD housing.

goals to encourage comprehensive planning and development around station sites and along transit corridors as well as to reduce auto use and congestion through encouraging transit-linked development. More specifically, the Joint Development Program seeks development that promotes and enhances transit ridership, enhances and protects the transportation corridor and its environments, enhances the land use and economic development goals of surrounding communities and conform to local and regional development plans, and generate value to the MTA based on a fair market return on public investment (MTA, 1994). The Joint Development process involves coordination with local jurisdictions, the community redevelopment agency, and private developers.

*Progress*

Boarnet & Crane (1995) found that Southern California cities behave as if they prefer to use rail transit stations for economic rather than residential development[13]. When looking at the MTA's joint development policy and development projects this trend to use rail stations as commercial "activity centers" is apparent, station area projects have tended to focus on using station areas to create transit-focused development to create commercial "activity centers". To date, the MTA has taken on a variety of development projects with five completed, one in construction (Wilshire/ Vermont), three in negotiating, as well as a variety of potential sites identified for further study. With up to $375 to $650 million dollars invested in projects incorporating up to 2 million and 624,000 square feet of retail and 2,800 and 3,000 parking spaces at Union Station and Hollywood & Highland, MTA's pilot Joint Development projects tended to be transit-adjacent and commercially oriented. While the high number of parking spaces at Union Station are due to the location of the MTA's Park and Ride facilities while the high number of parking spaces at Hollywood & Highland are due to the high square footage of retail space.

Promoting transit-adjacent rather than transit-oriented development does little to ensure that visitors to the area actually choose transit as their mode option. MTA's Hollywood and Highland TOD project was criticized among the transit development community as being nothing more than a glorified shopping mall sitting on top of a transit station (Ohland, 2002). Porter (1997) suggest that although previously auto-oriented cities like Los Angeles show promise of moving in the right direction, they are vulnerable to political and market forces that continue to favor automobile-

[13] Findings: station areas had a 47% higher share of high-density residential development they found that these station areas also had a 340% higher share of commercial zoning than traditional developments, suggesting that municipalities

dependent patterns of development. Accordingly, with MTA's ability to leverage large vacant infill parcels enables private developers to secure a high enough rate of return on a risky investment considering the relatively new character of transit in Los Angeles in the early 90s (Figure 4.3-1).

More recent MTA projects have been smaller in scale and have begun to incorporate housing into the transit development mix including both market and affordable as well as for sale and rental units. (Figure 4.3-3) The success and scale of MTA's projects has been attributed to extensive proactive public efforts in financing and assembling land (Seattle Department of Transportation).

**Figure 4.3-3 MTA Joint Development Projects**

| Name | Stage | Description | Agency/ Developer | Acre | Cost (mil.) | Parking Spaces | Office Space (sq. ft.) | Retail. Space (sq. ft.) | Total Du | Res Density (du/res acre) | Res Type |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7th Street Metro Center | Completed, 1995 | Shopping center | MTA | 4.3 | unknown | 80 | 62,000 | 7,075 | - | - | - |
| Union Station | Completed, 1995 | MTA headquarters, office, intermodal station gateway | MTA | 12.3 | $375 | 2,800 | 1,000,000 | 2,000,000 | - | - | - |
| Hollywood/ Highland | Completed, 2001 | 640-room hotel, retail, parking garage, theater | MTA/ Trizec Hahn | 8.7 | $650 | 3,000 | - | 624,000 | - | - | Hotel |
| Hollywood/ Western | Completed, 2000-2004 | 2 phases, housing, retail, a childcare center. | MTA/ McCormack Baron Salazar | 2.3 | $75 | unknown | - | 9,000 | 60* | 26 | Apt |
| Wilshire/ Vermont | Construction, 2006 | Commercial, residential, child care, middle school | MTA/ CRA/ Urban Partners | 4.0 | $155 | 700 | - | 260,000 | 380* | 95 | Apt |
| Wilshire/ Western | Negotiation, 2007 | Mixed-dev 16 floors condo, 2 retail, bus layover facility | MTA | 2.3 | $43 | 700 | - | 49,500 | 195* | 83 | Condo |
| Westlake/ Mac Arthur Park | Negotiation, 2007 | housing, enter., complex, office & retail | MTA/ CRA/ MacArthur Park LLC | 3.7 | $43 | 483 | 86,000 | - | 310* | 85 | unknown |
| Hollywood/ Vine | Negotiation, 2009 | W Hotel & retail (street), bus layover | MTA/ Legacy Partners | 2.8 | $325 | 982 | - | 72,500 | 500 | 179 | Condo, Apt |
| Total | | | | 40.4 | $1,666 | 8,745 | 1,148,000 | 3,022,075 | 1,445 | 468 | |
| Average** | | | | 5.0 | $238 | 1,249 | 382,667 | 431,725 | 289 | 94 | |

* Includes affordable units, **average for projects specifically including development type

Notes: Potential Joint Development Sites in LA City: North Hollywood, Metro Gold Line Eastern Extension, Vermont/ Beverly, Vermont/ Sunset

Source: MTA Joint Development Program Overview (2005), J.h. Synyder Co., 2005.

**Figure 4.3-1 Large Vacant Parcel at Hollywood/ Highland Development Site**

Source: MTA Joint Development Program, 2005.

### 4.3.5 Community Redevelopment Agency

*Overview*

The Community Redevelopment Agency (CRA) of the City of Los Angeles is a public agency established to attract private investment into unsafe properties, and blight throughout Los Angeles, revitalize older housing for all income levels, encourage economic development, create and retain employment opportunities, support the best in urban design, architecture and the art, and ensure the broadest possible citizen participation in its activities. While the MTA leverages agency-owned properties with adjoining privately owned property, the CRA uses property tax funds and its police power to leverage community redevelopment projects.

*Progress*

The CRA has been actively involved in various transit station developments including Wilshire/ Vermont, North Hollywood and MacArthur Park (Figure 4.3-3). Despite attempts to promote the creation of housing in less developed areas like MacArthur Park and along the Blue Line, it seemed even density bonus incentives were not enough to make these areas attractive to investors. While, the initial MTA joint development at Westlake-MacArthur Park (1995) dissolved due to the fact that private investors were not yet willing to invest in the project due to an uncertain market and the fact that the rail station had not yet been built (Bernick, 1997), nearly a decade later, a new mixed-use project is proposed to be built in 2007. Diamond & Noonan (1996) suggests that reordering development patterns to integrate regional development with transit systems takes many years of continuous efforts. In the case of developing a TOD at MacArthur Park, it took approximately 12 years of various efforts for the project to finally come to the final development stages.

### 4.3.6 Residential/ Accessory Services (RAS) Zone

*Overview*

Developing mixed-use housing along commercial corridors often requires demolishing existing structures, conforming to transitional height restrictions and purchasing land two to three times the price as nearby residential land[14]. The Residential/ Accessory Services (RAS) Zone permits a broader range of retail uses on the ground floors of multifamily projects. This enables the developer to build more total units than regularly permitted, thus allowing a greater margin for profit and making affordable housing construction more attractive to the private sector.

*Progress*

The RAS allows for mixed-use development previously restricted to the degree of being basically prohibited by the zoning code since it's creation in 1909. In general, the new code marks a change in Los Angeles zoning policy and promotes greater public acceptance of multifamily units. However, to date, there are relatively few parcels zoned as RAS and developers are still required to apply for a zoning change in order to take

[14] assessed land value, Zimas, 2005

advantage of the new zone. Although the city has adopted a set of preconditions to the approval of mixed-use development projects and has approved several mixed-use development projects, it has refused to adopt any ordinance authorizing mixed-use projects as a matter of right (Kublicki, 2001). It is too early to tell exactly what will be the impact of the ordinance on actual TOD development.

### 4.3.7 Adaptive Reuse Ordinances

*Overview*

In 1999, the city adopted an ordinance to facilitate the conversion of old abandoned downtown office building into housing. The ordinance made it possible to convert many beautiful historic buildings into apartments and condominiums by waiving modern zoning requirements that made adaptive reuse difficult while still ensuring building safety and preserving historic architecture.

*Progress*

While the ordinance was originally drafted for the downtown area, it was expanded to include Hollywood, Koreatown, Chinatown, and then again to be applied to the entire city. With the new ordinance easing the process of restoring and repositioning historic office and industrial buildings, a total of 2,477 new housing units have been built in close proximity to transit in downtown. With another 2,466 units under construction and 1,224 in plan check in other rail transit supportive areas like Hollywood, along the Wilshire Corridor, in Lincoln Heights and in North Hollywood, adaptive reuse projects seem to be well received in the market (Figure 4.3-2).

**Figure 4.3-2 Completed Adaptive Reuse Projects in the City of Los Angeles**

| Project Name | Units | Completion Date |
|---|---|---|
| San Fernando Building | 70 | 2000 |
| Continental Building | 56 | 2001 |
| Hellman Building | 104 | 2001 |
| Spring Tower Artist Lofts | 37 | 2001 |
| Standard Hotel | 207 | 2002 |
| Flower Street Lofts | 91 | 2003 |
| Higgins Building | 135 | 2003 |
| Little Tokyo Lofts | 161 | 2003 |
| Orpheum Lofts | 37 | 2003 |
| Pegasus | 322 | 2003 |
| 1043 S. Grand Avenue | 9 | 2004 |
| 1725 W. 6th Street | 21 | 2004 |
| Barry Lofts | 280 | 2004 |
| City Lofts | 35 | 2004 |
| Far East Café Building | 16 | 2004 |
| Santa Fe Lofts | 103 | 2004 |
| Santee Court (Phase I) | 165 | 2004 |
| South Park Lofts | 49 | 2004 |
| The Historic Gas Company Lofts | 251 | 2004 |
| Tomahawk Building | 7 | 2004 |
| Toy Factory Lofts | 119 | 2004 |
| Bartlett Building | 140 | 2005 |
| Texere Plaza | 62 | 2005 |

Notes: Completed: 23 projects, 2,477 units; In Construction: 25 projects, 2,466 units; In Plan Check: 9 projects, 1,224 units; Under Immediate Consideration: 12 projects, 1,169 units; Future Consideration: over 35 projects, 3,080 units.

Source: Los Angeles City. Bureau of Engineering. 2005.

### 4.3.8 Small Lot Subdivision (Townhome) Ordinance

*Overview*

Guerra, Marks, and Brackman (2001) documented to need for the city to create more flexible zoning codes to encourage development of housing, where appropriate, minimum lot size requirements should be reduced to encourage the development of housing for rent and ownership. LA's most recent policy initiative, the Small Lot Subdivision (Townhome) Ordinance, promises to do just that. The ordinance allows multi-family developers to subdivide large lots and provide detached townhomes in order to avoid high condominium insurance fees. Although the lots are still subject to the existing minimum units per acre density requirements, the ordinance allows parcels to be subdivided into smaller private lots in order to create a more affordable homeownership option.

*Progress*

It is too early to tell just how effective this policy will be on allowing communities to reach their currently allowed housing capacity.

### 4.3.9 Infill Housing Evaluation Tool Pilot Project

*Overview*

In 2002, Livable Places stressed the need for local jurisdictions to take a more proactive approach to TOD development, suggesting the city make an inventory of vacant and obsolete parcels for development, rezoning and updating station areas, and assembling land parcels to bring down construction costs on small parcels. Environment Now acknowledges that because there is no effective, standardized mechanism for identifying vacant or underutilized sites in urban areas and evaluating their potential for redevelopment, it is often easier for developers to identify development sites in largely undeveloped outlying areas than to seek out vacant or underutilized sites within urbanized areas. (Environment Now, 2005) With a $300,000 grant from the California Department of Transportation, the City of Los Angeles, L.A. County, and a team of consultants from Environment Now have developed the first phase of an innovative GIS-based infill-housing tool. When developed the tool will provide a way for policymakers, developer and neighborhood residents to identify and map infill development sites and to quantify the new housing that could be produced on them. It can be used to identify certain geographies (i.e. all parcels within ¼ mile of transit), and to test infill strategies (i.e.

what if we provided a density bonus of reconverting obsolete shopping centers into housing?). The GIS system can map eligible parcels at a parcel level, neighborhood level, or regional level, quantify the current number of units on the parcels, and calculate the net number of units the strategy could yield. (**Error! Reference source not found.**) (Planning Department, 2005)

*Progress*

Although the project is still in development and it is too early to know what it's impact will be for Los Angeles, the project has potential to provide a more uniform methodology for identifying and assessing potential infill sites and help build an overall better coordination of transportation and land use planning, and more accessible and affordable housing in Los Angeles.

**Figure 1.1-3 Characteristics of LA's TOD Policy Framework & Implementation Tools**

| Name | Year | Description | Area | Level | Progress | Success as Tool? |
|---|---|---|---|---|---|---|
| Land Use Transportation Policy | 1994 | Provides a model TOD Ordinance suggesting residential incentives such as density bonuses and parking reductions by neighborhood and transit type. | ¼ mile radius | City/ County | No real implementation strategies, zoning changes | |
| Density Bonus | 1994, 2005 | Grants a 35% (previously 25%) affordable housing density bonus by right for dev. within 1,500 feet of a major transit stop. Permits one parking space per unit for affordable housing dev. with 1,500 feet of transit | 1,500 feet radius | State/ City | Few projects to date. To early to tell if 35% bonus will be enough density bonuses to incentivize developers | + |
| MTA Joint Development Policy | 1994 | A real property asset development and management program designed to secure the most appropriate private and/or public sector development on MTA-owned property at and adjacent to transit stations and corridors. | Immediate station area | County | Various completed projects, trend towards commercial, economic dev transit-focused dev/ activity centers. (Approx 1,445 units built) | + + |
| General Plan Framework | 1995 | Transit Station, Housing Element, & Urban Form sections encourages new development within ¼ mile of the transit stations | ¼ mile radius | City | Innovative ideas at the time for Southern California. No real implementations tools. | |
| Adaptive Reuse Ordinance | 1999 | Facilitates the conversion of old abandoned downtown office building into housing. Ability to convert historic buildings into apartments and condominiums by waiving modern zoning requirements that made adaptive reuse difficult while still ensuring building safety and preserving historic architecture. | City | City | Well received in the market. Various new residential projects have been under way or proposed downtown. Expanded to be applied to the city. (Approx 2,477 units built) | + + |
| Transit-Oriented District Plans | 2001 | Provides station specific overlays providing for density bonuses near parking reductions near transit stations | Indiv stations | City | Few projects to date (2) Requires community support and strong local leadership to push forward | + |
| Residential Accessory Services (RAS) | 2003 | Permits a broad range of retail uses on the ground floors of multifamily projects. Enables the developer to build more total units than regularly permitted, thus allowing a greater margin for profit and making affordable housing construction more attractive to the private sector. | com. corridors | City | Change for dev. city previously disallowed. Promotes greater public acceptance of multifamily units. Few parcels zoned. Requires zoning change | ? |
| Small Lot Subdivision (Townhome) Ordinance | 2005 | Permits small lot, fee-simple ownership opportunities in commercial and multi-family neigh. Properties may be subdivided into much smaller lots than required under zoning.while complying with the density requirements | Com. corridors | City | Too recent to tell, potential to achieve existing housing capacity allowed under current zoning | ? |
| Infill Housing Evaluation Tool Project | 2005 | GIS tool to identify and map infill dev sites and to quantify the new housing that could be produced on them. | County | City/ County | Too recent to tell, potential for better information access and inter agency coordination | ? |

# 5. Transit Capacity for TOD Housing: City of Los Angeles

## 5.1. Introduction

Although perhaps contrary to the image that most people have for Los Angeles today, evoking pictures of an endless sea of sprawl and traffic, L.A. was actually built up around the streetcar. In the '20s the Pacific Electric was the largest electric trolley system in the country, with 6,000 trains running on 144 routes extending into four counties. Most of today's major transportation corridors follow the routes of old streetcar lines rail flourished in Los Angeles during the first half of the 20$^{th}$ Century. In fact, Los Angeles streetcar system which included both red and yellow lines as illustrated in Who Framed Roger Rabbit flourished even more so than it did in San Francisco, originally covering over 1,100 miles of track with a total transit boardings of 320 million in 1950. Unfortunately, after the rise of the automobile devastating effects on street railway operations, Los Angeles' original rail lines were plowed under to make way for an extensive freeway network (Wachs, 1984). Rail transit in Los Angeles wasn't reopened until the 90s when L.A.'s modern regional rail system was reconceived as part of L.A.'s city-centered plan concept in the 1960s and 1970s, intending to provide alternatives to automobile travel in the Los Angeles.

## 5.2. LA's Modern Day Rail System

While then system planning began in the early 1980s the first segment of the Metro system, the Blue Line, wasn't opened until July of 1990. The Metro system is still expanding with the most recently completed segment, the Gold Line, opened in 2003 and with two more rail extensions estimated to open in 2009. Since 1995, the rail system has continued to grow to include both light and heavy rail lines with weekday boardings ranging from 117,507 for the red line and 15,226 for the gold line. By the end of this decade, L.A.'s Metro system will incorporate a total of 84 stations (41 residing within the city's boundaries) along 5 rail lines, and covering over 88.7 miles within LA County (Figure 5.3-1). However, with estimated average weekday boarding of 284,582 people per week estimated when including, or 14,798,264 boardings a year, Los Angeles's modern rail system still falls behind the 320 million in annual boardings in 1950. To date, LA County has spent a total of $6.9 billion on rail infrastructure with an additional 1.2 billion estimated to be spent over the next 4 years, totaling $8.2 billion dollars. (Figure 5.2-1)

**Figure 5.2-1 Characteristics of LA Metro Rail Transit**

| Line | Transit Type | Year Completed | Stations | Miles of Line | Average Weekday Boardings | Boardings per Mile | Ridership by Station | Cost of System | Cost per Mile |
|---|---|---|---|---|---|---|---|---|---|
| Blue | Light | 1990 | 22 | 22 | 75,122 | 3,415 | 3,415 | $8.7 million | $4.0 million |
| Red | Heavy | 1993-2000** | 16 | 17.4 | 117,507 | 6,753 | 7,344 | $4.5 billion | $2.6 million |
| Green | Light | 1995 | 14 | 20 | 33,227 | 1,661 | 2,373 | $7.2 million | $3.6 million |
| Gold | Light | 2003 | 13 | 13.7 | 15,226 | 1,111 | 1,171 | $8.6 million | $6.3 million |
| Gold Eastside | Light & Heavy | 2009 | 8 | 6 | 23,000 | 3,833 | 2,875* | $9.0 million | $1.5 million |
| Exposition | Light | 2009 | 11 | 9.6 | 20,500 | 2,135 | 1,864* | $3.4 million | $3.6 million |
| Total | Light & Heavy | 1990-2009 | 84 | 88.7 | 284,582 | 3,208 | - | $8.2 billion | - |

Notes: * future ridership estimated by MTA ** downtown stations (1993), Wilshire extension (1996), Hollywood (1999) North Hollywood (2000)
Source: Metro Transit Authority, Los Angeles

### 5.2.1 Transit Station Development Criteria

Various political, economical, fiscal, and physical criteria were considered when Los Angeles modern day rail system was being re-implemented in Los Angeles, including the ability to use existing rail right-of-way, political support, and the objective to linking existing higher density commercial and residential development nodes. The Blue, Gold, and Exposition lines run along existing rail right-of-ways while the Green Line was placed in the middle of the Century Freeway. The Red Line, the city's only heavy rail line, runs under some of LA's highest density commercial and residential areas including the Wilshire Corridor and Hollywood.

### 5.2.2 Transit Station Development Waves

With Los Angeles City's originally streetcar systems dating back from 1873 to 1910, for purposes of this report, Los Angeles' modern rail system will be consolidated by decades into four waves of rail transit construction as subsequent extensions are added radiating from the Downtown City center.

| Wave | Time | Characteristics |
|---|---|---|
| Original | 1873-1910 | Original street railway |
| 1st | 1990-1994 | Start of modern rail system, includes Blue Line & downtown stations |
| 2nd | 1995-1999 | Includes Green Line, Wilshire Corridor, & Hollywood |
| 3rd | 2000-2004 | Includes North Hollywood & Gold Line |
| 4th | 2005-1999 | Includes proposed Exposition and Eastside Gold Line |

## 5.3. Transit Potential

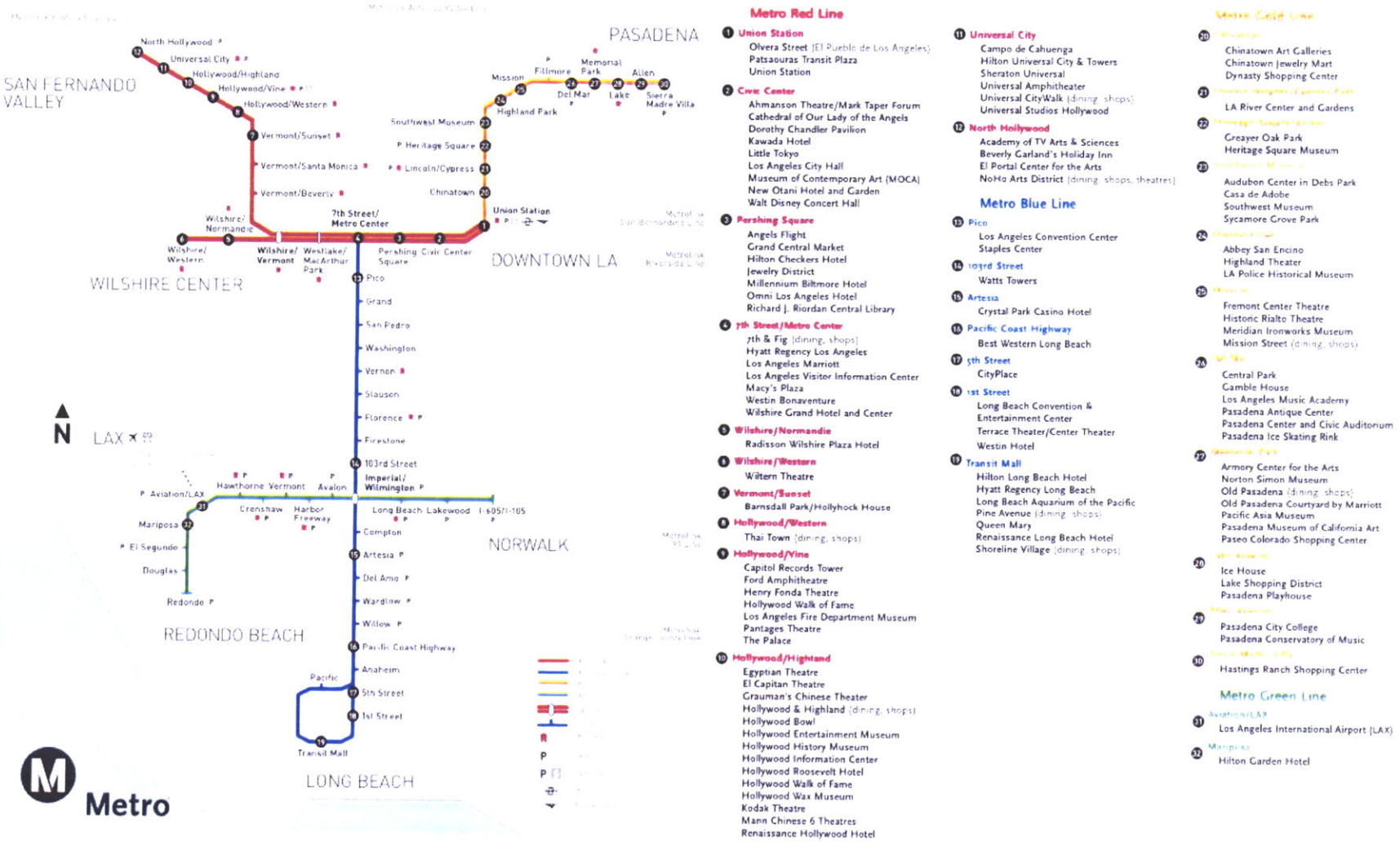
### 5.3.1 Destinations

The placement of the light rail stations along existing rail lines may seem reasonable according to transit planners (reinstating existing rail right-of-ways), to the general populations, there placement surrounded by low density residential, freeway or industrial uses may seem arbitrarily to a Los Angeles resident. Many explain that they don't rely on Los Angeles' Metro because it doesn't go anywhere that they want or need to go and that driving is their only reasonable option.

However, not all of LA's rail stations are far from destinations. The Red Line stations are in close proximity to a variety of tourism, commercial, medical, learning and cultural facilities (Figure 5.3-1). While the Red Line's heavy rail can provide higher frequency service to more regional and neighborhood destinations such as the Chinese Theater at Hollywood/ Highland to Thai Town at Hollywood/ Western, downtown stations provide higher density office and commercial regional facilities varying from the Jewelry District at Pershing Square to the Mark Taper Forum at the Civic Center. As one of the most transit-rich and densely packed parts of Los Angeles, 16% of shoppers come to Hollywood on bus and another 16% come on the Red Line (Lund, Cervero & Wilson, 2004). With the red line being reinstated in downtown, pedestrian activity is picking up, businesses are being revitalized and lofts being renovated, giving new life to a previous disinvested city center. In recent years with the constructions of the 20,000-seat Staples Center sports arena (in close proximity to Pico Blue Line Stations) and the $275 million, 2,295-seat Walt Disney Concert Hall (proximity to Civic Center Red Line Station) opening this fall, Hollywood's young, hip crowd and professionals who work there are beginning to migrate downtown.

Various station acts as Park & Ride/Kiss & Ride destinations such as North Hollywood, Universal City, Hollywood/Vine ($4.45 per day), Union Station ($5.50 per day), Westlake/MacArthur Park, Wilshire/Vermont where free (unless otherwise specified) automobile and motorcycle parking for Metro Red Line commuters is available and where automobiles can stop or temporarily park to drop off Metro Rail passengers.

**Figure 5.3-1 Los Angeles City Existing Rail Station Destinations Map & Information**




**Metro Red Line**

1. **Union Station**
   Olvera Street (El Pueblo de Los Angeles)
   Patsaouras Transit Plaza
   Union Station
2. **Civic Center**
   Ahmanson Theatre/Mark Taper Forum
   Cathedral of Our Lady of the Angels
   Dorothy Chandler Pavilion
   Kawada Hotel
   Little Tokyo
   Los Angeles City Hall
   Museum of Contemporary Art (MOCA)
   New Otani Hotel and Garden
   Walt Disney Concert Hall
3. **Pershing Square**
   Angels Flight
   Grand Central Market
   Hilton Checkers Hotel
   Jewelry District
   Millennium Biltmore Hotel
   Omni Los Angeles Hotel
   Richard J. Riordan Central Library
4. **7th Street/Metro Center**
   7th & Fig (dining, shops)
   Hyatt Regency Los Angeles
   Los Angeles Marriott
   Los Angeles Visitor Information Center
   Macy's Plaza
   Westin Bonaventure
   Wilshire Grand Hotel and Center
5. **Wilshire/Normandie**
   Radisson Wilshire Plaza Hotel
6. **Wilshire/Western**
   Wiltern Theatre
7. **Vermont/Sunset**
   Barnsdall Park/Hollyhock House
8. **Hollywood/Western**
   Thai Town (dining, shops)
9. **Hollywood/Vine**
   Capitol Records Tower
   Ford Amphitheatre
   Henry Fonda Theatre
   Hollywood Walk of Fame
   Los Angeles Fire Department Museum
   Pantages Theatre
   The Palace
10. **Hollywood/Highland**
    Egyptian Theatre
    El Capitan Theatre
    Grauman's Chinese Theater
    Hollywood & Highland (dining, shops)
    Hollywood Bowl
    Hollywood Entertainment Museum
    Hollywood History Museum
    Hollywood Information Center
    Hollywood Roosevelt Hotel
    Hollywood Walk of Fame
    Hollywood Wax Museum
    Kodak Theatre
    Mann Chinese 6 Theatres
    Renaissance Hollywood Hotel
11. **Universal City**
    Campo de Cahuenga
    Hilton Universal City & Towers
    Sheraton Universal
    Universal Amphitheater
    Universal CityWalk (dining, shops)
    Universal Studios Hollywood
12. **North Hollywood**
    Academy of TV Arts & Sciences
    Beverly Garland's Holiday Inn
    El Portal Center for the Arts
    NoHo Arts District (dining, shops, theatres)

**Metro Blue Line**

13. **Pico**
    Los Angeles Convention Center
    Staples Center
14. **103rd Street**
    Watts Towers
15. **Artesia**
    Crystal Park Casino Hotel
16. **Pacific Coast Highway**
    Best Western Long Beach
17. **5th Street**
    CityPlace
18. **1st Street**
    Long Beach Convention & Entertainment Center
    Terrace Theater/Center Theater
    Westin Hotel
19. **Transit Mall**
    Hilton Long Beach Hotel
    Hyatt Regency Long Beach
    Long Beach Aquarium of the Pacific
    Pine Avenue (dining, shops)
    Queen Mary
    Renaissance Long Beach Hotel
    Shoreline Village (dining, shops)

**Metro Gold Line**

20. **Chinatown**
    Chinatown Art Galleries
    Chinatown Jewelry Mart
    Dynasty Shopping Center
21. **Heritage Square/Cypress Park**
    LA River Center and Gardens
22. **Highland Park/Southwest Museum**
    Creayer Oak Park
    Heritage Square Museum
23. **Mission/Fillmore/Memorial Park**
    Audubon Center in Debs Park
    Casa de Adobe
    Southwest Museum
    Sycamore Grove Park
24. **Del Mar**
    Abbey San Encino
    Highland Theater
    LA Police Historical Museum
25. **Lake**
    Fremont Center Theatre
    Historic Rialto Theatre
    Meridian Ironworks Museum
    Mission Street (dining, shops)
26. **Allen**
    Central Park
    Gamble House
    Los Angeles Music Academy
    Pasadena Antique Center
    Pasadena Center and Civic Auditorium
    Pasadena Ice Skating Rink
27. **Memorial Park**
    Armory Center for the Arts
    Norton Simon Museum
    Old Pasadena (dining, shops)
    Old Pasadena Courtyard by Marriott
    Pacific Asia Museum
    Pasadena Museum of California Art
    Paseo Colorado Shopping Center
28. **Lake**
    Ice House
    Lake Shopping District
    Pasadena Playhouse
29. **Allen**
    Pasadena City College
    Pasadena Conservatory of Music
30. **Sierra Madre Villa**
    Hastings Ranch Shopping Center

**Metro Green Line**

31. **Aviation/LAX**
    Los Angeles International Airport (LAX)
32. **Mariposa**
    Hilton Garden Hotel

Notes: does not include Exposition & Gold Eastside Extension lines which runs east towards east LA and west towards Santa Monica

Source: MTA, 2005

## 5.4. Factors Affecting Transit Capacity

### 5.4.1 New System

Characteristic of other new transit systems built in the 1990s, like Sacramento, San Jose and San Jose, Los Angeles' transit station neighborhood areas are still much in transition accommodating new development around these new transit investments (Figure 5.4-1).

**Figure 5.4-1 Generations of Urban Rail Transit Systems**

| Generation | City or Region | (Year Modern Operations Initiated) |
|---|---|---|
| Simultaneous city/ transit development continuous since the mid 1800s, including modern extensions | Boston | |
| | Chicago | |
| | Cleveland | |
| | New York | |
| | Philadelphia | |
| Mid 1950s to mid 1970s major region wide systems: | Toronto | (1954) |
| | San Francisco | (1973) |
| | Washington, D.C. | (1976) |
| The Third Wave, late 1970s through 1980s: | Atlanta | (1979) |
| | San Diego | (1981) |
| | Miami | (1984) |
| | Buffalo | (1985) |
| | Pittsburgh | (1985) |
| | Portland | (1986) |
| | Vancouver | (1986) |
| | Baltimore Metro | (1987) |
| New systems the 1990s: | Los Angeles | (1990) |
| | Sacramento | (1990) |
| | San Jose | (1991) |
| | Baltimore LRT | (1992) |
| | Detroit | (1993) |
| | St. Louis | (1993) |
| | Denver | (1994) |
| | Dallas | (1996) |

Source: Porter 1997

### 5.4.2 Competing with the Automobile

Despite the fact that the City of Los Angeles's renewed rail system will soon cover 84 miles, the city's 160+ miles of freeway and 5,400 miles of roadways over 466 square miles still out rivals the rail system (Figure 5.4-2). While Calthorpe (1997) highlights the fact that people who live in TOD residential developments are more likely to commute via rail transit then people who simply work in TOD offices, Cervero (1994) demonstrates the fact that transit has historically not competed well with the automobile under existing land use patterns have counterbalanced transit's seemingly attractive benefit for residential development.

**Figure 5.4-2 Aerial View of Harbor Freeway**

Source: Stock Photo, 2005

### 5.4.3 Community Resistance

Unfortunately for LA transit riders today, the original plans to extend rail line to Santa Monica beach were stopped do to opposition from neighborhoods along the proposed rail line. The new plans to extend the Exposition line, which will stop in Culver City by the end of this decade, is ultimately envisioned by the MTA to reach Santa Monica.

### 5.4.4 Regional Economic Factors

While in the 1930s, Los Angeles' central city had a concentration of businesses, services, and commercial activities, these business activities dispersed as the trend in suburbanization increased (Wachs, 1984). Although MTA's city-center plan attempts to revitalize downtown and attract a higher concentration of business, it will be a long battle in reversing many years of economic dispersion throughout the region.

### 5.4.5 Influence of Density

It still remains unknown if people living in a city built to accommodate the automobile will ditch their cars for rail. With this bias towards the automobile, it is no surprise Lund, Cervero & Wilson (2004) found that, Los Angeles Metro: Long Beach has the low percentage (3.3%) of its surrounding residents actually using the line to commute to work (Figure 5.4-3). Their same research shows that despite highest ridership numbers in Hollywood, LA's most dense neighborhood areas served by heavy rail transit, overall ridership by those who worked in Hollywood is still 10% lower than the rest of California.

**Figure 5.4-3 Percent of Trips Made by TOD Residents in various California Cities**

| *Percent of trips made by the following modes* | All Sites | BART: Pleasant Hill | BART: S. Alameda City | LA Metro: Long Beach | S.D. Trolley Mission Valley | Caltrans Commuter |
|---|---|---|---|---|---|---|
| Vehicle | 71.7 | 52.9 | 61.6 | 93.3 | 84.9 | 81.9 |
| Transit | 26.5 | 44.9 | 37.8 | 3.3 | 13.0 | 17.4 |
| Other | 4.1 | 2.3 | 0.6 | 0.6 | 2.2 | 0.8 |

Source: Cervero, Lund, Wilson, 2004

### 5.4.6 Additional Factors

As Holtzclaw and Dittmar (2002) point out, there are also other additional factors that influence transit use varying from social attitudes (i.e. perception of public transit), cost factors (cost of car ownership relative to transit cost), government policies (i.e. requiring employers to pay for transit) to transit design (i.e. pedestrian attractiveness of stations (Figure 5.4 4). While the city's high cost of living and congested freeways seem to be some of the strongest factors encouraging transit ridership, various prevalent attitudes that transit is for those who can't afford to drive or the decentralized nature of the city are strong forces against supportive transit ridership. Although there has been a lot of recent activity downtown with new lofts being developed and new regional activity centers being concentrated there, the city-center initiative that first inspired the MTA's rail system network is growing stronger and increasing the attractiveness of rail as a mode option to travel downtown.

**Figure 5.4-4 Additional Factors Influencing Transit Use**

| Additional Factors | LA Characteristic | Degree Transit Supportive/ Prohibitive |
|---|---|---|
| Age and attractiveness of the central city | In transition: new regional activity destinations including Staples Center & Phil Harmonic but employment centers dispersed throughout city which means need to commute to city center not as strong as other cities | + |
| Attitude toward driving and public transit | Prevalent attitude is transit is only for those who can't afford to drive, car culture | - - - |
| Cost of living | 33% above the national average, housing costs one of most expensive in nation (median rental price is $725 in 2005) | + |
| Cost of owning and operating a car | Estimated at $8,000 a year | + |
| Cost of transit | Low base fare of $1.25 for each line | + |
| Pleasantness of transit | Many stations have unattractive pedestrian surroundings (i.e. in middle of freeway, industrial areas) | - - |
| Reliability of transit | Service operates on set reliable schedules | + |
| Connectivity of transit | Currently transit destination are limited to the Red Line | - |
| Safety of transit | elevated perceived level of crime | - |
| Highway congestion | levels of congestion in region are worse in country | + + |
| Travel times** | Relatively fast travel times from radial lines into the central city | + |
| Gov or private programs to encourage use of transit | city policy requires employers to pay for transit | + |
| Climate | warm & temperate, encourages pedestrian activity in all seasons | + |

**5-10 minute headways (heavy v light), runs from 4:30am-2:00am, travel time from North Hollywood to Union Station (30 minutes) and 103rd St. to 7th Metro (22 minutes), Highland Park to Union Station (20 minutes)

Source: Holtzclaw, Dittmar (2002), Automobile Club of Southern California (2001), California Department of Transportation (2002)

# 6. Housing & Land Use Characteristics: Rail Station Neighborhoods

## 6.1. Introduction

While Pushkarev & Zupan (1977) demonstrate that housing density near transit is a factor in increasing transit ridership various other studies have looked at the existing housing and land use transit characteristics near transit stations as one way to understand how Los Angeles City will grow to support transit in the future. (Loukaitou-Sideris & Banerjee, 2000; Boarnet & Crane, 2000, Livable Places, 2002). Boarnet & Crane (1995) first provided a "reality check" for transit-based housing looking at land use and housing densities in order to understand its prospects. They gathered information from the ¼ mile radius of 232 existing or proposed stations in the greater Los Angeles and San Diego metropolitan areas. This chapter will conduct a similar analysis looking at 41 station areas within the City of Los Angeles using as well as provide a spatial analysis through presenting various housing and land use maps and a summary of the land use and housing characteristics for the ¼ mile radius of all stations, grouped by station characteristic (i.e. blue v gold, light v heavy, old v new).

## 6.2. Los Angeles City Maps

The following maps provide an overview of housing and land use in the City of Los Angeles. In general the housing density is concentrated in the central city area while the lower density single family land uses are largely found in the north-west part of the city north of Hollywood and inn various pockets throughout the city like the single-family neighborhoods located along the Gold Line towards Pasadena and west of the Wilshire corridor extension.

**Figure 6.2-1 Map of Housing Units and Rail Stations in Los Angeles**

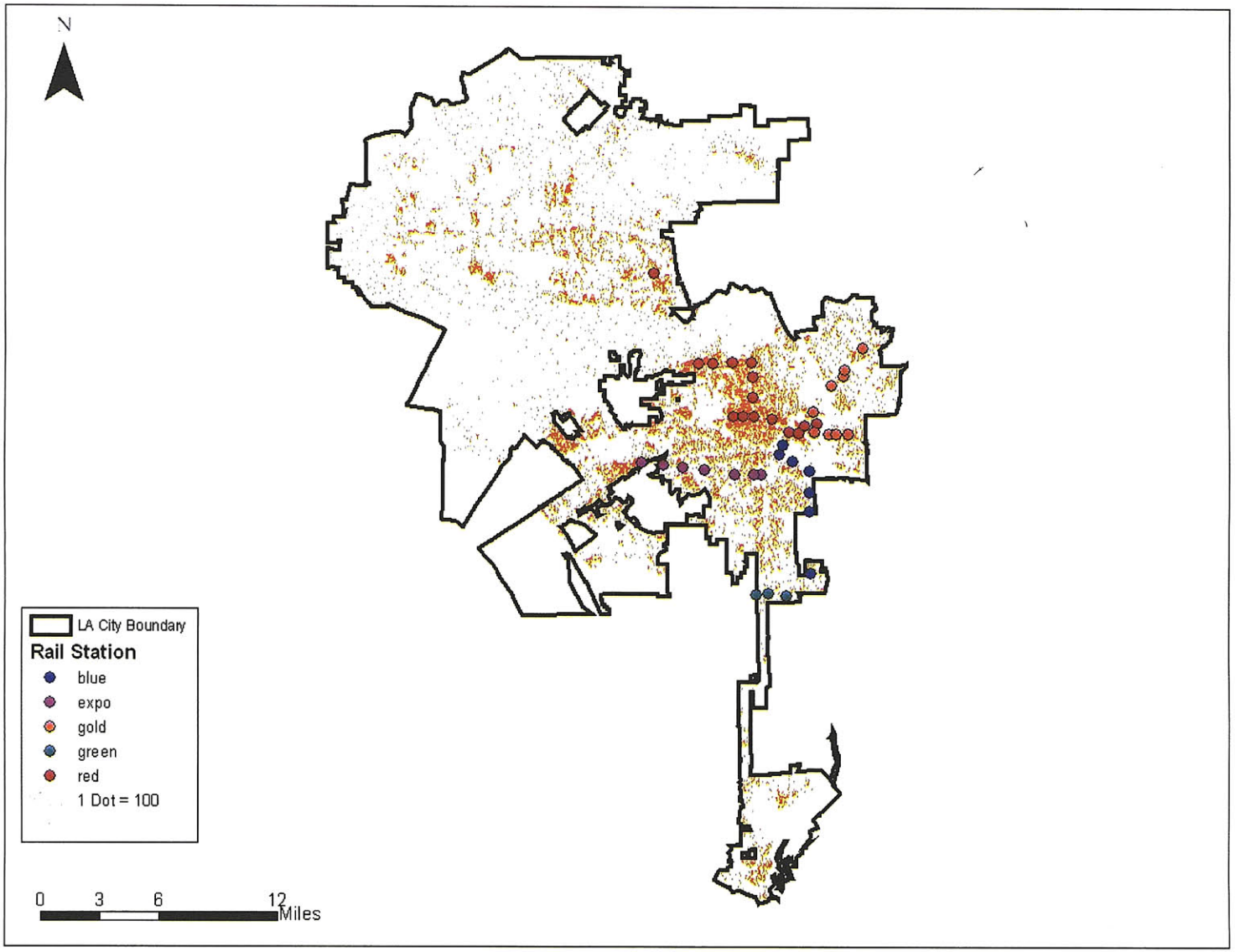
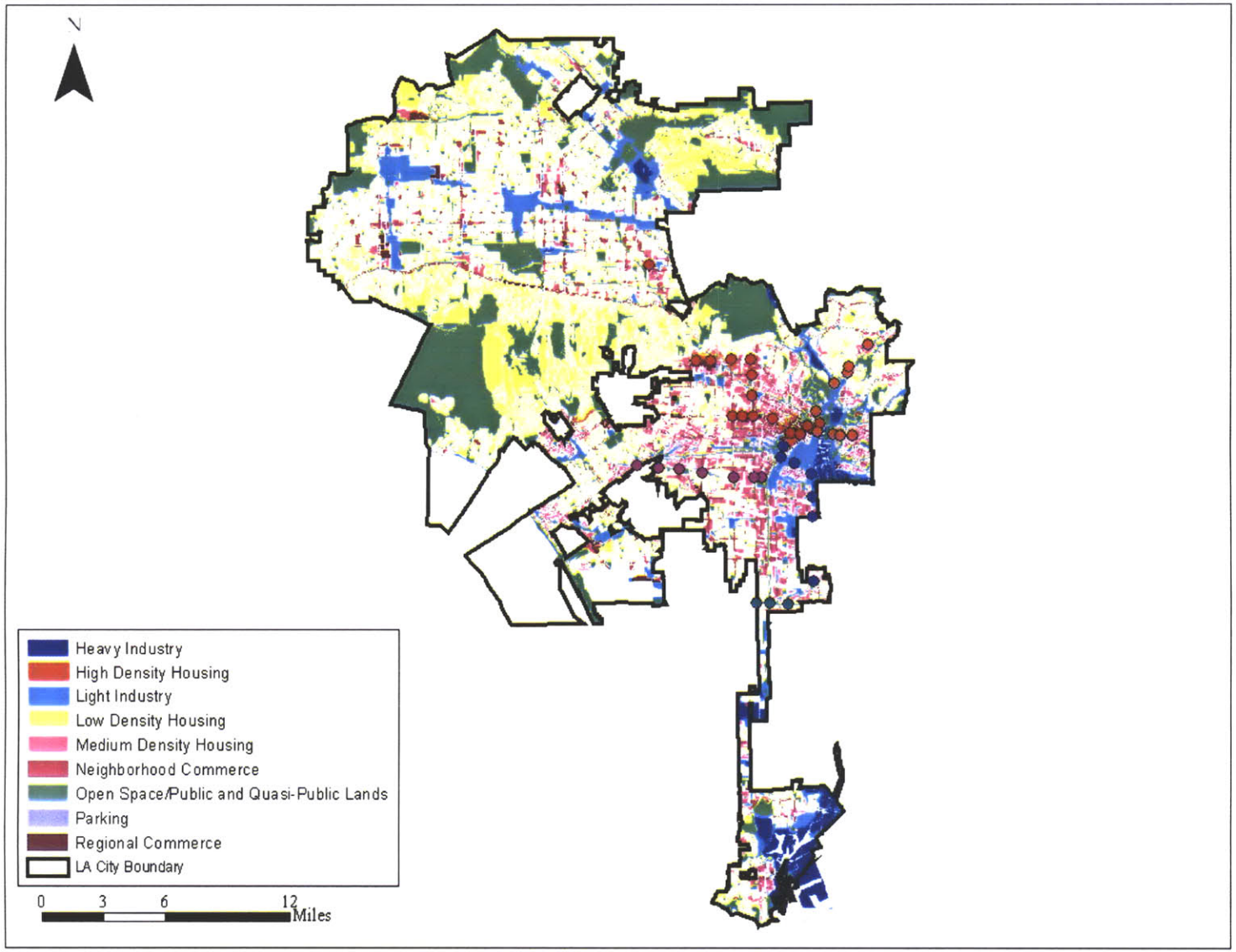


**Figure 6.2-2 Map of Land Use and Rail Stations in the City of Los Angeles**



## 6.3. Rail Station Neighborhood Maps

The following maps will illustrate the relationship between housing and land use characteristics for various transit station areas located within the City of Los Angeles and highlights the two walking radius (1/4 and ½ mile) of rail transit station located in relative proximity (15 $mi^2$ area):

| Map Area | Stations |
|---|---|
| Hollywood Area | Hollywood/ Highland, Hollywood/ Vine, Hollywood/ Western, Vermont/ Sunset, Vermont/ Santa Monica, Vermont/ Beverly |
| Wilshire Corridor | Wilshire/ Western, Wilshire/ Normandie, Wilshire/ Vermont, Vermont/ Beverly, Westlake/ MacArthur Park |
| Downtown & Transit Gateway Area | 7th/ Metro, Pershing Square, Civic Center, Union Station, Chinatown, Little Tokyo, Pico/ Aliso, Mariachi Plaza, Soto, Pico, Grand/ Washington, San Pedro/ Washington |
| Gold Line | Lincoln/ Cypress, Heritage Square, Southwest Museum, Highland Park |
| Central City Blue Lin Stations | Slauson, Vernon, Washington/ Alameda |
| Exposition Corridor: Part I | USC Exposition Park, Vermont/ Exposition, Western/ Exposition, Crenshaw/ Exposition |
| Exposition Corridor: Part II | La Brea/ Exposition, La Changa/ Exposition, Venice/ Washington |
| North Hollywood | North Hollywood |
| Blue & Green Line Intersection | 103 rd Street, Avalon, Harbor Freeway, Vermont |

**Figure 6.3-1 Housing Surrounding Hollywood Stations**

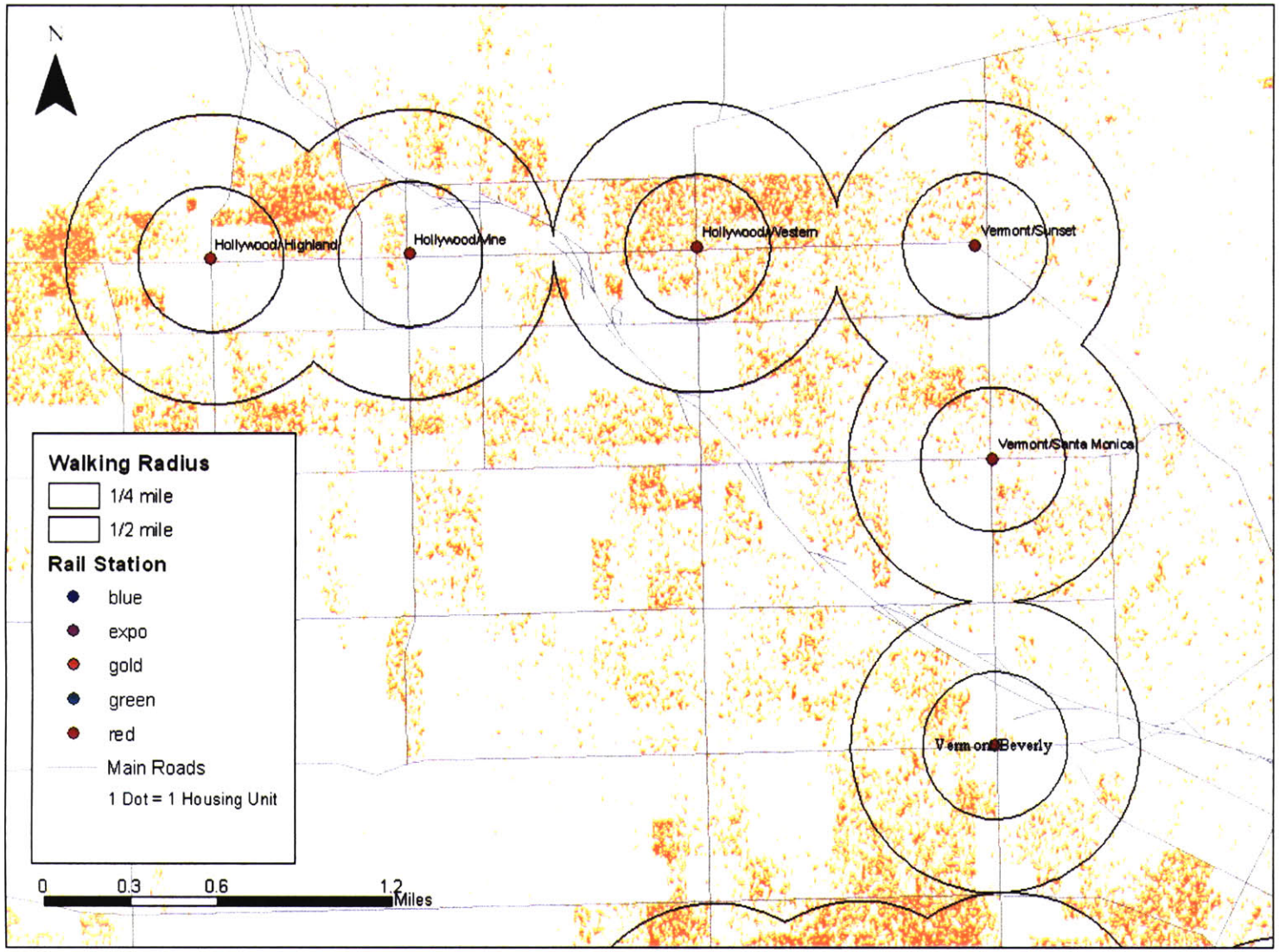


**Figure 6.3-2 Land Use Surrounding Hollywood Stations**

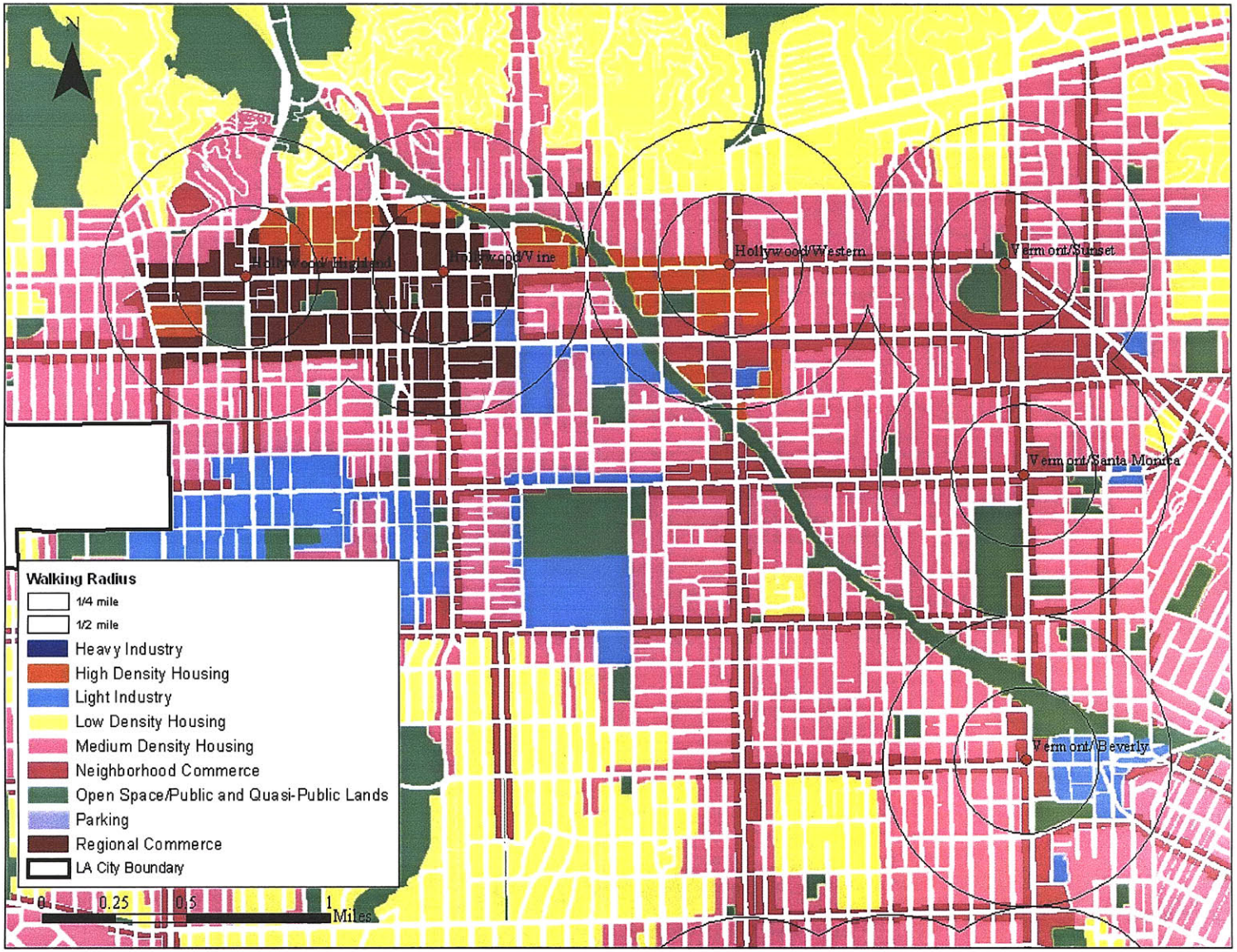


**Figure 6.3-3 Housing Surrounding Wilshire Corridor Stations**

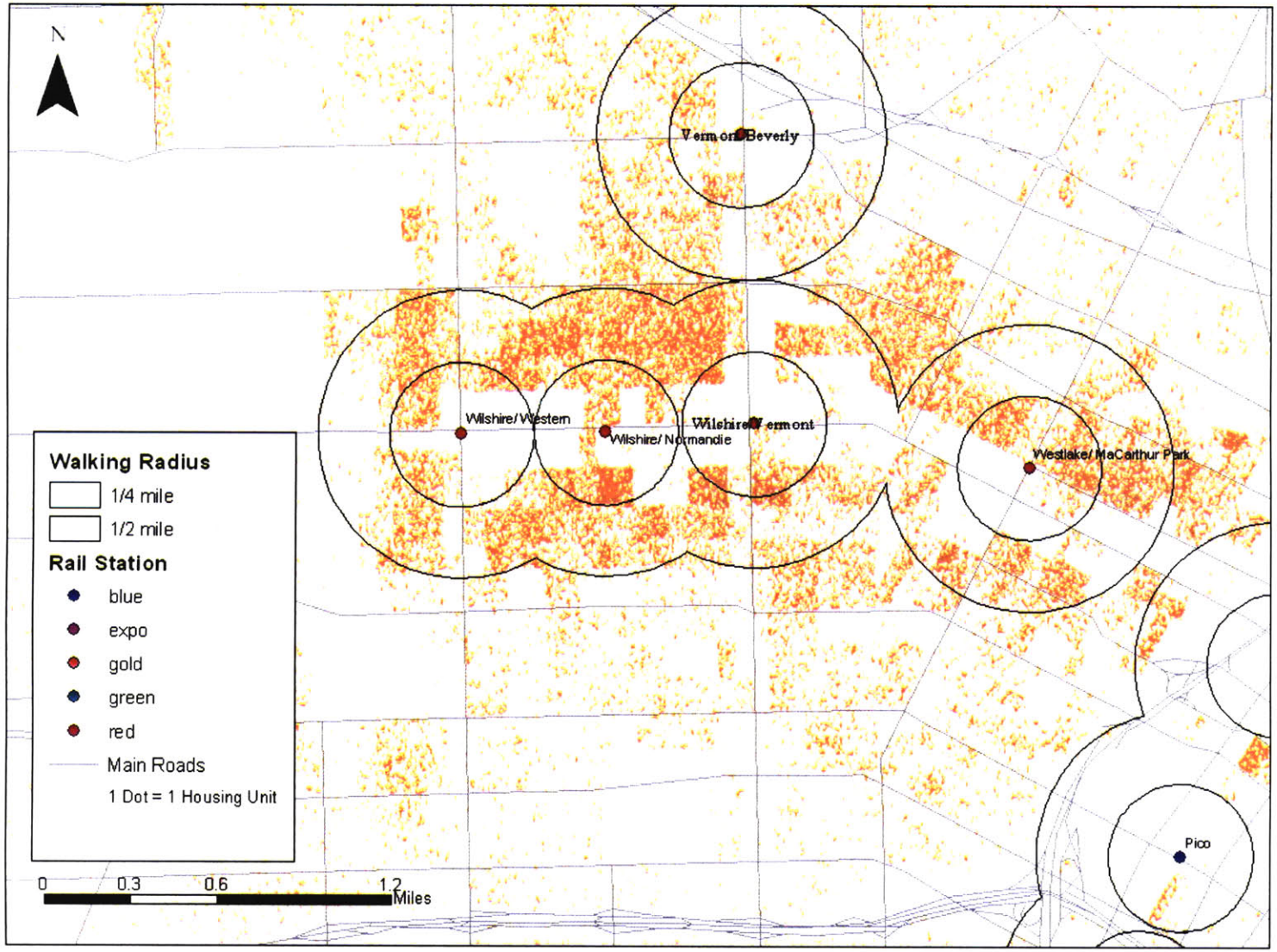


**Figure 6.3-4 Land Use Surrounding Wilshire Corridor Stations**

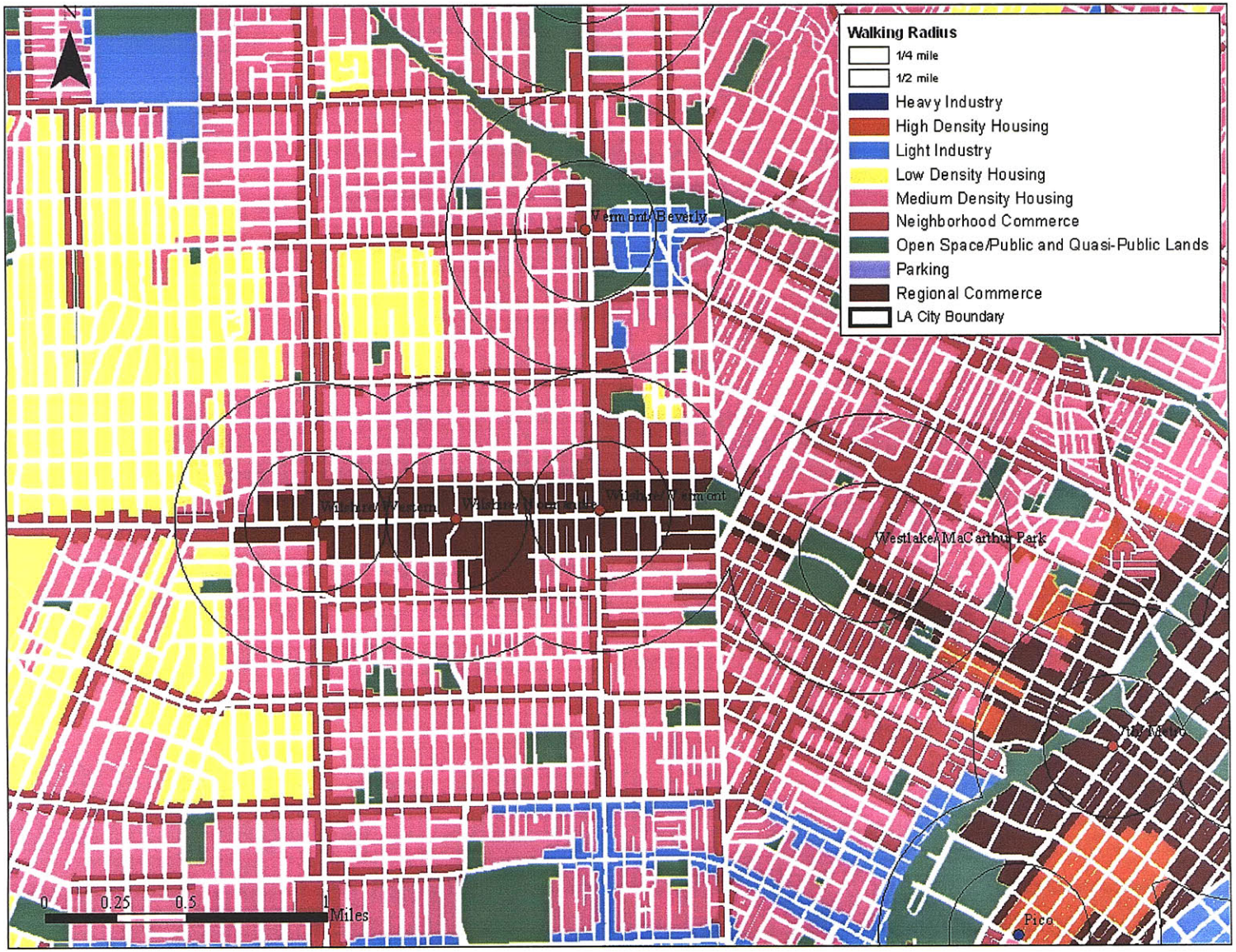


**Figure 6.3-5 Housing Surrounding Downtown & Gold Eastside Extension Stations**

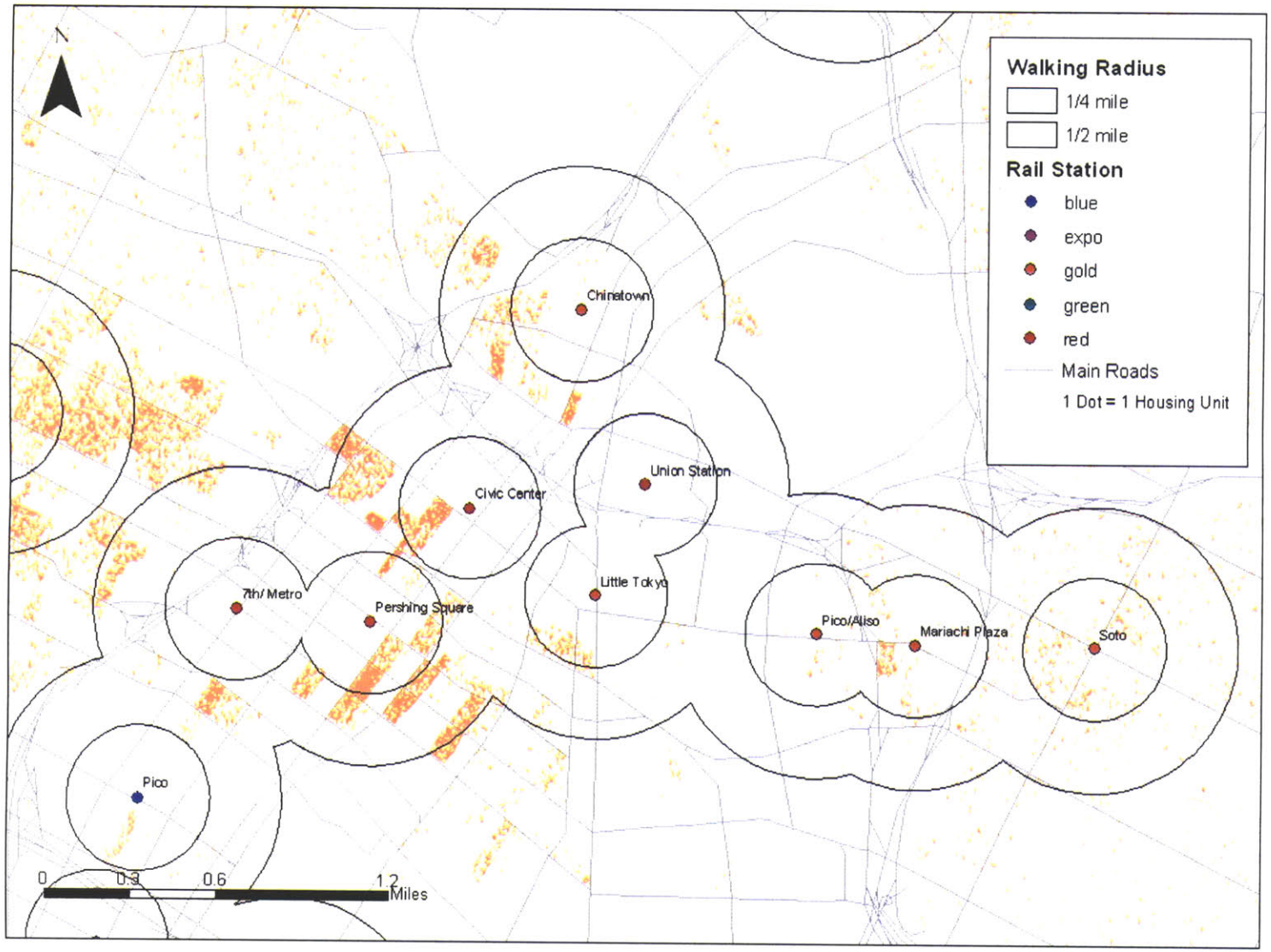


**Figure 6.3-6 Land Use Surrounding Downtown & Gold Eastside Stations**

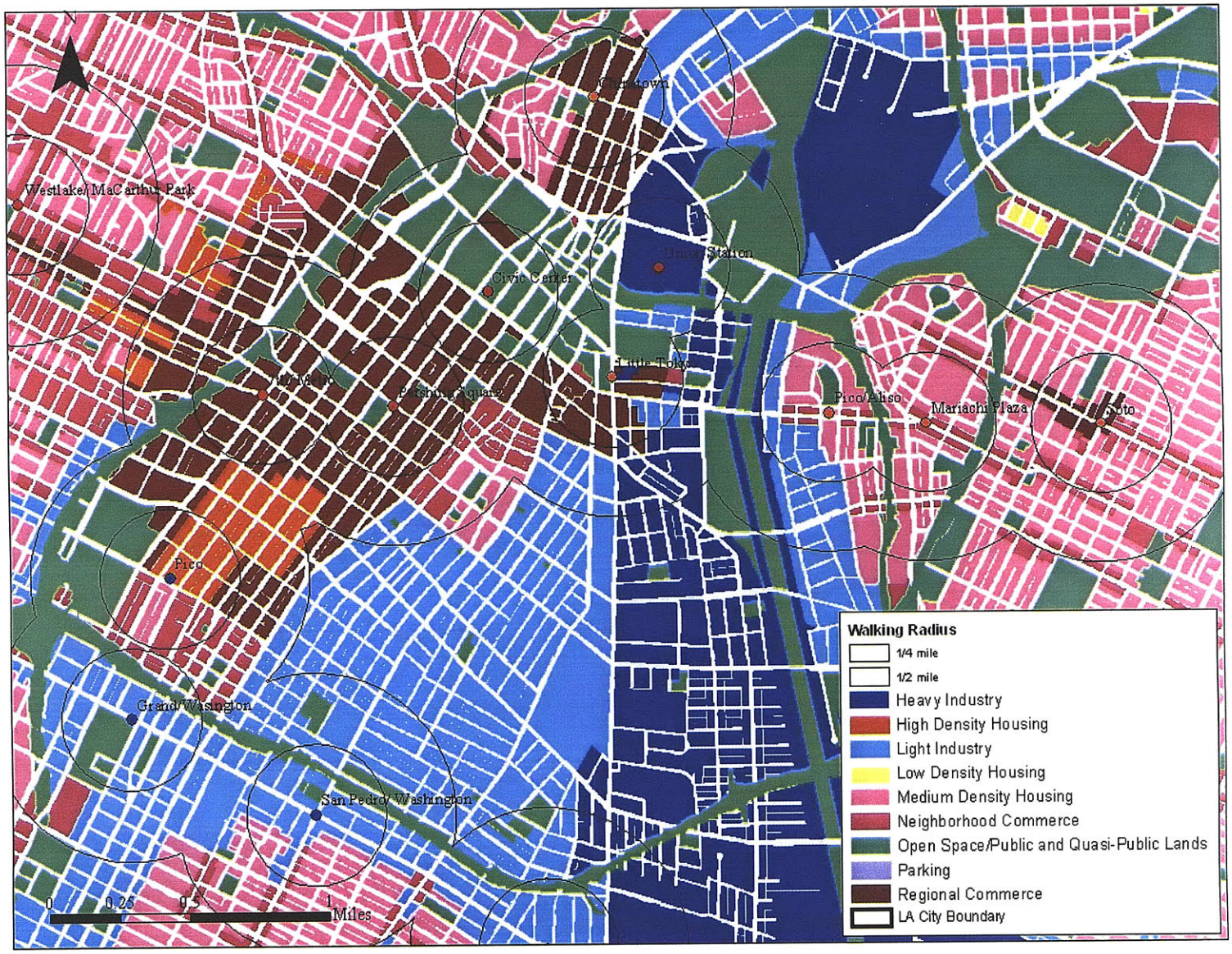


**Figure 6.3-7 Housing Surrounding Gold Stations**

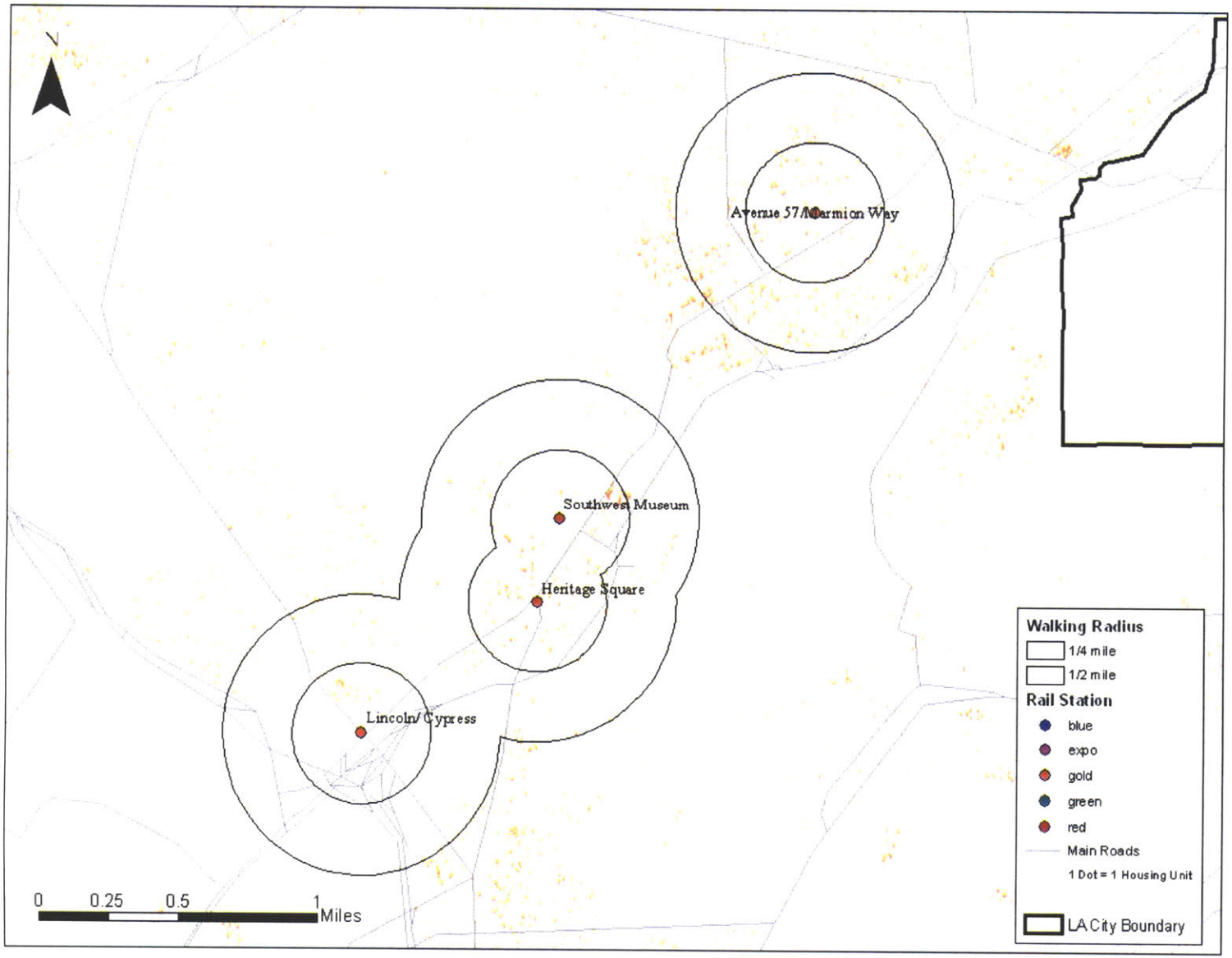


**Figure 6.3-8 Land Use Surrounding Gold Stations**

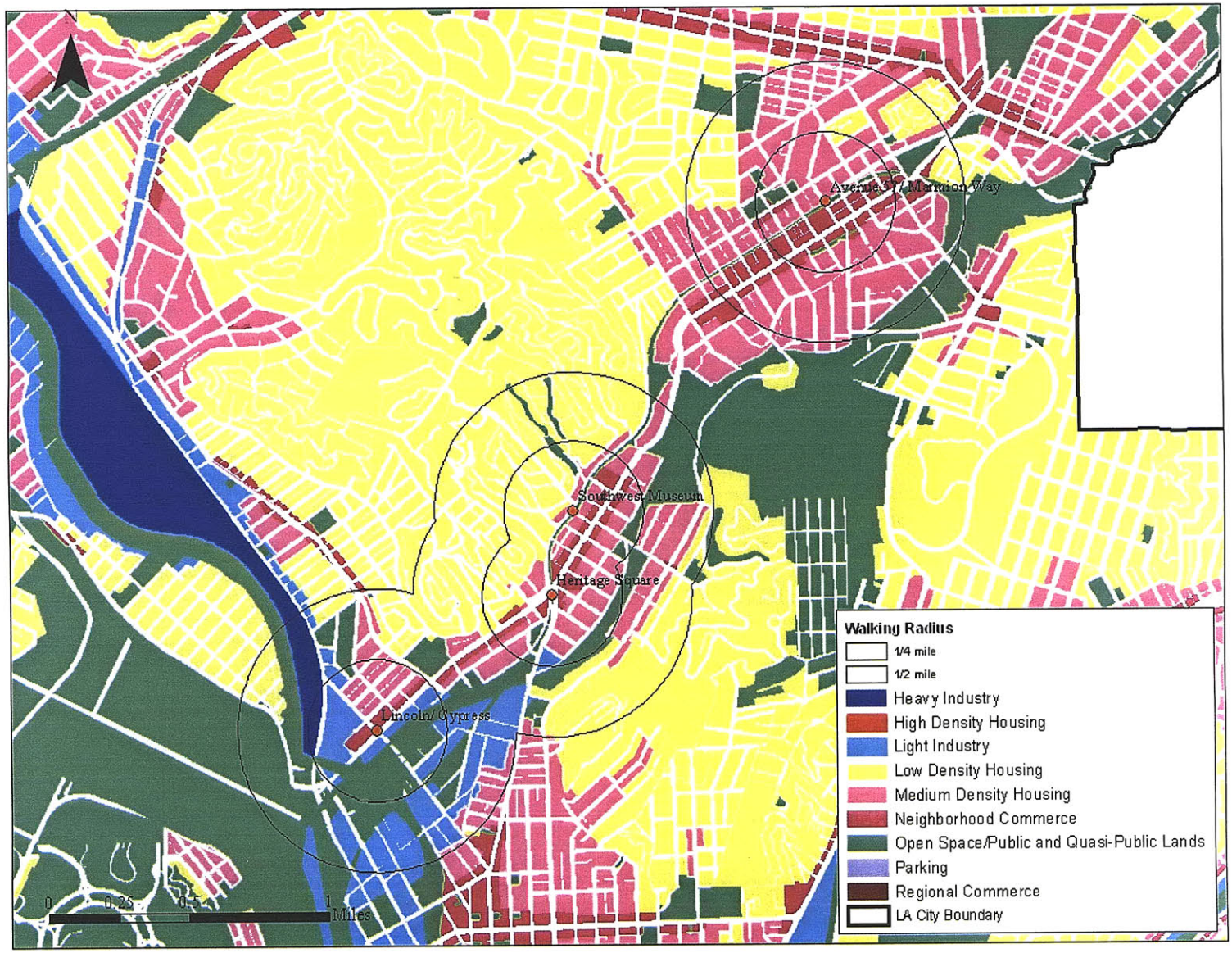


**Figure 6.3-9 Housing Surrounding Blue Line Stations**

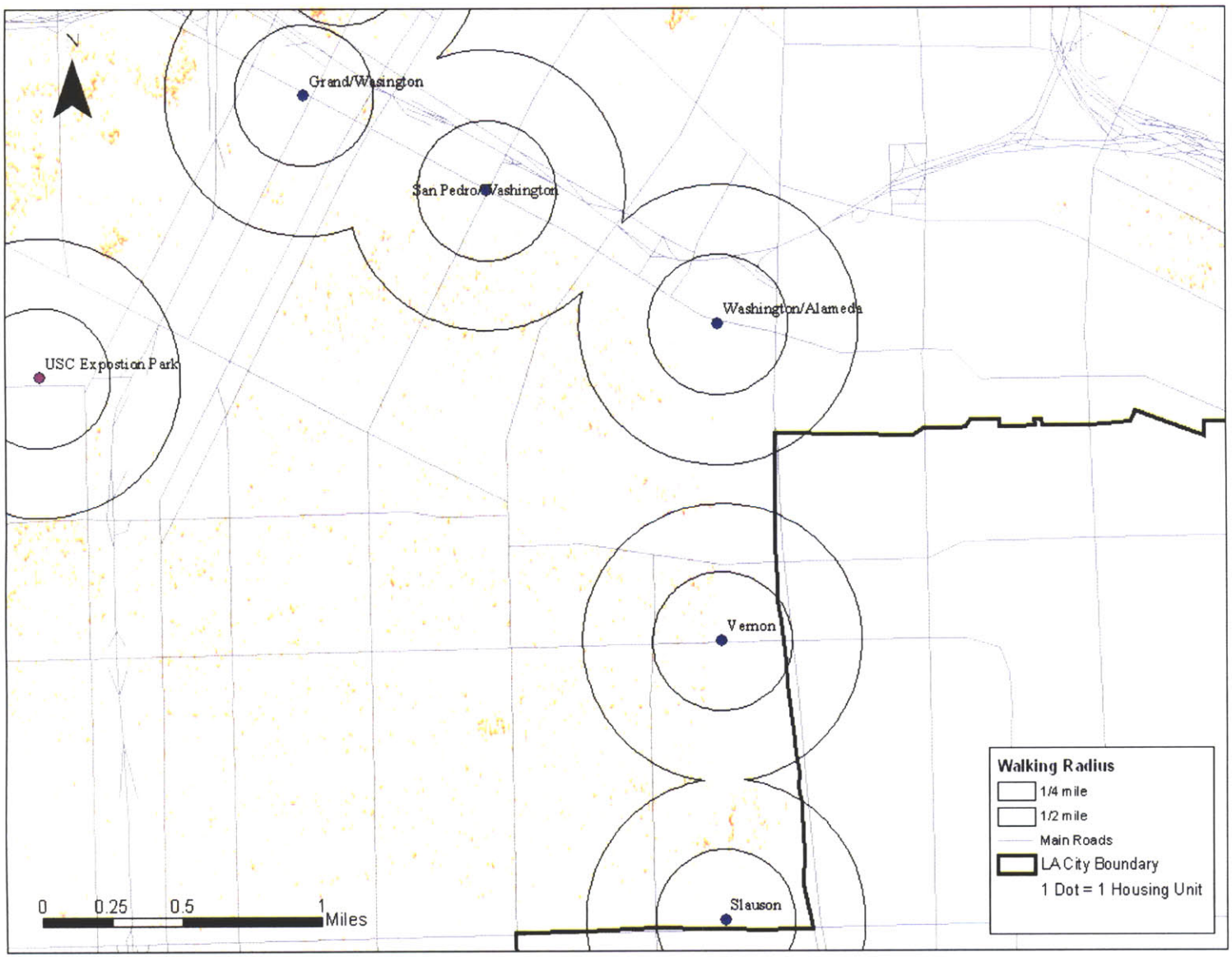


**Figure 6.3-10 Land Use Surrounding Blue Line Stations**

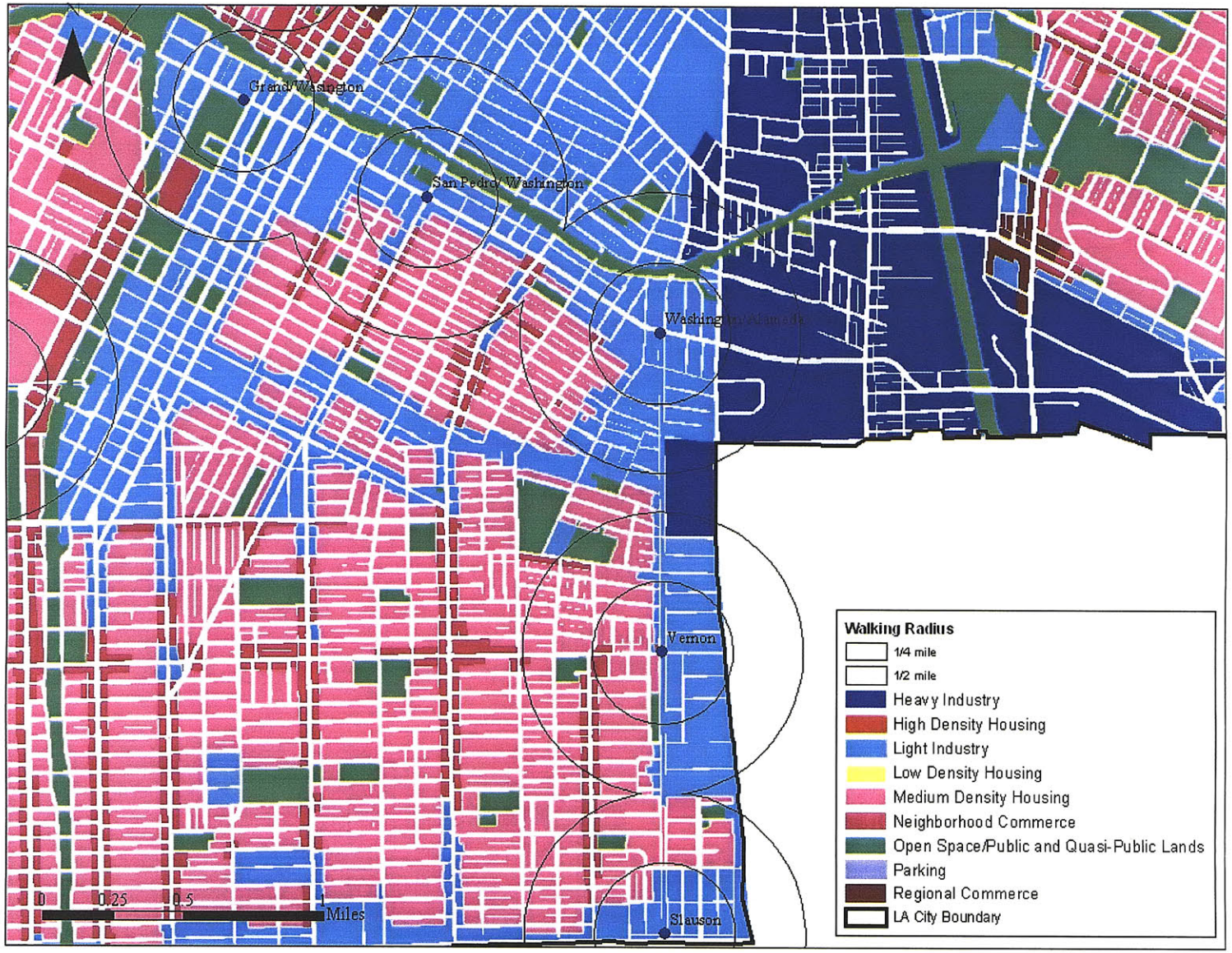


**Figure 6.3-11 Housing Surrounding Blue and Green Line Stations**

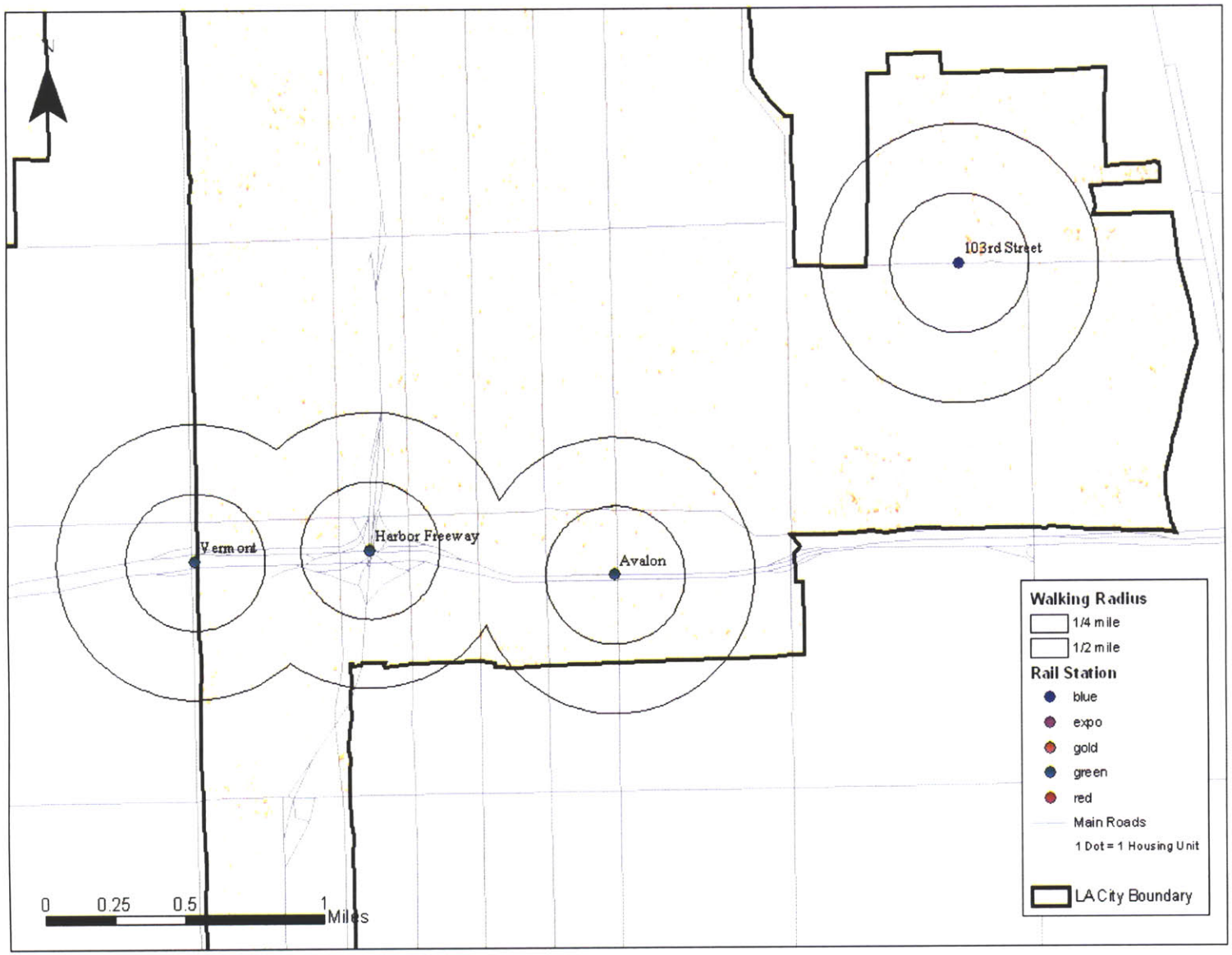


**Figure 6.3-12 Land Use Surrounding Blue and Green Stations**

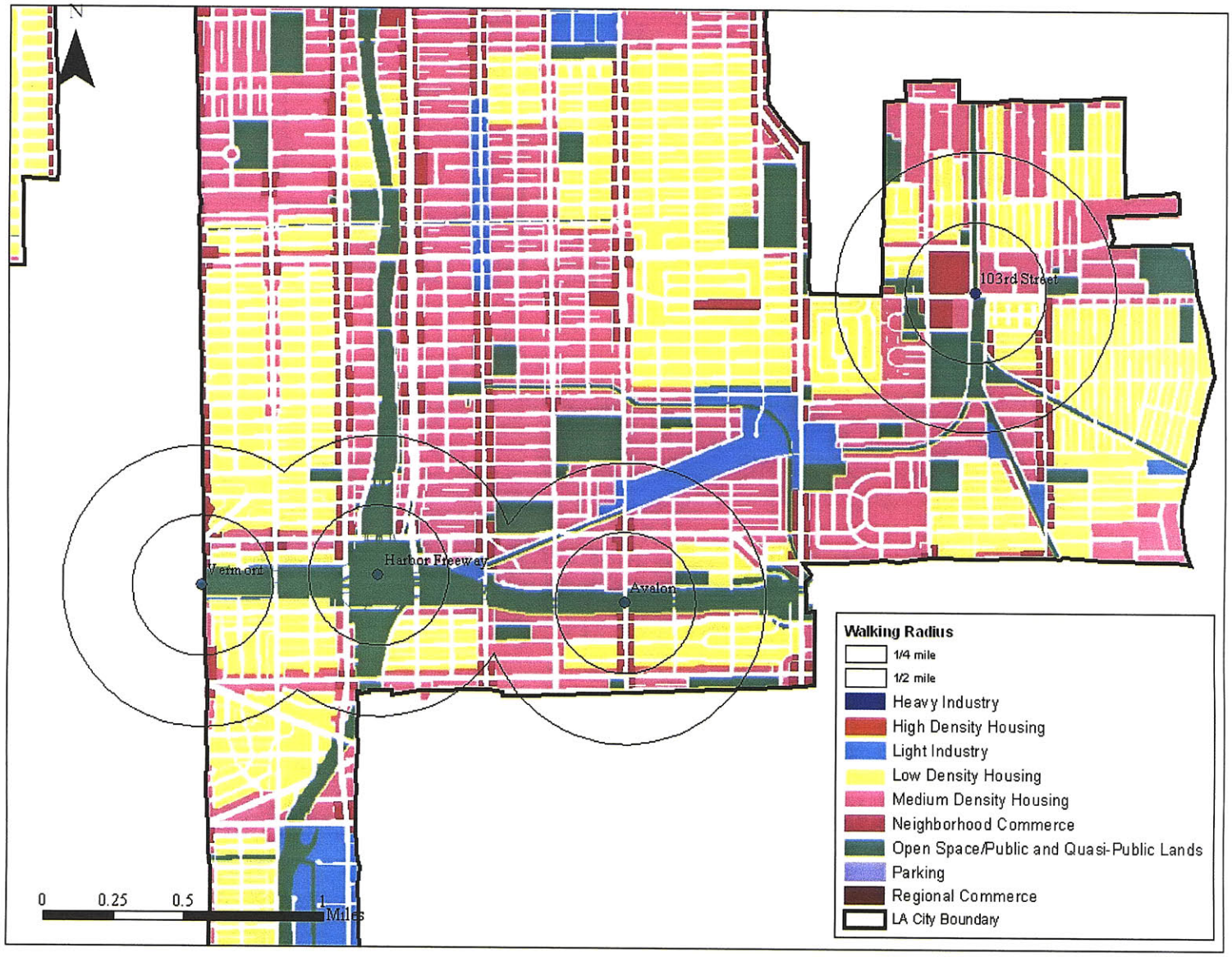


**Figure 6.3-13 Housing Surrounding Exposition I Stations**

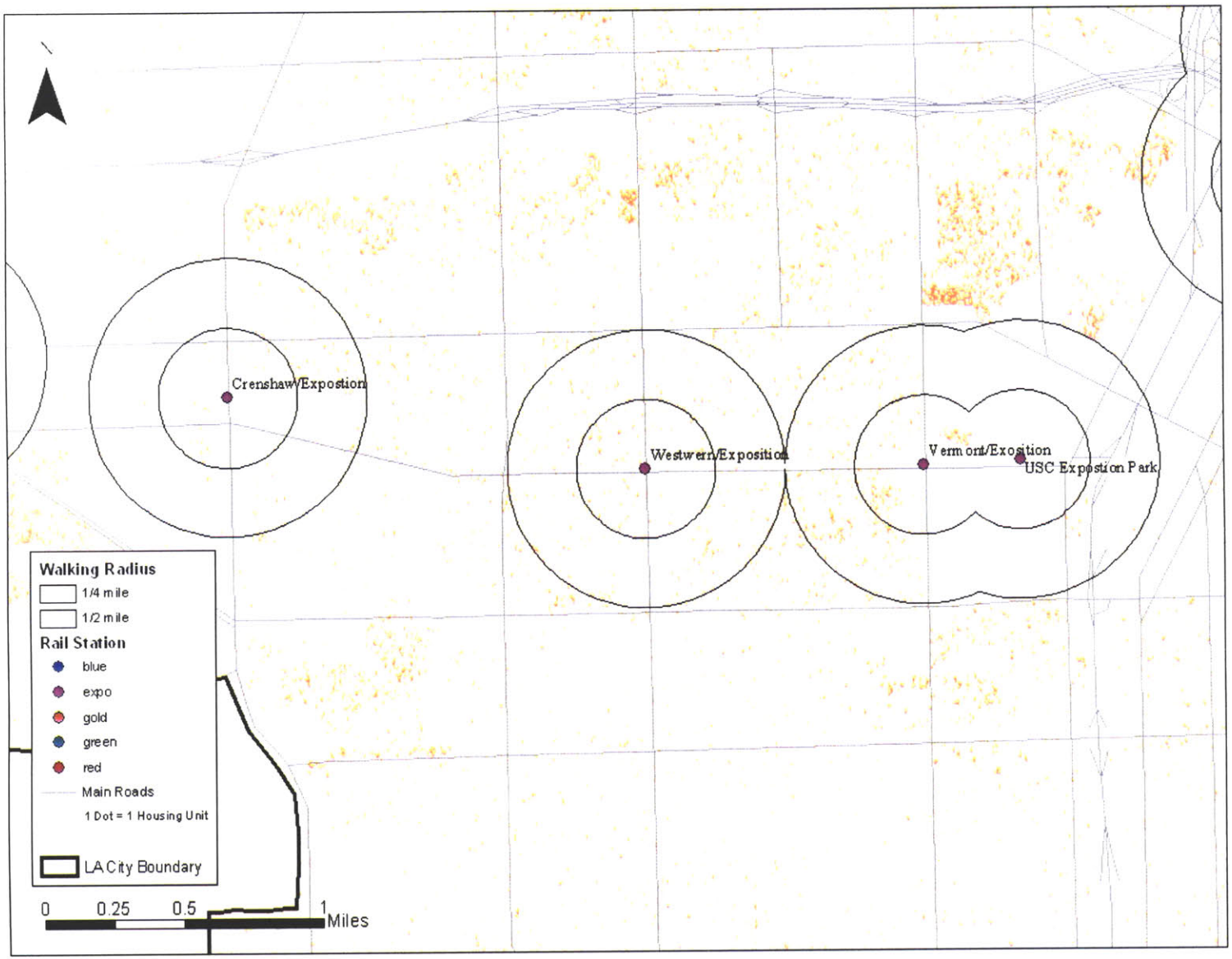


**Figure 6.3-14 Land Use Surrounding Exposition I Stations**

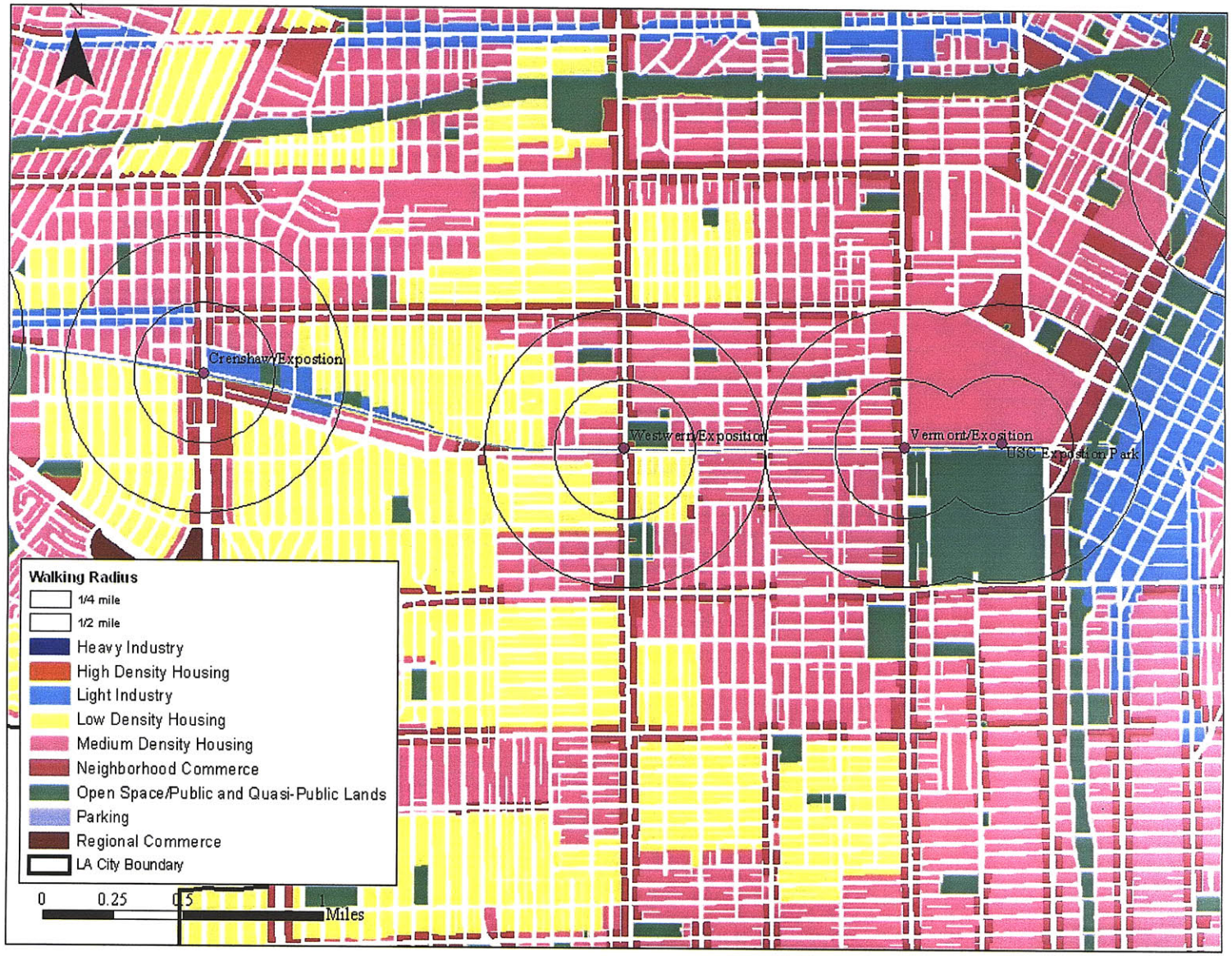


**Figure 6.3-15 Housing Surrounding Exposition II Stations**

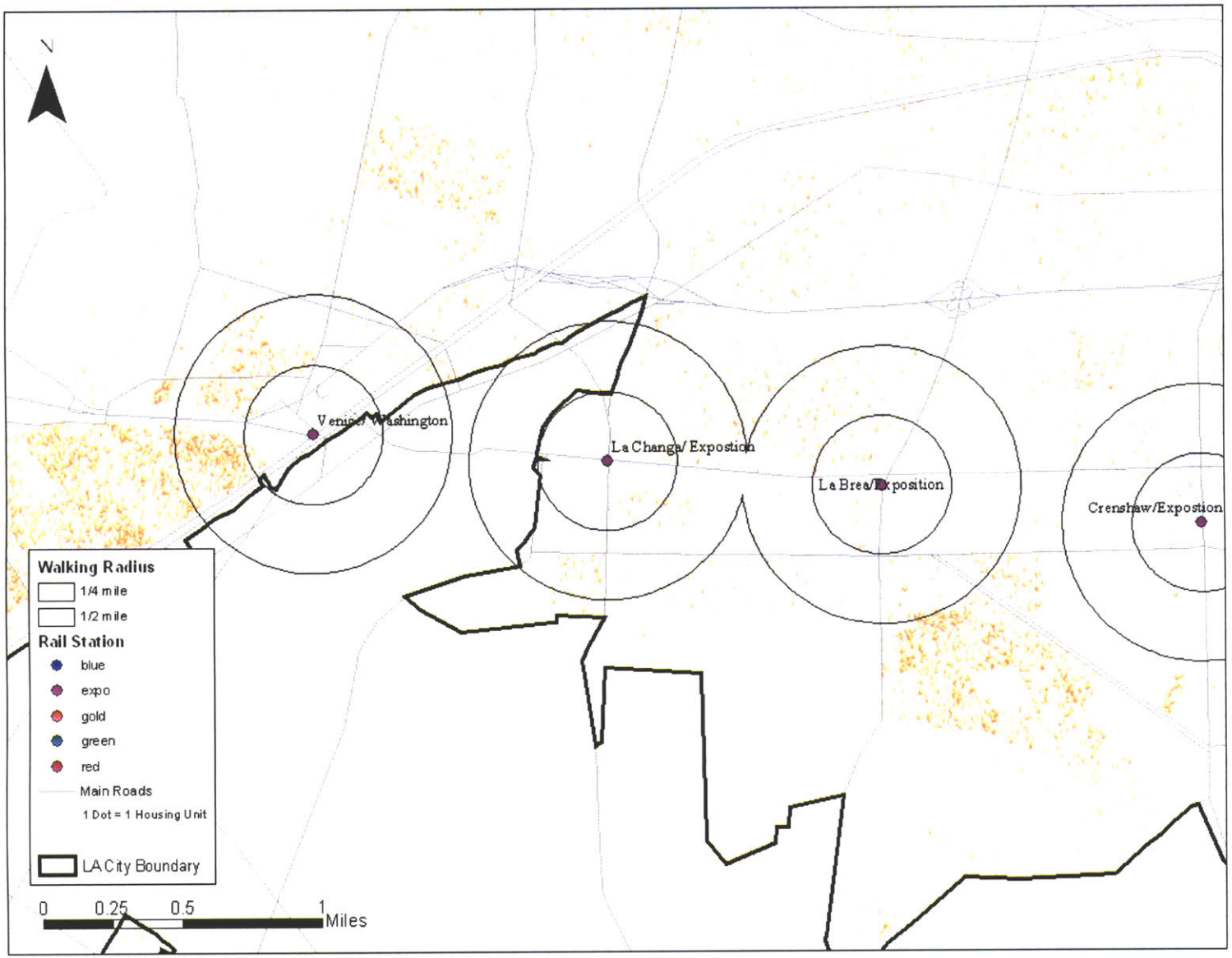


**Figure 6.3-16 Land Use Surrounding Exposition II Stations**

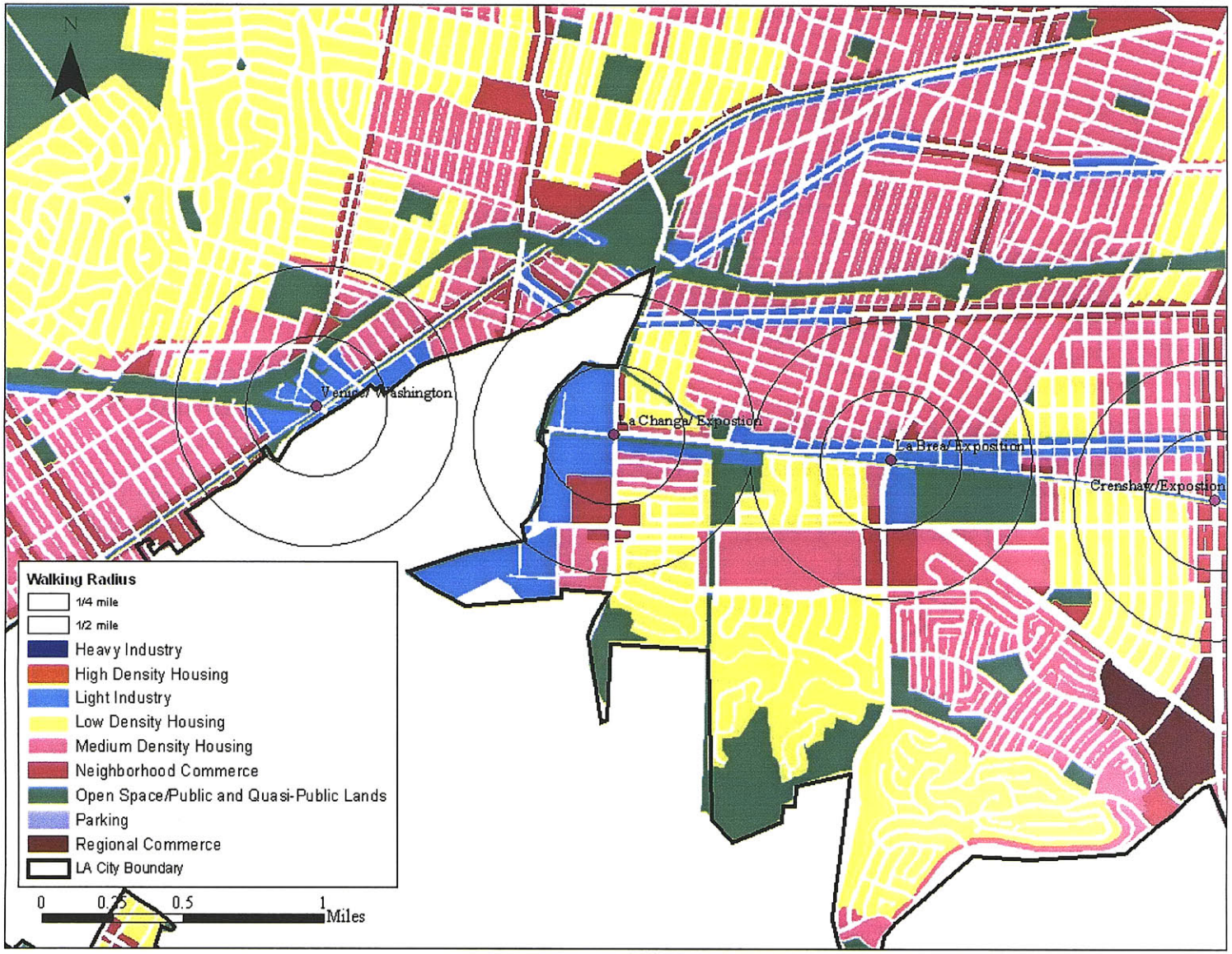


**Figure 6.3-17 Housing Surrounding North Hollywood Station**

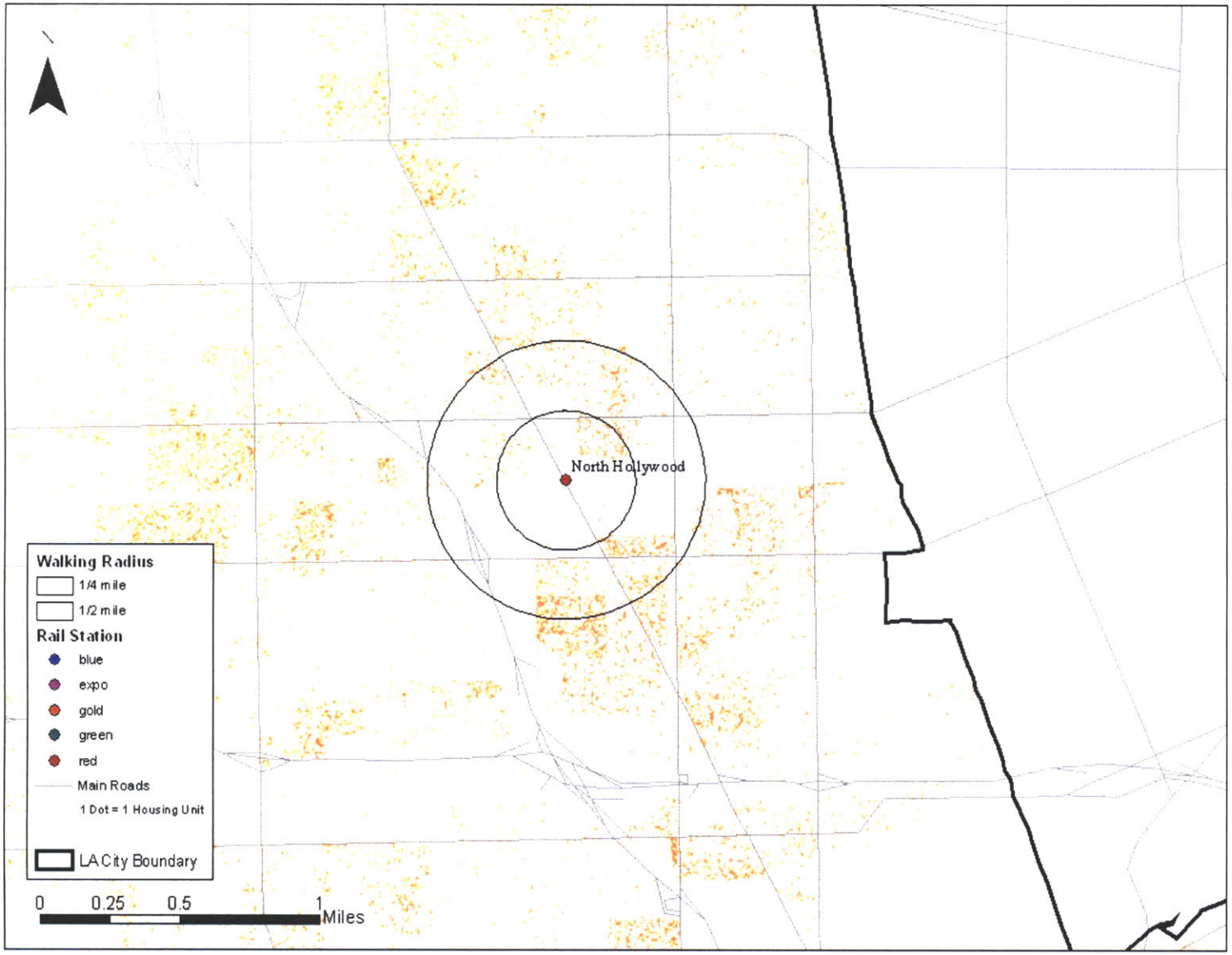
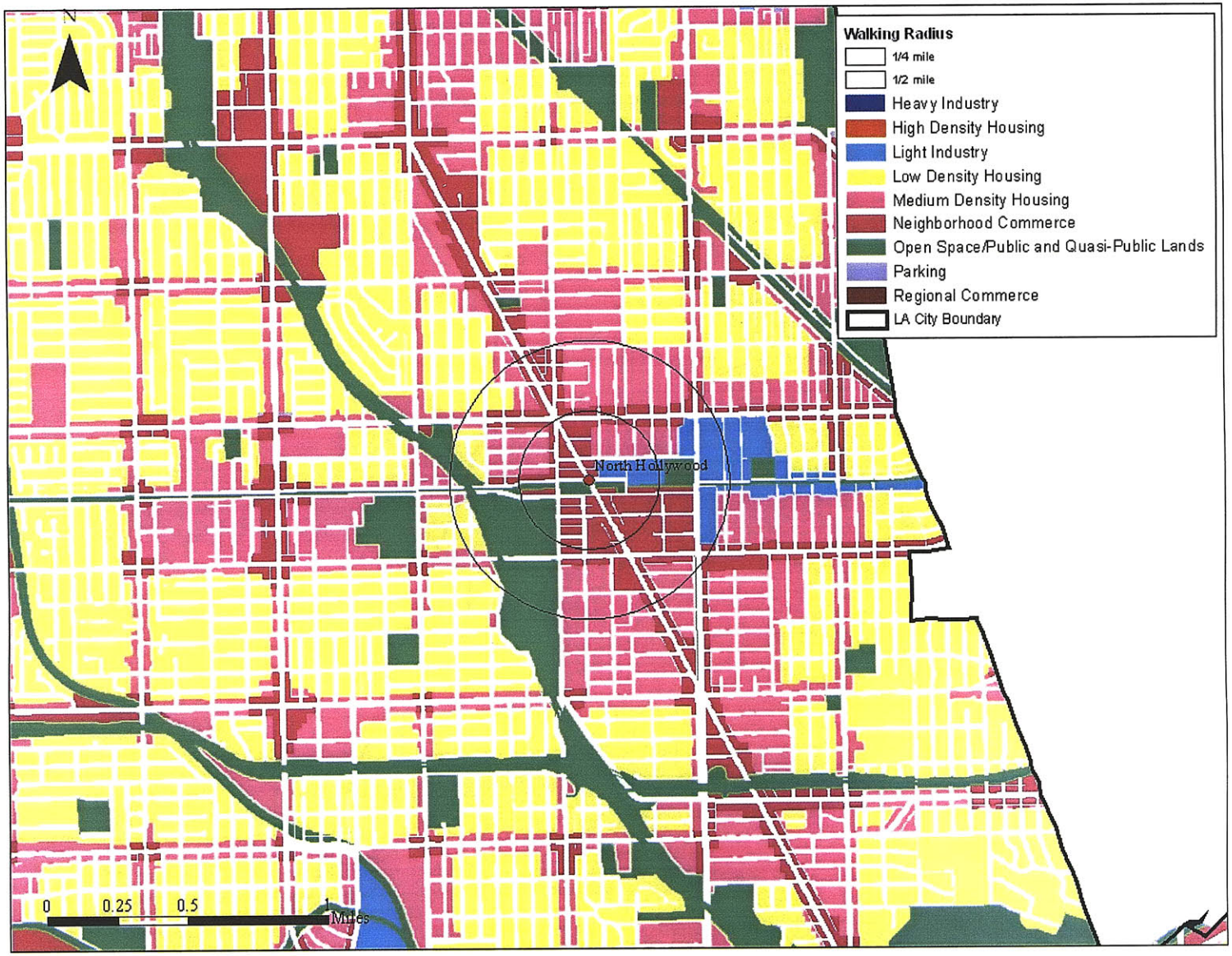


**Figure 6.3-18 Land Use Surrounding North Hollywood Station**



# 7. Zoning & Current Land Use: Five Station Areas

## 7.1. Introduction

Often a parcel's zoning can make or break a project, deciding whether or not an architect and developer can actually build a financially feasible housing development on a parcel. Factors like amount of parking required, maximum dwelling units per acre, maximum allowable floor area, construction type, and efficiency of building envelope often decide on whether or not housing can be developed on a given parcel. With this in mind, zoning and housing density data was gathered for the ¼ mile radius area of five rail station areas varying in characteristics (construction waves, neighborhood type, heavy & light rail) keeping in mind Pushkarev & Zupan (1977) minimum residential density goals to support transit and the City of LA's Land Use & Transportation Policy (1994) for transit-oriented development.

## 7.2. Rail Station Case Study Neighborhoods

### 7.2.1 Selection Criteria

The selection of the five case study transit areas were selected down using the following criteria:

- All station areas be located within the City of Los Angeles' boundaries,
- Include a range of different rail types (light & heavy);
- Include a range of different station prototypes specified by LA's General Plan (Urban Complex, Regional, Neighborhood, Industrial);
- Vary stations by year (waves) of construction[15];
- Vary in physical location within the City of Los Angeles.

---

[15] Construction waves: (1) first built between 1990 and 1994, (2) second built from 1995-1999, (3) third built from 2000-2005, and (4) proposed to be built from 2005-2010.

### 7.2.2 Criteria for Analysis

The following criteria were used to analyze the five station areas:

b) *Neighborhood Description* – An overview of the characteristics within each ¼ mile transit station are is provided. Both zoning and aerial map are provided in order to demonstrate the actual and zoned neighborhood characteristics surrounding the ¼ station areas.

c) *TOD Incentives & Projects* – An overview of available TOD incentives and existing or proposed projects in the immediate station area.

d) *Housing Density and Zoning Capacity Characteristics*- An overview of housing, land use, and zoning characteristics. Calthorpe (1993) suggests recommendation for percentage of housing to be located near urban neighborhoods characteristic of light and heavy rail.

e) *Development Limitations & Potential* – A brief analysis is presented regarding the perceived development limitations and potential within each station's the ¼ mile radius area.

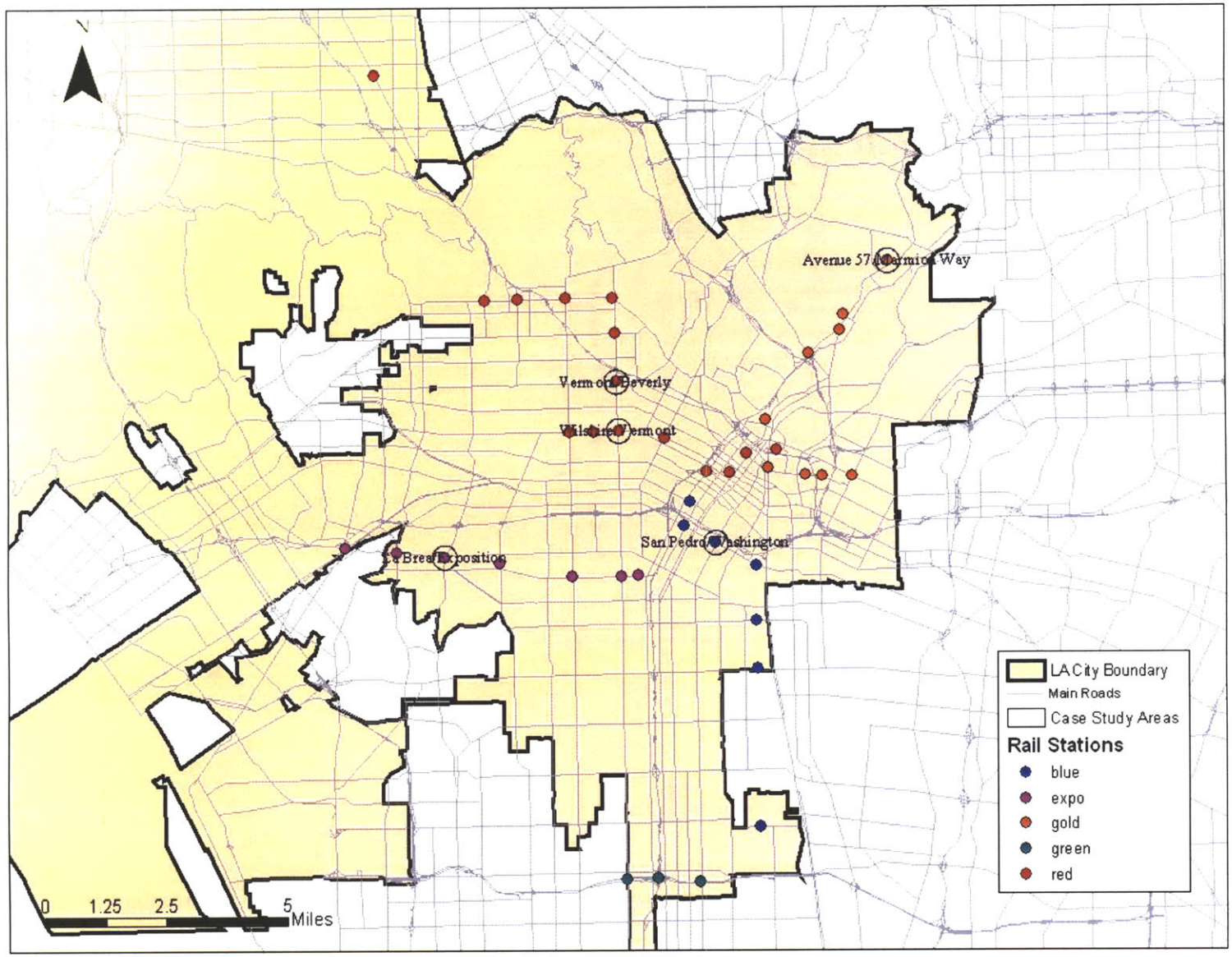
### 7.2.3 Actual Use & Zoning Maps

The following were chosen as the five case study rail stations areas:

| Transit Node | Rail Type | Station Prototype* | Wave |
|---|---|---|---|
| (1) Wilshire & Vermont | Heavy | Urban Complex | 2nd |
| (2) Vermont. & Beverly | Heavy | Neighborhood Center | 2nd |
| (3) La Brea & Expo | Light | Neighborhood Center | 4th |
| (4) Highland Park | Light | Neighborhood Center | 3rd |
| (5) San Pedro & Washington | Light | Industrial Center | 1st |

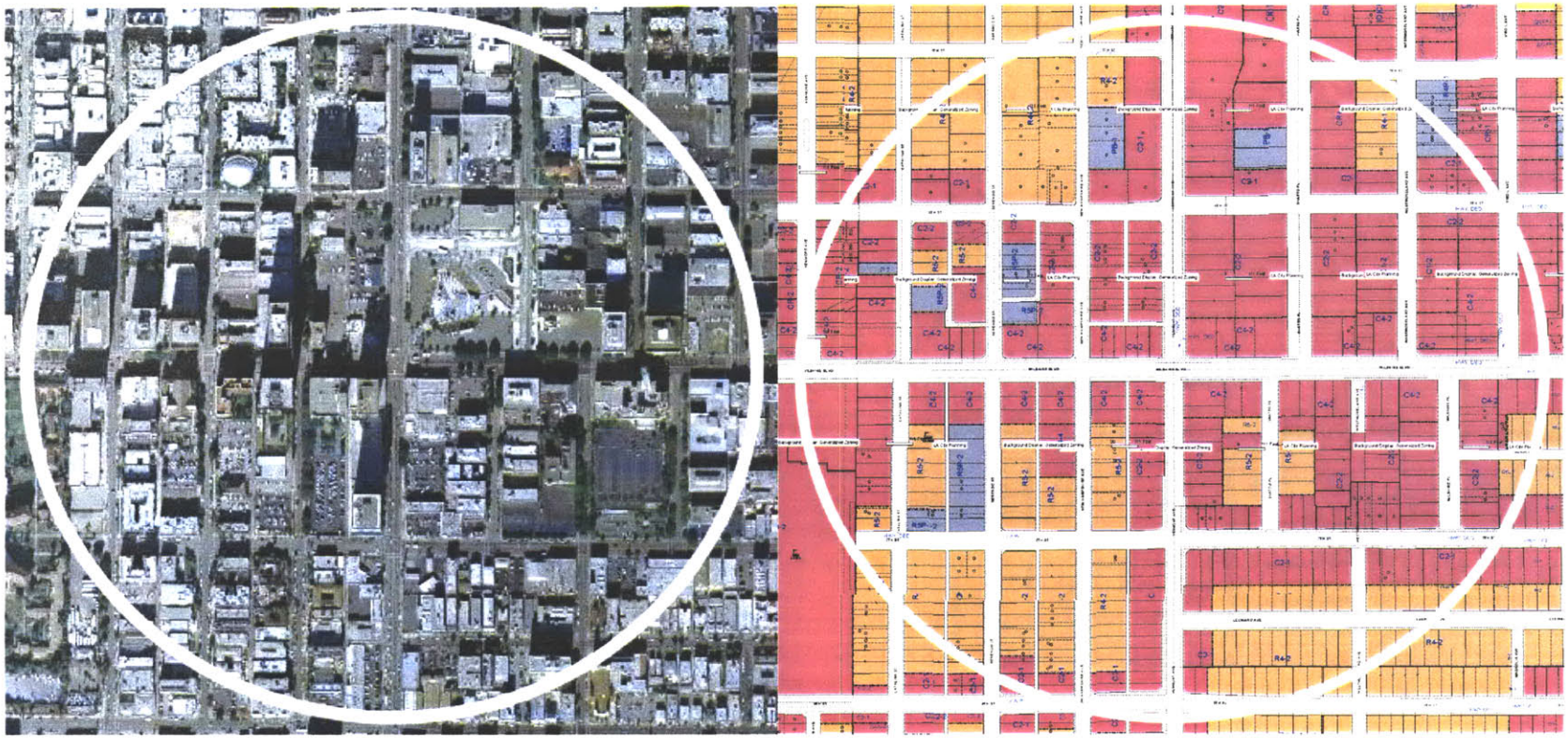
* Transportation & Land Use Policy (1994)

Figure 7.2-1 Case Study Station Areas



## (1) Wilshire & Vermont – Heavy Rail - Regional Commercial Center – MTA Joint Development Project

**Figure 7.2-2 Wilshire & Vermont Aerial and Zoning Map Representing 1/4 Mile Walking Radius**



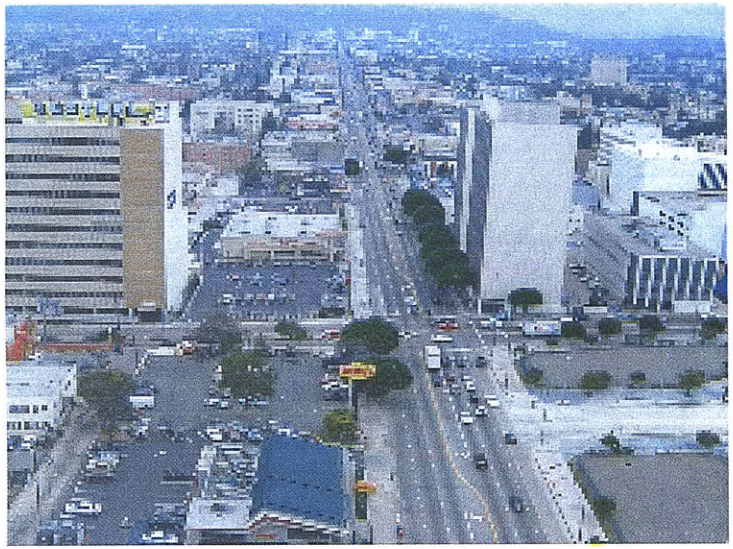
Source: Terra Server, Urban Area 3/29/2004

Source: Zimas, 2005

*Neighborhood Characteristics*

As defined by the City, the area is defined as Urban Complex, With the red line's heavy rail station opening in 1999, the station are is very much still in transition with current uses in the area ranging from high rise office to parking lots and low-rise commercial including a Denny's restaurant.

**Figure 7.2-3 Actual Land Uses Surrounding Vermont/ Wilshire**



Source: unknown

*TOD Incentives & Projects*

MTA and Urban Partners LLC are developing MTA's largest joint development project for the land above the Wilshire/ Vermont station area. The project consists of 449 units of mixed-income, multi-family housing, 35,000 square feet of commercial stores on the property, and three levels of subterranean parking[16]. The station is also part of the CRA's Wilshire center/ Koretown Redevelopment Project.

*Housing Density and Zoning Capacity Characteristics*

Despite having one of the lowest residential vacancy rates for all of LA's rail station areas (2%), the area is only at 23% of the zoned capacity. Despite the zoning for the 79% of the area for residential allowing up to 95 du/acre maximum du/acre for residential development, the station's residential density is only 27 du/acre and 21 du/res acre. With 449 housing units planned for the 4 acres of land above the MTA station, the project's residential density of 112.5 units per acre is lower than the 240 maximum housing units desired by-right by the city's Land Use and Transportation Policy (60 du/acre for mixed-use commercial residential for Urban Complex Station Prototype).

*Development Limitations & Potential*

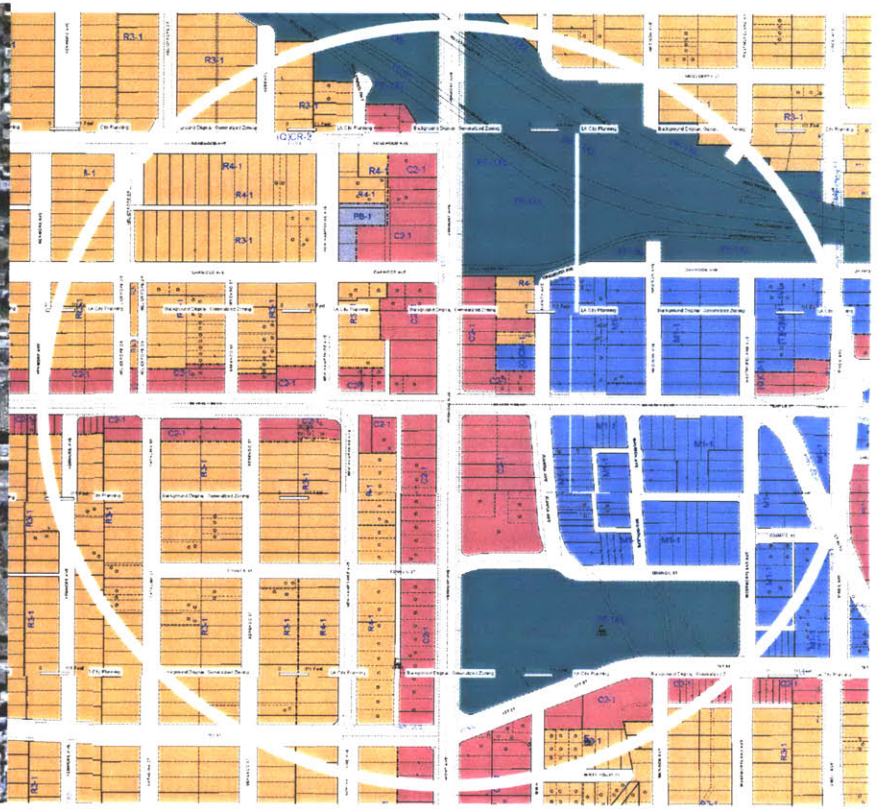
Although the existing mixed-use zoning creates a high capacity for residential development in the station area, the actual office use of some of the land lowers both the residential density in the area. While, Calthorpe (1993) describes office use as characteristic of regional centers, other current low-density uses on commercial (C2-2) and residential parcels (R4-2) like gas stations, parking lots, and strip mall restaurants and stores is not characteristics of regional transit centers. While the area is still very much in transition, current property owners may still much be waiting for the outcome of the Urban Partner's pilot TOD project to spark further TOD appropriate development in the area. In the mean time, prohibiting further low density like Denny's and surface parking lots and decreasing parking requirements would require station development to be more appropriate.

[16] Source: Urban partners, 2005.

## (2) Vermont & Beverly – Heavy Rail – Neighborhood Center – Special Neighborhood Area Plan

**Figure 7.2-4 Vermont & Beverly Aerial and Zoning Map Representing 1/4 Mile Walking Radius**

Source: Terra Server, Urban Area 3/29/2004



Source: Zimas, 2005

*Neighborhood Characteristics*

As determined by the Transportation & Land Use policy, the Vermont/ Beverly area is typical of a Neighborhood Center with the surrounding land uses characteristics of various neighborhood services including medical and bank along with some medium-density housing. In the immediate proximity from the station entrance is a gas station and auto repair shop, uses atypical of a heavy rail station area.

*TOD Incentives & Projects*

Station area is located with the SNAP Transit-Oriented District that gives development in the area a parking reduction of 15% given to development located within 1,500 feet of transit. Similar to the Wilshire/ Vermont station, Vermont/ Beverly is also part of CRA's Wilshire center/ Koretown Redevelopment Project.

*Housing Density and Zoning Capacity Characteristics*

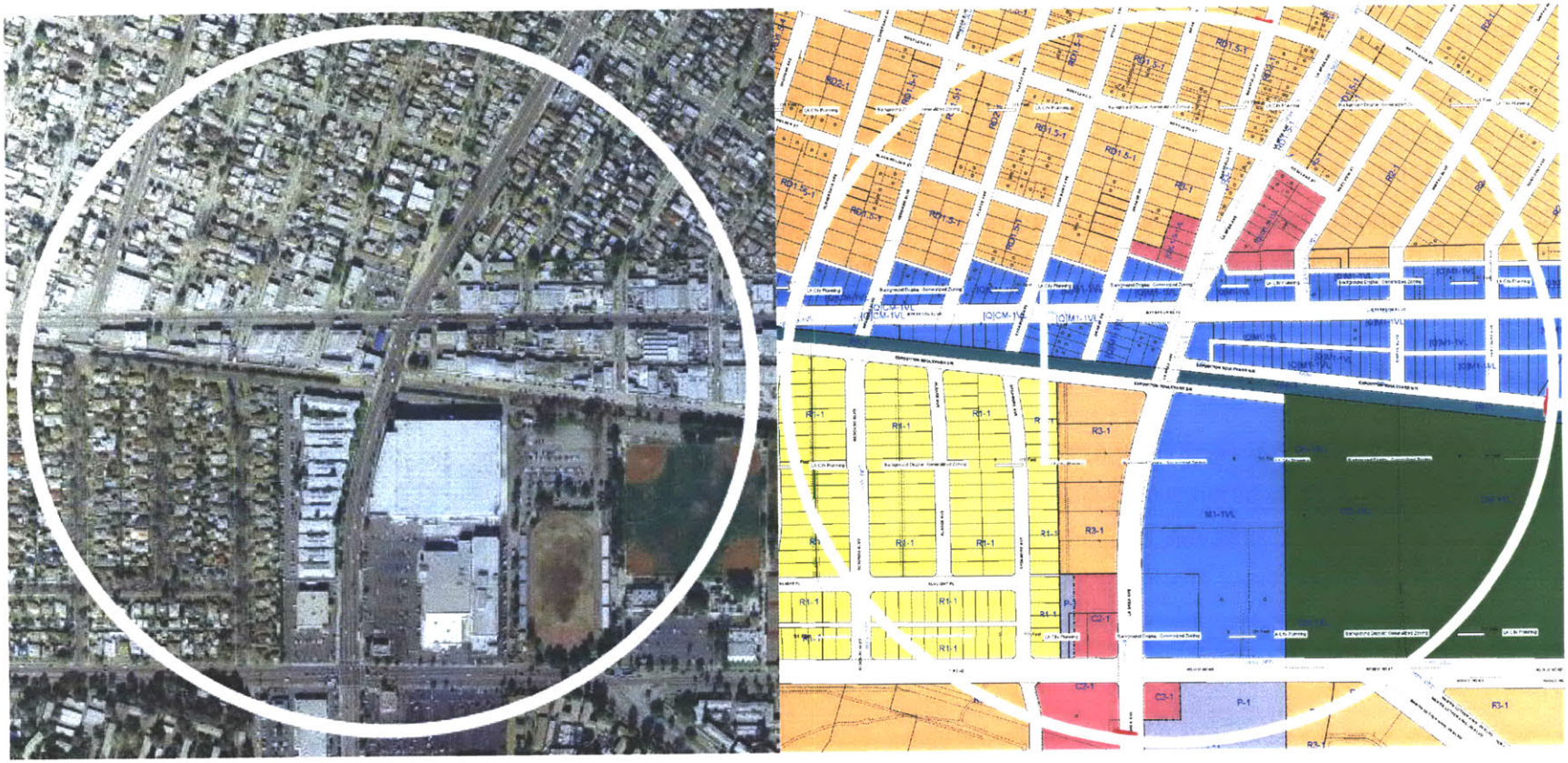
With a total of 2,054 located on 47% of the total land area allowed for residential (dominated by R3-1 and C2-1), the station area has a residential density of 35 du/ res acre and net residential of 16 du/acre., the Vermont/ Beverly station area meets the city's minimum residential density goal. Although the actual residential density falls within the minimum and maximum density desired density specified by the Transportation & Land Use policy, the actual zoned mixed residential and mixed-use commercial land has potential under current zoning to meet 109 units per acre allowed by its maximum units per acre criteria. The total station area is zoned for Height District 1 limiting residential development to 33 feet (3 stories) and mixed-use commercial development to an FAR of 1.5:1.

*Development Limitations & Potential*

With 41% of the land as low-density manufacturing, commercial density restricted to an FAR of 1.5:1 and part of the total radius area partitioned as part of the freeway right-of-way, the zoning and land uses are not inductive to creating a commercial density necessary to attractive pedestrians. Converting the 17 acres of low-density manufacturing land and intensifying the mixed-use character of the 18 acres of low density strip mall commercial land located along the Vermont and Beverly boulevards has the potential to create a more pedestrian friendly environment for the neighborhood residents as well as transit riders.

## (3) La Brea & Exposition – Proposed Light Rail – Neighborhood Center

**Figure 7.2-5 La Brea & Exposition Aerial and Zoning Map Representing 1/4 Mile Walking Radius**




Source: Terra Server, Urban Area 3/29/2004

Source: Zimas, 2005

*Neighborhood Characteristics*

The area is located in the West Adams community plan area. The land use surrounding the station is typical of a neighborhood center with medium-density residential and neighborhood retail. The existing uses in immediate proximity to the intersection include gas stations, warehouse storage facilities.

*TOD Incentives & Projects*

Although to date no special TOD incentives exist for the proposed station area, the MTA and Transportation & Land Use Collaborative of Southern California has received a grant for $191,636 to create the La Brea Light Rail Station Area Plan. The project proposes a community-based planning process to design and develop a station area and community linkages plan for the La Brea Light Rail Station on the proposed Exposition Light Rail Line[17].

*Housing Density and Zoning Capacity Characteristics*

As a Neighborhood Center with a total of 629 housing units and a net residential density of 5 units per acre, the ¼ mile radius area of the proposed La Brea and Exposition light rail station falls short of reaching the transit supportive goal of 9 units for a light rail station. This low housing density is a result of the area having been originally dedicated as an old railway line bordered by light industry (24%), low-density multi family (15%) and single family (13%). Despite having a lower vacancy rate than the rest of the city (4%) and being zoned for a maximum of 1,726 units at 14 units per acre, the existing housing density falls 64% short of the maximum housing capacity.

---

[17] California Department of Transportation, Community-Based Transportation Planning Grants

*Development Limitations& Potential*

The 13 acre low density manufacturing parcel could provide an opportunity to be convert to more appropriate transit supportive uses such as commercial or residential development without impacting the surrounding neighborhood because it is buffered by medium density residential use (R3-1) to the west and open space to the east.

## (4) Highland Park –Light Rail -Neighborhood Center Transit-Oriented District

**Figure 7.2-6 Highland Park Aerial and Zoning Map Representing 1/4 Mile Walking Radius**

Source: Terra Server, Urban Area 3/29/2004

Source: Zimas, 2005

*Neighborhood Characteristics*

The Highland Park station is located in northeast Los Angeles in a Neighborhood Center station prototype. The ¼ mile radius area surrounding the station is still composed of low-density multi-family residential (76%) and a medium density residential/ commercial (19%). Actual land uses surrounding the station include low to medium residential as well as neighborhood commercial uses like restaurants.

*TOD Development & Incentives*

One hundred percent of the radius area transit area is located within the boundaries of Los Angeles's oldest Historic Preservation Overlay Zone (HPOZ) while part of the radius area is located in the Avenue 57 Transit-Oriented District.

*Housing Density and Zoning Capacity Characteristics*

With only 1,328 housing units, the station's current residential density is 32% lower than capacity. However, with a housing capacity of 1,726 dwelling units on 69% of the land zoned for residential (dominated by RD2-1, C4-2D, and RD1.5-1), the station area has and a zoned residential density potential of 33 du/res acre which falling within the city's desired density guidelines for a neighborhood center and Calthorpe's for a urban center served by rail. With 29% of the land zoned under Height District 2, mixed-use residential and commercial developments have the potential to reach up to 6 stories (Height District 2 also allowed at Wilshire/ Vermont and some at San Pedro).

*Development Limitations & Potential*

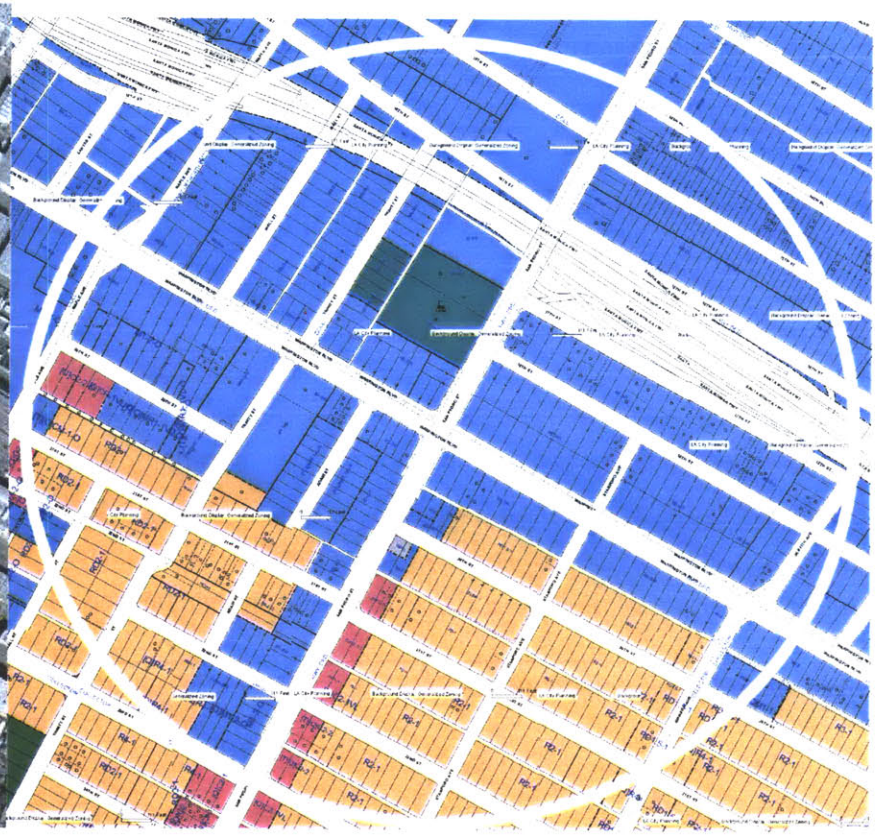
The Avenue 57 Neighborhood Specific Plan (2002) encourages new housing development in previous low density areas combating the inhibiting nature of the historic overlay's height limits, architectural preservation requirements, etc., while also providing new housing through increasing FAR in a concentrated commercial/ residential corridors in close proximity to transit. Specifically, the overlay provided for bonus and incentives to compensate for restricting the assembly of lots (i.e. a floor area restriction (FAR) bonus that allowed a 25% increase of square footage for a number of developments). While both the station infrastructure and the Transit-Oriented Plan have only recently put in place, the station area is still much in transition and residential density expected to increase in the area. The extend in which the area can build up is limited by the

disagreement on key development standards such as parking, height and FAR felt by the local councilman, Avenue 57 Historic Preservation Overlay Zone board (HPOZ Board), as well as by local residents. (California State Polytechnic University, 2004)

## (5) San Pedro & Washington – Light Rail – Industrial Center –TOD District

**Figure 7.2-7 San Pedro & Washington Aerial and Zoning Map Representing 1/4 Mile Walking Radius**

Source: Terra Server, Urban Area 3/29/2004



Source: Zimas, 2005

*Neighborhood Characteristics*

The station is located in southeast Los Angeles. With a large percentage of land (48%) surrounding the station area allocated as industrial (M2-2, M-1), the San Pedro station area is indeed an Industrial Complex station prototype as defined by the city. While residential land comprises of 23% of the total net area, the largest residentially zoned percentage of land station area is zoned as R2-1. Currently the land surrounding the station is used as liquor stores and low to medium residential.

*TOD Plans & Incentives*

There are no know plans or specific incentives for the area other than it's eligibility for the city-wide 35% density bonus for affordable housing built near transit.

*Housing Density and Zoning Capacity Characteristics*

At 51%, the area reaches the highest percentage of zoned residential density for the case study station areas. Although, the City sets no minimum or maximum residential density criteria for industrial stations, the area's current zoning allows up to 37 du/acre allowed for residential and 109 du/acre for mixed development. Although because of the relatively high density permitted for mixed-use commercial and residential development in the area, the current zoning allows a net density of 7 du/acre that is supportive of light rail. However, at 4 du/acre, the station's current residential density is below what is needed to support light rail and, at 6%, the housing vacancy rate is slightly above the city-wide average.

*Development Limitations & Potential*

While the existing zoning allows for additional density, only 32% of the transit area can facilitate the development of additional housing. In order to facilitate the creation of more housing or to create a more pedestrian environment, the most appropriate action at this station would be to rezone obsolete light manufacturing uses along the San Pedro boulevard in order to create a more alluring pedestrian environment to encourage medium-high residential development be developed.

## 7.3. Summary of Case Study Neighborhoods

The following charts present a summary of the five station neighborhoods. A complete zoning chart can be found in the Appendix (Figure 9.4-3).

**Figure 7.3-1 Summary of Station Area TOD Incentives, Actual Land Use, Development Limitations & Potential**

| | MTA Project | TOD Plan | Incentives | Actual Land Use | Development Limitations | Development Potential |
|---|---|---|---|---|---|---|
| Wilshire/ Vermont | X | | Wilshire / Koreatown | high rise office, service stations, low rise restaurants, and parking lots | low density uses: area in transition, excess of surface parking | Potential for res along commercial, low vacancy rates, decrease parking |
| Beverly/ Vermont | | X | SNAP, Wilshire / Koreatown | gas stations, parking lots, and strip mall | low density commercial, industrial | rezone light manufacturing to commercial/ residential use |
| Highland Park | | X | Avenue 57 Neighborhood Specific Plan | taverns, low-medium density residential | historic overlay, disagreement on key dev standards | room for res growth, in transition |
| La Brea/ Exposition | | | None | gas stations, warehouse storage facilities | low-density residential, obsolete industrial? | rezone commercial/ residential increase FAR in designated area |
| San Pedro/ Washington | | | None | alcohol sales facilities, low to medium residential | obsolete industrial?, non pedestrian friendly environment, low % res land | rezone light manufacturing to commercial/ residential use |

**Figure 7.3-2 Housing Density & Land Use Characteristics in 1/4 Mile Radius**

| Criteria | Characteristics | % Land for Res | Housing Units* | Net Res Density (du/total acre) | Min Res Density (du/acre) | Max Res Density (du/acre) | Min Res FAR | Max Res FAR | Min Res Parking (spaces/1.5du) |
|---|---|---|---|---|---|---|---|---|---|
| Existing | Wilshire/ Vermont | | 2,310 | 21 | | | | | |
| | Bev/ Vermont | | 1,041 | 16 | | | | | |
| | Highland | | 1,092 | 11 | | | | | |
| | Existing La Brea | | 637 | 5 | | | | | |
| | Existing San Pedro | | 416 | 4 | | | | | |
| Permitted by Zoning | Wilshire/ Vermont | 79% | 11,913 | 95 | - | 109 | - | 6:1 | 1 |
| | Bev/ Vermont | 47% | 4,897 | 39 | - | 109 | - | 6:1 | 1 |
| | Highland | 69% | 4,139 | 33 | - | 109 | - | 6:1 | 1-2 |
| | La Brea | 40% | 1,726 | 14 | - | 109 | - | 6:1 | 1-2 |
| | San Pedro | 23% | 941 | 7 | - | 109 | - | 6:1 | 1-2 |
| Desired by City Policy for: | Urban Complex | | | | 40 | 60 | 4.5:1 | 10:1 | phased |
| | Neighborhood Center | | | | 24 | 40 | 2:1 | 3:1 | 1.5 |
| | Industrial Center | | | | - | - | 3:1 | 6:1 | - |
| Desired for Transit for: | Heavy Rail | | | 25 | | | | | |
| | Light Rail | | | 20 | | | | | |
| Desired by Calthorpe for: | Urban | 20%-60% | | | | | | | |

Source: Zimas parcel data used for permitted densities, LA Zoning codes' minimum lot densities used for permitted densities, Transportation/ Land Use Policy used for desired criteria for neighborhoods, Calthorpe used for desired densities for transit, Pushkarev & Zupan used for desired transit criteria.

**Figure 7.3-3 Summary of Station Area Zoning & Housing Characteristics**

| | Prototype | Actual Housing (du) | Housing Capacity (du) | % Res | % Vacant | % Capacity | Dominate Zoned Res* | Res Density (du/res acre) | Net Res Density (du/ acre) | Lowest Zoned Res Density (du/ acre) | Highest Zoned Res Density (du/ acre) | Highest Zoned Comm. Density (du/ acre) | Allowed Net Density (du/ acre) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wilshire/ Vermont | Urban Complex | 2,686 | 11,913 | 79% | 2% | 23% | C2-2, R4-2, C2-1 | 27 | 21 | 109 | 218 | 109 | 95 |
| Beverly/ Vermont | Neighborhood | 2,054 | 4,897 | 47% | 4% | 42% | R3-1, C2-1 | 35 | 16 | 54 | 109 | 109 | 39 |
| Highland Park | Neighborhood | 1,328 | 4,139 | 69% | 6% | 32% | RD2-1, C4-2D, RD1.5-1 | 15 | 11 | 9 | 22 | 109 | 33 |
| La Brea/ Expo | Neighborhood | 629 | 1,726 | 40% | 4% | 36% | R1-1 | 13 | 5 | 9 | 54 | 109 | 14 |
| San Pedro/ Washington | Industrial | 482 | 941 | 23% | 6% | 51% | R2-1 | 17 | 4 | 22 | 109 | 109 | 7 |

*Over 10% of total area

# 8. Summary of Findings

## 8.1. Introduction

The following pages provide a summary of the findings for City-wide land use and housing characteristics as well as station area zoning. A complete chart of the zoning characteristics can be found in the appendix (Figure 9.4-3).

## 8.2. Land Use Characteristics Findings

### 8.2.1 Station Site Placement Trends

- ***Current land uses near light rail lines reflect outdated strategies to use rail to incorporate low-density residential and industrial centers.***

The high percentages of Open Space/ Quasi-Public Lands with the Vermont/ Beverly seem due to the need to keep rail investments and political resistance (i.e. previous extension to Venice beach rejected due to neighborhood resistance) low by using freeway corridors (i.e. Green Line) and existing rail right-of-ways (i.e. Blue Line, Gold Line & Exposition). In the case of the green line, which is located in the right of way in between the Century freeway, the surrounding area is limited greatly by the freeway itself. While half of the Blue Line's track runs parallel to the Southern Pacific (SP) freight track, much of the area surrounding the track is zoned as industrial. Similarly, the Gold Line's placement along LA's oldest rail right-of –way, which originally facilitated suburbs in Pasadena, reflects the low-density character of the surrounding area.

While the Wilshire Extension appears to end right before intersecting a single-family neighborhood, sections of the Blue Line, Green Line, Gold Line, and Exposition Extension light rail lines intersect higher percentages of single-family areas along the rail and freeway right-of-ways. The fact that lower-density residential uses and industrial areas are still found in close proximity to the rail right-of-ways is not surprising considering the fact that the original streetcar system in Los Angeles was originally designed to give lower-density suburban developments and industrial

centers access to the city. The reincorporating of these rail right-of-ways means that the land uses surrounding LA's modern system will reflect the intent of previous rail alignment strategies.

- ***As the rail network expands, there seems to be a trend growing towards situating rail stations in lower-density residential neighborhoods in order to take advantage of existing rail-right-of ways.***

Boarnet and Crane (1997) found that in Southern California municipalities behave as if they prefer to use rail transit stations for economic rather than residential development. A decade later, as the city's rail system continues to depend on existing rail right-of-ways to expand outward to ease the cost and political feasibility of rail expansion, newer rail line appear to incorporate more single family and lower-density residential land uses (i.e. Gold and Exposition extensions,)

- ***Station placement reflects MTA's desire to place rail station ½ mile apart.***

Despite being located in close proximity to conflicting uses like freeway entrances, the placement of various stations seem due to the desire to place stations in close proximity (i.e. ½ mile apart) to each other (i.e. Vermont/ Beverly and Wilshire/ Vermont.

## 8.3. Housing Characteristics Findings

### 8.3.1 Housing Density

- ***Only 3% of the city's total housing units and 2% of the total land area is located within walking distance of a rail station, making housing density near rail stations slightly higher than the rest of the city but low for rail stations.***

According to Census 2000, only 3% of Los Angeles total housing units are located within a ¼ mile walking radius of a rail stations. Similarly, with 5,150 acres of land located within its 41 station areas, this land represents only 2% of the city's total land. On average for all 41 stations, station areas included an estimate of 1,128 housing units with a neighborhood density of 9 du/acre. While this may be higher than the city average of 4.5 du/acre, it is still relatively low for including both heavy and light rail stations (Figure 8.3-1). With only 3% of the city's total housing units located within walking distance of a rail station, it is not surprising that the city has relatively low rail ridership levels and is mobility is highly automobile oriented.

**Figure 8.3-1 Station Neighborhood Characteristics: Los Angeles City v. All Rail**

| Characteristic | Total Du | % Total Du |
|---|---|---|
| City | 1,337,706 | 100% |
| All Rail Neighborhoods | 45,909 | 3% |

* With each ¼ mile radius station area equivalent to 125.6 acres, only 40 stations accounted for, as only half of two stations are with LA city's jurisdiction (Vermont & Slauson)
Source: City of Los Angeles (2005), Census (2000) data, heavy and light rail with entire radius in city jurisdiction, excludes all bus rapid transit (BRT), Sylmar Metrolink, and V

- ***Net residential density for all rail station neighborhoods varies widely across stations ranging from 28 to 0 du/ acre.***

The Red Line hosts the rail station neighborhoods with the highest and lowest net residential density with 28 du/acre at Wilshire/ Normandie and Hollywood/ Western and 0 du/acre at Westlake/ MacArthur Park and 7$^{th}$/ Metro and Union Station (Figure 8.3-2).

**Figure 8.3-2 Rail Station Neighborhoods with the Highest and Lowest Net Residential Densities**

| Characteristic | Station | Line | Rail Type | Year Built | Wave | Housing Units* | Vacant Units* | % Vacant | Neigh Density |
|---|---|---|---|---|---|---|---|---|---|
| Highest Density | Wilshire/ Normandie | red | heavy | 1996 | 2 | 3,489 | 301 | 6% | 28 |
| | Hollywood/Western | red | heavy | 1999 | 2 | 3,472 | 107 | 3% | 28 |
| | Wilshire/ Western | red | heavy | 1996 | 2 | 3,147 | 109 | 3% | 25 |
| | Westlake/ MacArthur | red | heavy | 1996 | 2 | 3,177 | 260 | 8% | 25 |
| Lowest Density | Grand/Washington | blue | light | 1990 | 1 | 235 | 35 | 15% | 2 |
| | Lincoln/ Cypress | gold | light | 2003 | 3 | 223 | 13 | 6% | 2 |
| | Washington/Alameda | blue | light | 1990 | 1 | 122 | 13 | 11% | 1 |
| | USC Exposition Park | expo | light | 2009 | 4 | 114 | 10 | 9% | 1 |
| | 7th/ Metro | red | heavy | 1993 | 1 | 40 | 5 | 14% | 0 |
| | Union Station | red | heavy | 1993 | 1 | 7 | 1 | 17% | 0 |

Source: Census 2000

- ***Despite having 15 years the respond to the market and, the first wave of Blue Line transit stations located in downtown and in South Central Los Angeles boast the lowest residential densities of all lines.***

Despite being the first rail stations completed, downtown and Blue Line stations are characteristics of some of the city's lowest density station areas. Loukaitou-Sideris & Banerjee (2000) first documented the low housing developments attributing the lack of development near the rail stations to various barriers including perceptions of crime and lack of investment interest to zoning regulations such as obsolete land uses and restrictive zoning requirements. Since the Census data was collected in 2000, downtown Los Angeles has been gaining higher density residential towers. Recent renovations of historic structures have brought penthouses for the luxury market as well as competitively priced condominiums and apartments for people who work downtown and want the option of living there.

- ***Heavy rail station neighborhoods provide more than half the total number of dwelling units located within the ¼ mile radius of rail.***

Despite the fact that there are almost twice as many light rail stations, with approximately 39,300 housing units located in walking distance to the stations, the city's heavy rail station boast more than twice the number of housing units within the ¼ mile walking radius . This could be due to

their higher level of service and the fact that the heavy rails stations are more attractive for higher density residential development (i.e. located near additional urban amenities, destinations, and away from freeways). The Wilshire extension hosts three of the stations along the Red Line with the highest residential densities.

### 8.3.2 Housing Goals

- ***With an average at 16 du/acre, 71% of the heavy rail stations meet minimum transit supportive densities. With an average of 6 du/acre, only 11% of all light rail stations meet minimum transit supportive densities.***

71% of all the heavy rail station neighborhoods (an average of 16 du/acre) meet the minimum residential densities of 12 du/acre needed to support heavy rail. However, only 11% of the light rail stations meet the minimum densities needed to support transit ridership (Figure 8.3-3).

**Figure 8.3-3 Rail Station Characteristics by Transit Type and Percentage Reaching Transit Supportive Net Residential Densities**

| Characteristic | Type | No. | Average Net Res Density | % Reach Goal |
|---|---|---|---|---|
| Rail Type | Heavy | 14 | 16 | 71% |
| | Light | 27 | 6 | 11% |

- ***Net Neighborhood densities are the highest within the MTA's second rail extension phase with the heavy rail station neighborhoods in Wilshire and Hollywood.***

According to the wave type, net neighborhood densities are the highest within the MTA's second wave of rail extensions along the Wilshire Corridor's heavy rail stations. This could be attributed to the fact that the area, a regional center, was already characteristics of higher densities before the heavy rail line was constructed (Figure 8.3-4)

**Figure 8.3-4 Rail Station Housing Characteristics by Wave Type**

| Characteristic | Type | No. | Du/ Un* | % Vacant | Neigh Density* |
|---|---|---|---|---|---|
| | 1st | 12 | 523 | 8% | 4 |
| | 2nd | 14 | 2,020 | 5% | 16 |
| | 3rd | 7 | 1,102 | 7% | 9 |
| Wave | 4th | 8 | 609 | 7% | 5 |

Source: Census 2000

### 8.3.3 Vacancy Rates

- ***If vacancy rates are indicative of market demand, the demand for housing in each station area vary widely by station area but are, on average, similar to that of the city.***

Housing vacancy ranges also vary widely from stations ranging as low as 2%-3% at Wilshire/ Vermont, Civic Center, Wilshire/ Western, and Hollywood/Western to 15%-17% at Grand/ Washington to Union Station respectively. If vacancy rates are an indication of market demand, there appears to be a greater market demand to live near rail stations along higher density areas like along the Wilshire Corridor and Hollywood and the lowest demand to live in areas in downtown and along the Blue Line. However, since 2000, the trend to live downtown appears to be changing as downtown because a 24-hour market and as commercial and pedestrian life returns. While vacancy rates vary widely across individual station areas, on average, vacancy rates for all rail stations (6%) is similar to the citywide average (5%). There appears to be a higher demand to live near heavy rail stations perhaps due to the increased level of transit service and mixed-use pedestrian amenities higher density heavy rail nodes offer.

**Figure 8.3-5 Los Angeles City Rail Station Neighborhood Average Station Characteristic**

| Characteristic | Type | No. | Du/ Un* | % Vacant | Neigh Density* |
|---|---|---|---|---|---|
| Rail Line | Red | 15 | 1,911 | 5% | 15 |
| | Gold | 9 | 950 | 7% | 8 |
| | Blue | 7 | 445 | 8% | 4 |
| | Green | 3 | 582 | 8% | 5 |
| | Expo | 7 | 599 | 6% | 5 |
| Rail Type | Heavy | 14 | 1,990 | 5% | 16 |
| | Light | 27 | 682 | 7% | 6 |
| Wave | 1st | 12 | 523 | 8% | 4 |
| | 2nd | 14 | 2,020 | 5% | 16 |
| | 3rd | 7 | 1,102 | 7% | 9 |
| | 4th | 8 | 609 | 7% | 5 |
| Average | All Rail | - | 1,128 | 6% | 9 |

Source: Census 2000

**Figure 8.3-6 Los Angeles City Rail Station Neighborhood Housing Characteristics**

| Line | Station Name | Housing Units* | Vacant Units* | % Vacant | Neigh Density |
|---|---|---|---|---|---|
| Red | Wilshire/ Normandie | 3,497 | 215 | 6% | 28 |
| | Hollywood/Western | 3,472 | 107 | 3% | 28 |
| | Westlake/ MacArthur | 3,181 | 260 | 8% | 25 |
| | Wilshire/ Western | 3,148 | 109 | 3% | 25 |
| | Wilshire/ Vermont | 2,690 | 63 | 2% | 21 |
| | Hollywood/ Highland | 2,308 | 83 | 4% | 18 |
| | Vermont/Santa Monica | 2,129 | 84 | 4% | 17 |
| | Vermont/ Beverly | 2,053 | 79 | 4% | 16 |
| | Pershing Square | 1,797 | 197 | 11% | 14 |
| | Vermont/Sunset | 1,633 | 72 | 4% | 13 |
| | Hollywood/Vine | 1,098 | 103 | 9% | 9 |
| | Civic Center | 823 | 24 | 3% | 7 |
| | North Hollywood | 796 | 33 | 4% | 6 |
| | 7th/ Metro | 40 | 5 | 14% | 0 |
| | Union Station | 7 | 1 | 17% | 0 |
| Green | Avalon | 682 | 64 | 9% | 5 |
| | Vermont | 538 | 30 | 4% | 6 |
| | Harbor Freeway | 480 | 48 | 10% | 4 |
| Gold | Soto | 1,897 | 114 | 6% | 15 |
| | Mariachi Plaza | 1,347 | 101 | 8% | 11 |
| | Avenue 57/ Marmion | 1,328 | 75 | 6% | 11 |
| | Heritage Square | 1,050 | 95 | 9% | 8 |
| | Southwest Museum | 874 | 97 | 11% | 7 |
| | Pico/Aliso | 679 | 78 | 12% | 5 |
| | Chinatown | 670 | 31 | 5% | 5 |
| | Little Tokyo | 485 | 32 | 7% | 4 |
| | Lincoln/ Cypress | 223 | 13 | 6% | 2 |

| | | | | | |
|---|---|---|---|---|---|
| Expo | Western/Exposition | 1,003 | 104 | 10% | 8 |
| | Venice/ Washington | 728 | 28 | 4% | 6 |
| | Vermont/Exposition | 653 | 38 | 6% | 5 |
| | La Brea/ Exposition | 630 | 27 | 4% | 5 |
| | Crenshaw/Exposition | 621 | 31 | 5% | 5 |
| | La Changa/ Exposition | 443 | 14 | 3% | 4 |
| | USC Exposition Park | 114 | 10 | 9% | 1 |
| Blue | Vernon | 744 | 64 | 9% | 6 |
| | 103rd Street | 584 | 41 | 7% | 5 |
| | San Pedro/ Washington | 482 | 29 | 6% | 4 |
| | Slauson | 475 | 41 | 9% | 5 |
| | Pico | 474 | 40 | 8% | 4 |
| | Grand/Washington | 235 | 35 | 15% | 2 |
| | Washington/Alameda | 122 | 13 | 11% | 1 |
| | Total | 45,909 | 2,730 | | |

*estimated using surrounding block groups
Source: Census 2000

## 8.4. Zoning

### 8.4.1 Land Mix

- ***Percentages of land zoned for residential and mixed-use development vary widely by station and between neighborhood and rail type as well as by previous TOD efforts.***

Because a variety of Station Area Prototypes chosen on purpose for the analysis it is not surprising that the individual zoning characteristics also vary widely by station area (). However, similar to Loukaitou-Sideris & Banerjee (2000) findings regarding the Blue Line stations, there also appears to be a wide diversity of composition and distribution of land use even between similar rail and neighborhood types. For example, diversity of land uses ranges widely between La Brea/ Exposition with Avenue 57, both Neighborhood Centers as well as Wilshire/ Vermont and Vermont/ Beverly, both heavy rail station. This diversity could help explain the difficulty the City Planning Department has had in developing a city-wide TOD overlay despite attempts to individualize incentive criteria by neighborhood and transit type. As a Regional Center it is not surprising that Wilshire/ Vermont has both the highest percentage of residential (23%) and mixed-use (56%) zoned land as well as the highest residential (i.e. Multiple Dwelling: R4-2) and mixed-use density zoning types (i.e. Commercial: C4-2). Perhaps due to the fact that Highland Park adopted a Transit-Oriented District, despite being a Neighborhood Center located further out from the city center towards Pasadena, this station has the second highest percentage of land available for residential development.

- ***On average, housing falls 77% below the maximum capacity allowed under zoning with greatest capacity along high and medium-density commercial corridors.***

When comparing the total zoning capacity allowed under the existing zoning criteria with the actual housing units within the sample station areas, on average, the station areas on average fall 77% below what is allowed by-right under current zoning density criteria (Figure 8.4-1).

**Figure 8.4-1 Lost Dwelling Units Per Case Study 1/4 Mile Station Radius**

| Station Area | Zoning Capacity | Actual Units | Additional Housing Capacity | % Difference |
|---|---|---|---|---|
| Wilshire/ Vermont | 11,913 | 1,861 | (10,052) | -84% |
| Vermont/ Beverly | 4,962 | 1,508 | (3,454) | -70% |
| Highland Park | 4,139 | 1,092 | (3,047) | -74% |
| La Brea/ Expo | 1,726 | 637 | (1,088) | -63% |
| San Pedro | 941 | 416 | (525) | -56% |
| Case Study Total | 30,205 | 6,945 | (23,259) | -77% |

As recognized by the City Planning Department and their new housing initiatives, it appears that the largest residential potential exists above high and medium-density commercial parcels. At 218 to 109 dwelling units allowed per acre, there is much potential for housing to be built in areas like Wilshire/ Vermont, Figueroa/ Florence, Vermont/ Beverly and Avenue 57 which have significant amount of high density commercially zoned land[18]. Secondly at 54 dwelling units per acre, Wilshire/ Vermont and Figueroa/ Florence also have housing potential above medium-density residentially zoned land.

**Figure 8.4-2 Table of Zoning Capacity in Dwelling Units Per Case Study 1/4 Mile Station Radius**

| Station Area | High Density 218-109 du/acre | Medium Density (R3, R4, R5, C) > 54 du/acre | Lower Density (R2, RD, & C) < 28 du/acre | Single Family <8 du/acre | Zoning Capacity |
|---|---|---|---|---|---|
| Wilshire/ Vermont | 7,312 | 4,601 | - | - | 11,913 |
| Vermont/ Beverly | 2,250 | 2,647 | - | - | 4,897 |
| Highland Park | 2,701 | - | 1,433 | 5 | 4,139 |
| La Brea/ Exposition | 561 | 530 | 489 | 146 | 1,726 |
| San Pedro/ Washington | 152 | 211 | 577 | - | 941 |
| Case Study Total | 12,975 | 7,989 | 2,499 | 151 | 23,615 |
| % | 55% | 34% | 11% | 1% | 100% |

[18] Through looking at the minimum dwelling units allowed per acre by the zoning code, the zoning capacity can be measured for each station area.

### 8.4.2 Actual Land Use

- ***Precious infill land near transit area is occupied by inappropriate low-density suburban uses permitted under current zoning.***

However, this zoning capacity is limited to the fact that residential and commercial land is often occupied by lower density uses allowed under current zoning like parking lots and low–rise commercial developments. For example, the case of Wilshire/ Vermont, a Denny's restaurant with parking lot and gas station occupy land on high-density residential and commercial parcels in close proximity to the Wilshire/ Vermont Station. While low-density uses on both commercial and manufacturing land inhibit the land available for new development they also create a non-pedestrian friendly environment. Despite efforts made to encourage voluntary minimum densities near transit, the fact that previous low-density uses are still allowed by zoning inhibits the development of more pedestrian land uses.

**Figure 8.4-3 Summary of Actual Station Area Land Use**

| Station | Actual Land Use* |
|---|---|
| Wilshire/ Vermont | high rise office, service stations, low rise restaurants, and parking lots |
| Beverly/ Vermont | gas stations, parking lots, and strip mall |
| Highland Park | taverns, low-medium density residential |
| La Brea/ Exposition | gas stations, warehouse storage facilities |
| San Pedro/ Washington | light industrial uses, alcohol sales, medium density residential |

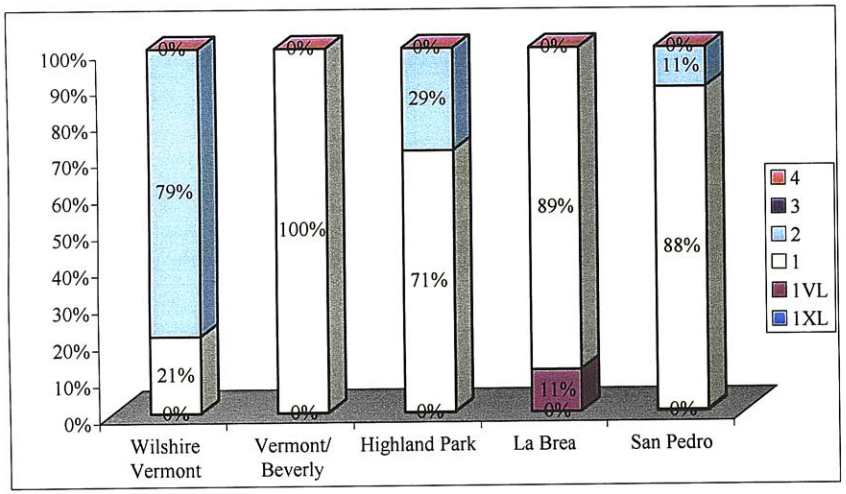
Source: Zimas, Assessor's data, 2005.

### 8.4.3 Height Districts

- ***The majority of land in rail neighborhoods is zoned under Height District I and restricted to height limits and FAR parameters.***

Although the existing zoning near transit may allow for the City's desired density, additional development limitations like height could be a reason why housing falls below the housing capacity allowed under current zoning. The majority of the land in the station areas is zoned under height districts 1 which allows heights up to 33 feet (equivalent to 3 stories) and an FAR of 3:1 for medium density residential (R-1, R-2) and heights up to 75 feet (equivalent to 6 stories) and FARs of 3:1 for higher density residential (R-4, R-5) and height limits of 75 feet and an FAR of 3:1 for mixed-use commercial. Only in Wilshire/Vermont and somewhat in Highland Park and San Pedro are height districts of 2 allowed (allows up to 6 stories or an FAR of 6:1). (LA Zoning Code)

**Figure 8.4-4 Height Limits by Case Study Area**



### 8.4.4 Land Use/ Transportation Goals

- ***In some higher density commercial areas found in all of the case study station areas, the City's model Land Use & Transportation Policy actually restricts higher density residential development.***

When comparing the existing density allowed specified by the current zoning, in some cases, the city's model policy actually limits the housing density allowed under current zoning (Figure 8.4-5). For example, higher density mixed-use commercial parcels (i.e. C2-1, C2-2. C4-2 which all allow up to 109 du/acre) which is currently found in each station area regardless of station neighborhood prototype, is restrict by the maximum by-right gross densities desired by the Transportation & Land Use Policy (60 du/ acre unless granted a discretionary permit).

**Figure 8.4-5 Summary of Station Area Goals**

| Standard | City Station Prototype* (du/res acre) | | | Min Transit Supportive** (du/acre) | | Min % Res Land Use for Urban*** |
|---|---|---|---|---|---|---|
| Criteria | Actual | Permitted (low) | Permitted (high) | Actual | Permitted | Permitted |
| Wilshire/ Vermont | Meets | Restricts | Restricts | Meets | Meets | Meets |
| Beverly/ Vermont | Meets | Restricts | Restricts | Meets | Meets | Meets |
| Highland Park | Lower | Lower | Restricts | Meets | Meets | Lower |
| La Brea/ Exposition | Lower | Lower | Restricts | Lower | Meets | Lower |
| San Pedro/ Washington | n/a | n/a | n/a | Meets | Lower | Lower |

* 40-60 du/res acre for Urban Complex, 20-40 for Neighborhood Center, none for Industrial Complex as defined by the city (1993), **9 du/acre for light rail and 12 du/acre for heavy rail defined by Pushkarev & Zupan (1997) ***18 du/re acre defined by Calthorpe (1993)

# 9. Conclusion: Observations, Recommendations & Questions for Further Study

## 9.1. Introduction

While the City of Los Angeles policy framework reflects many innovative Transit-Oriented Development concepts such as concentrating new transit-supportive land uses and housing developments near transit, the ability of the city to craft the necessary implementation tools to ensure this type of development has been limited. Despite, billions of dollars invested in Los Angeles' rail system, net residential densities within walking distance of rail are still relatively low with the majority of light rail station failing to provide the minimum residential densities needed to make it viable. The success of the efforts to build housing near rail in Los Angeles rely largely on the continuous proactive efforts made by the MTA and CRA to assemble land and provide financing and recent efforts by the city to craft implementation policies making infill housing development more feasible. However, in stations were market conditions do not provide for ideal development conditions or surrounding communities are indifferent or in opposition to TOD planning, transit-oriented housing has been left largely off the planning agenda. TOD housing has been very much an uphill battle won most often by larger developers who have been able to secure financing or by local leaders who have been able to gain enough community support. Although individual Transit-Oriented Districts and city-wide policies like RAS are steps in the right direction, the potential for medium to high-density housing to be built near rail investments in Los Angeles is ultimately limited by the city's lack of comprehensive planning, outdated land use patterns and restrictive zoning restrictions which still reinforce historical low density patterns and separation of land uses. The question ultimately resulting from this research is whether or not it's appropriate for the city to focus on crafting innovative incentive tools to encourage housing to be development near transit infrastructure or if it's time to simply throw out the city's outdated Euclidean zoning provisions all together and start from scratch.

## 9.2. Observations

The following section discusses some observations resulting from this research that highlight some of the challenges and opportunities for building housing near rail in the City of Los Angeles.

### 9.2.1 Challenges

With over fifteen years of working to promote the TOD ideas expressed in the General Plan Framework, various challenges emerge varying from the need of the government to subsidize TOD projects, the limits of the city's existing Euclidean zoning framework, outdated land uses patterns surrounding rail stations, to persistent initiatives to counter density.

#### *9.2.1.1 TOD Success Dependent on Government Financing*

The Transportation Research Board report (1997) states that, "although the City of Los Angeles has moved slowly to encourage transit-focused development, two independent agencies, the CRA and MTA, have made some headway in promoting development in rail-station areas". MTA's Joint Development Program has invested more than $1 billion in projects with public and private partners. The success of MTA's joint development projects have been due to the ability of public funding to defray the cost of development, particularly for amenities like parking or pedestrian improvements as well as the ability to secure MTA's station large land parcels. However, since almost no private development unaided by public financing has taken place in station areas, however, it remains to be seen whether the private market will view rail stations as attractive development sites. Although the MTA's joint development projects may attract the appropriate types of development at some stations, this system promises that transit-oriented development in Los Angeles will remain unique to specific stations and will vary with market conditions.

#### *9.2.1.2 Limits to Euclidean Zoning and Implications for Sprawl*

Euclidean zoning has been criticized for being inflexible, oversimplified, and unable to deal with modern housing problems in need of long-term planning and inclusionary practices (Jones & Bavoso, 1996). Euclidean zoning has facilitated the outward expansion of cities due to their inflexible nature on land uses and restrictions on vertical growth. Despite high urban land values, the separation of land uses under the Euclidean

regime results in commercial areas that are not used at night and residential areas that are at best underused during the day. It is ironic that Euclidean zoning, which was developed partially to encourage the highest and best use of land, often fosters the grossly inefficient use of artificially high land costs (Kublicki, 2001). It is up to cities to realize that strict Euclidean zoning no longer constitutes an effective model for land use planning based on the present day reality of urban sprawl. Amending zoning ordinances like RAS that allow for mixed-use development is the first step towards allowing for more efficient land uses.

#### *9.2.1.3 Outdated Land Use Surrounding Rail Stations*

While it appears that the MTA avoided the cost of acquiring additional rail right-of-ways and avoiding neighborhood resistance by reincorporating traditional rail and streetcar right-of-ways for modern transit expansion, there should be investment made to make the existing land use around station areas appropriate for modern transit use (i.e. changing obsolete industrial uses along Blue Line Stations) which requires a more mixed-use and higher density development.

#### *9.2.1.4 Historic Initiatives Against Mixed-Use & Density*

In a report, by Guerra, Marks, and Brackman (2001) the City's comprehensive downzoning precludes multifamily dwellings and manufactured housing as well as reduces overall project densities. Even today, almost 100 years after zoning was first adopted in Los Angeles, local elected officials reported that the city's housing policies are still aimed at maintaining or reducing density (Center for Study of Los Angeles, 2001). In an accidental metropolis like Los Angeles, where the even the streetcar was originally created with the intent to facilitate suburban development and where communities have an ingrained history of fighting against density in order preserve their low density suburban way of life, it is not surprising that the car still very much reigns and there is community resistance to promoting density.

### 9.2.2 Opportunities

Despite the previously listed challenges to TOD development in the City of Los Angeles, the city has the potential to continue using MTA owned parcels to spark station area development as well as the city's power to craft TOD supportive legislation.

#### *9.2.2.1 Pilot MTA Projects to Spark Further Development*

More recently, new MTA joint development projects like those at Wilshire/ Vermont (2006) and Hollywood/Western (2004) have begun incorporating housing as a larger component of TOD projects along existing commercial corridors were the combination of available large parcels and private developers with larger economies of scale have made the development of larger housing projects feasible. However, despite low residential vacancy rates as low as 2% at Wilshire/ Vermont suggesting a high market demand for housing, low-density commercial developments like Denny's are still located in relatively close proximity to the heavy rail station. While housing or other higher density commercial developments provide a greater return on capital investments, especially in a Regional Center, it is clear that the development in the area is still in transition and property owners appear to be waiting for the market and surrounding pilot projects to create a more ideal environment. As a relatively new transit system in a historically dominated automotive city, the city is dealing with a "Chicken and the Egg" situation where despite the demand for TOD housing, developers still perceive inherent risks in investing in TOD projects because the automobile still reigns and the transit systems is still relatively new. Bernick (1997) points out that in both Los Angeles and San Diego, the most successful TOD projects have been those in which the city has been proactive within the development process. Bernick's research stresses the need for Los Angeles to continue to draft pilot development projects in areas where the market may still perceive Transit-Oriented Development as risky and provide proactive interagency support from land acquisition, assemblage and joint public-private financing. Especially, for a city like Los Angeles whose policies were oriented around the car for so long, an equally strong effort is needed to counteract the legacy of community resistance to density.

#### *9.2.2.2 Constitutional Powers to Craft Smart Growth Legislation*

Often cities underestimate the power they have to craft innovative zoning initiatives that protect a community's safety, and general welfare. Kayden (2000) argues that smart growth regulatory policies are consistent with the Supreme Court and adequately balance public and private needs. In general, as long as municipal legislation ensures that there is (2) an *economically viable use* after establishing additional TOD policy

(overlays generally provides additional density & FAR bonus, etc. which balancing additional TOD development restrictions such as parking maximums) and (2) there exists a *rational nexus* between establishing the overlay requirements (maximum parking restrictions meet objectives to support transit use), smart growth policies like TOD overlays are insulated from challenges in court[19]:

[19] Two prong test from *Lucas v South Carolina Coastal Council*, 505 U.S. 1003, 1015-16, 1019 (1992)

## 9.3. Recommendations

The Brookings Institute report (2002) acknowledges that a challenge to TOD development lies in the fact that TODs typically occurs in a very fragmented regulatory and policy environment where no comprehensive plan or vision exists and many local governments suffer from a significant leadership gap. With the planning director, Con Howe, preparing to step down and a new change in leadership planned for the year 2005, many have hopes that the City will redirect it's efforts and take a more proactive role in moving Transit-Oriented Development from "Rhetoric to Reality". However, the question still remains, for such a large and diverse city with a strong historic preference for low-density and auto dependency, what implementation tools can the city craft to provide for a real increase in housing being built near transit?

### 9.3.1 General Policy Recommendations

#### *9.3.1.1 Allowing for Critical Transit-Supportive Densities to Reduce Traffic Congestion*

Accordingly, Los Angeles' new policies which are aimed at making zoning more flexible and facilitating mixed-use development along transit corridors are steps in the right direction given the extent of Los Angeles Housing Crisis. However, these policies only facilitate housing capacity to achieve what is already currently allowed but previously inhibited by building and land costs, minimum lot requirements, and additional zoning regulations (i.e. parking and transitional height requirements) under current zoning (i.e. density and mixed-use development). The zoning findings in this report confirm the city's findings that the city is indeed falls below its existing zoned capacity[20] [21]. However, if the city really wants to commit to provide a real concentration of housing near transit, an area most appropriate for higher density growth, the city needs to ensure that the zoning reflects the city's housing capacity needs and transit supportive goals. Although the two new policies create real incentives for increased housing opportunities within existing residential areas and along commercial corridors, they do little to ensure that total housing capacity is truly concentrated in close proximity to not just transit corridors (which may have lower transit capacities to support residential densities) but near Los Angeles 41 light and heavy rail stations. Furthermore, if the city wants to en sure that TOD residents actually switch to using rail rather than car as

---

[20] Planning Department. "City of Los Angeles General Plan: Housing Element". City of Los Angeles. 2002.

[21] 77% below capacity for sample station areas

their primary mode of transportation, it is important to allow zoning to reach a level of density where ridership increases and rail actually becomes a competitive mode option[22].

#### *9.3.1.2 Address Developer's Desire for Smarter Growth*

To combat the fragmented implementation nature of Transit-District Plans (which have had limited success and are only been actively being used in two station neighborhoods), the City of Los Angeles can still take advantage of the power of overlay zoning to supplement the Euclidean zoning scheme and combat the ineffectiveness of Euclidean zoning (Jones & Bavoso, 1996).

As early as the mid-eighties, studies reported that land use conflicts frequently arise on the basis of developers' desire to build more densely than allowed by local government general plans, zoning ordinances or negotiated agreements (Fischel, 1985; Bogart, 1998). According to a national survey of developers, an overwhelming majority of developers viewed local zoning regulations, zoning ordinances, subdivision restrictions, parking standards, street widths, and so forth, to be the most significant obstacle to alternative development (Levin and Inam, 2002). The same study demonstrated that although developers perceive a considerable market interest in alternative development forms, like medium-high density transit-oriented housing, they believed that there is inadequate supply of such alternatives relative to market demand attributing this gap between supply and demand principally to local government regulation. When asked how the relaxation of these regulations would affect their product, majorities of developers indicated that such liberalization would lead them to develop in a denser and more mixed-use fashion, particularly in close-in suburban locales.

As more and more cities are becoming built out and land is becoming scarcer, more and more developers are recognizing the need to build smarter infill housing alternatives (Fischel, 1985; Bogart, 1998; Southern California Studies Center, 2001; Levine, Jonathan, Inam, Aseem, 2004). Even LA's Model TOD Ordinance's density criteria is low for what the city needs real development incentives to create a real increase in housing production in the city's areas most appropriate for growth. As applied, TOD policy and individual infill projects will not on their own meet the City of Los Angeles' housing need, the city needs to make TOD development a more by-right process in which the market can capture the true demand for building housing.

---

[22] Pushkarev and Zupan (1997) found, light and heavy rail becomes a more dominant mode options when net residential densities reach 40 du/acre.

### 9.3.2 Specific Policy Recommendations

#### *9.3.2.1 Option: Crafting Proactive Development Tools*

However, despite efforts made by the MTA to actively redevelop station sites, the city has also begun crafting tools to identify (Infill Housing Evaluation Tool Project) and encourage TOD infill development on smaller mixed-use (RAS) and residential lots (Small Lot Subdivision Ordinance), those often more financially and structurally difficult to develop (Housing Crisis Report, 1999; Urban Land Institute, 2002)[23]. Although the city's new RAS policy aims at improving the feasibility of constructing mixed-use housing development it is still up the an individual developer and property owner to rezone an individual property. Likewise, while it is predicted that the MTA and Urban Partner's project at Wilshire/ Vermont will stimulate further more appropriate higher density redevelopment activity in the area, in the mean time, zoning requirements like parking requirements and density restrictions still prohibit redevelopment of lower density commercial uses from being redeveloped into more appropriate land uses.

The following represent various steps the city could take to adopt a more proactive strategy on facilitating infill development on smaller lots specifically located within the ¼ mile radius of rail stations[24]:

- Recognizing obsolete uses and rezoning RAS areas for by-right development located within a ¼ of rail stations.
- Complete a station area EIR to facilitate the process for future smaller scale TOD projects less time consuming and expensive.
- Create city-wide parking reductions overlay for station areas creating parking maximums but eliminate minimum parking requirements in order to allow the market to more appropriately decide minimum parking needs.

---

[23] The Housing Crisis Report (1999) found that developers often indicate that available vacant parcels aren't large enough for profitable development and that it is difficult and time consuming to assemble parcels into sites large enough for building.

[24] Also potentially incorporate major bus intersections including rapid bus transit.

### *9.3.2.2 Option: Changing from Euclidean Zoning to Form-Based Codes*

Similar to the City of Los Angeles, the City of Azusa, a close neighbor of Los Angeles, failed to craft the appropriate zoning tool necessary to implement it's General Plan. Accordingly, the city is currently in the process of throwing out its previous Euclidean zoning code in order to craft a comprehensive "Form-Based" zoning code (Moule & Polyzoides, 2005). While conventional Euclidean zoning primarily seeks to control land use and density through basic height, floor-area, and setback limits for individual buildings, form-based coding seeks to simply regulate the form of the built environment, this new approach builds on the idea that physical form is a community's most intrinsic and enduring characteristic and seeks to codify that form in a straightforward way so that planners, citizens, developers, and other stakeholders can move easily from a shared physical vision of a place to its built reality (Duany Plater-Zyberk & Company, 2005).. The clarity of the form-based code made it easy for citizens to understand the development proposals and to accept the intensity of growth needed to achieve financial stability, something often difficult to achieve with conventional zoning.

> "Because of my experience in Pasadena—where we had created an award-winning general plan and then, totally exhausted by the effort, had failed to do a zoning code that implemented it—it seemed to me from the beginning to be an opportunity to redo our general plan and redo— "blow up"—the zoning code at the very same time."
>
> –Rick Cole, discussing his strategy to adopt form-based codes in Azuza (City & Codes Panel Presentation, 2002.)

The good news is that the state of California recently included an endorsement of form-based coding in its general plan guidelines. The document refers to the code as a "useful implementation measure for achieving certain general plan goals, such as walkable neighborhoods and mixed-use and transit-oriented development." In the summer of 1994, Gov. Arnold Schwarzenegger signed Assembly Bill 1268, making California the first state to specifically enable the practice of form-based development regulation. As the California's leads the way in mandating local planning through the use of a general plan, zoning consistent with the plan, and the use of specific plans, one can hope that the practice of form-based coding and the enabling laws that support it will not be far behind in the City of Los Angeles.

## 9.4. Questions for Further Research

While the data in this report addresses the policy, land use, and zoning characteristics of housing located within walking distance of rail stations, there are other important factors to consider when analyzing Los Angeles' potential for TOD development, not address by this report.

### *9.4.1 Jobs-Housing Balance*

Although the research in this report documents the housing characteristics within walking distance to Los Angeles' 41 rail stations, it is also important when looking at the capacity for TOD development to also look at the employment density characteristics within these areas in order to adequately address the housing-jobs balance.

### *9.4.2 Location Efficient Mortgages*

Location Efficient Mortgage (LEM) is an innovative private sector mortgage product recently developed by 'Fannie Mae' (a national secondary mortgage program) and the Natural Resources Defense Fund (NRDC, a national environmental organization). California Department of Transportation recognizes the potential for this program to provide extra home purchasing power and reduce automobile ownership for residents choosing to live in areas located near high-quality transit. While Countrywide Homeloan Co. is currently implementing the program in the metropolitan Los Angeles areas as part of a market test, to date, very few LEMs in California have been underwritten (California Department of Transportation, 2002). While LEMs have had the most success in Chicago where actual car ownership was regulated, LEMs have the potential to create more affordable housing options and guarantee lower automobile rates for housing located in walking distance of transit (Southern California Association of Governments, 2005)

### *9.4.3 Readjusting Parking and FAR Requirements*

Various studies recognize the barriers to by-right infill development near rail stations such as subdivision regulations and the permitting process which add significantly to the cost of construction further deterring investors from developing near rail stations (Loukaitou-Sideris & Banerjee,

2000; Livable Places, 2002; and Mobility 21, 2004[25]). For the case study station areas, all of the station areas fall way below the zoned housing capacity allowed by the maximum density allowances. With vacancy rates still remain low for these areas (suggesting an existing market demand for housing) and minimum density criteria is only one of zoning's density measures to look at an areas housing zoning capacity, it could be that other uses other than residential and/or development regulations like height and FAR may also attributing to the lower station area densities. In order to make housing really work in C-zones there is a greater need for additional zoning incentives to make development more feasible given the restrictive nature of mixed-use residential development. Increases in the allowable FAR, parking reductions, or loosening transitional height requirements for residential developments could potentially could offset the higher land costs and increase a project's potential net operating income, allowing for more housing to be built along these commercial corridors[26]. Although the General Plan Element recommends that high-density development be encouraged near transit stations to encourage public transportation usage, there is no corresponding decrease in parking requirements for such development projects. Accordingly, the Housing Production Committee (2003) recommends that the Municipal Code be revised to specify that housing development projects within a prescribed distance to public transit stops be required to provide only one parking space per unit.

---

[25] The Mobility 21 (2004) provides an analysis of three LA County station areas: Covina, Hawthorne, and Vermont/ Alvarado Station areas and suggestions to spur new development and enhance the community and the region's transportation system. This report conducts a GIS "tipping point" fiscal impact analysis through looking at the effects on the potential profitability of development adjusting policy requirements like parking and FAR. The report finds that high parking requirements often counter allowable FAR. In other words, zoning codes that require a high number of parking spaces per 1,000 square feet of development often undermine the allowed floor-area-ratio and reduce the site's potential for redevelopment.

[26] From 1980 to 1990, commercial space in Los Angeles located within a half-mile of a rail corridor sold for $31 per square foot more, on average, than comparable space outside the rail corridor. (California Department of Transportation, 2002)

**Figure 9.4-1 Summary of Findings, Recommendations and Questions arising from the Study**

| Criteria | Trends/ Findings | Comments | Recommendations/ Further Questions |
|---|---|---|---|
| Policy | ▪ Innovative TOD framework but few effective implementation tools until recently. | ▪ Not inability to plan TOD but implement. Restrictive nature of Euclidean zoning. | ▪ Possibility of changing zoning & adopting form-based codes (look to Azusa) |
| | ▪ Joint development focus on transit adjacent activity centers, housing only recently. | ▪ Importance placed on creating activity centers/ destinations, limits on TOD potential & transit use | ▪ The potential of Location Efficient Mortgages to reduce parking spaces for TOD residents |
| | ▪ MTA TOD success due to proactive efforts of city to finance and assemble vacant land. | ▪ Demonstrates difficulty of infill dev | ▪ Need to update zoning to encourage by-right unsubsidized infill dev |
| | ▪ New policies designed to encourage housing to reach allowed capacity on individual parcels. | ▪ Still do provide for increased densities or parking reductions near rail stations | ▪ Parking & FAR tipping points? |
| | ▪ Few successful Transit-Oriented District to date, result of strong local leadership | ▪ Lack of community understanding of TOD benefits | ▪ Need for active support of Transit-Oriented District initiatives & TOD visualization tools for communities around station areas |
| Transit Capacity | ▪ Rail system is still relatively new and expanding, | ▪ Explains market/ investment insecurity | ▪ Importance of MTA land & finance subsidies to spark market |
| | ▪ Majority of housing units and destinations near Red Line | ▪ Benefits of heavy rail system being built in existing higher density mixed-use areas with higher transit service. | ▪ Strength of Rapid Bus to not have to conform to existing & outdated rail right-of-ways |
| | ▪ Dependency on existing streetcar right-of-ways to expand | ▪ Limits to light rail expansion | |
| Land Use | ▪ Land use composition and distribution, housing density and vacancy characteristics varies widely by rail stations. | ▪ Explains difficulty in crafting city-wide TOD overlay development criteria. | ▪ Potential of revisiting the overlay concept for more simple incentives like parking reductions |
| | ▪ The majority of the light rail stations do not meet the minimum residential densities needed to support transit ridership. | ▪ Need for a TOD Ordinance that is not restrictive on existing zoned density. Need to update station area zoning to serve modern land use needs. | ▪ Are their other large and diverse auto-oriented cities in which a city-wide overlay has been successfully implemented |
| | ▪ The dependency on existing rail right-of-ways limits the city to conform to LA's traditional rail alignment strategies to serve | | |

| | | | |
|---|---|---|---|
| | lower density suburbs and industrial centers. | | |
| Housing | ▪ After 10 years with transit, areas still in transition but surrounding net res densities on average are still low and land uses inappropriate.<br><br>▪ Vacancy levels and demand for housing varies widely by station areas. | ▪ Need for city-wide proactive comprehensive planning to encourage a real change in station area housing<br><br>▪ Importance of surrounding uses/ pedestrian design | ▪ Chicken & Egg dilemma, transit or housing first? What about Jobs/ Housing balance?<br><br>▪ Is housing considered by market as highest and best use near all station areas? |
| Zoning | ▪ In some cases the desired maximum zoning stated in the Transportation & land Use Policy is restrictive on existing commercial zones.<br><br>▪ Despite vary low vacancy rates at Wilshire/ Vermont, housing density falls below maximum density allowed under the zoning | ▪ City-wide TOD model densities actually limits existing densities at Vermont/ Bev<br><br>▪ Suggesting the existence of other development limitations on mixed-use commercial land uses. | ▪ Limits of setting max densities in city-wide TOD Overlay<br><br>▪ Create parking requirements that are more flexible to market demand.<br><br>▪ Need to research further development limitations such as parking and height limits. |

# Useful Websites

Lincoln Land Institute – Density Images
http://www.lincolninst.edu/subcenters/visualizing_density/index.aspx

Reconnecting America Center for Transit Oriented Development
http://www.reconnectingamerica.org/index.htm

California Transit-Oriented Development (TOD) Searchable Database
http://transitorienteddevelopment.dot.ca.gov/

Transportation and Land Use Coalition
http://www.transcoalition.org/home.html

Location Efficient Mortgage
http://www.scag.ca.gov/lem/lem.htm

Environment Now, Smart Growth - Infill Initiative Project
http://www.environmentnow.org/urban.html

Livable Places
http://www.livableplaces.org

Urban Partners
http://www.urbanpartnersllc.com

Southern California Transportation & Land Use Coalition
http://www.tluc.net

Mobility 21
http://www.mobility21coalition.com/smartgrowth/casestudy.html

City of Palo Alto, Types of Zoning Codes and Formats
http://www.city.palo-alto.ca.us/zoning/typesofzoningcodesandformatsdp.html#History

American Public Transportation Association. Transit Resource Guide. Transit-Oriented Development.
http://www.apta.com/research/info/briefings/briefing_8.cfm

Travel Matters
http://www.travelmatters.org/about/los-angeles

# Bibliography

Data Sources


1. Bluemfeld, Jane. Principal Planner. Planning Department. City of Los Angeles. Personal Interview. 4/21/05.
2. Bureau of Engineering. Adaptive Reuse Projects in the City of Los Angeles. City of Los Angeles. 2005. http://navigatela.lacity.org/downtownla/ .
3. Clerk. Council File No. 93-0478. City of Los Angeles. 2005. http://cityclerk.lacity.org/CFI/.
4. Community Redevelopment Authority. City of Los Angeles. 2005. http://www.ci.la.ca.us/CRA.
5. Howe, Con. Planning Director. City Planning Department. City of Los Angeles. Personal Interview. 4/22/05.
6. Leyman, Ryan. Project Manager. Livable Places. Personal Interview. 4/18/05.
7. Metropolitan Transit Authority. 2005. http://mta.net.
8. Metropolitan Transit Authority. Metropolitan Rail Destinations. January, 2005. www.metro.net/news_info/publications/images/rail_destinations.pdf.
9. Planning Department. City of Los Angeles. 2005. http://www.lacity.org/PLN/.
10. Rosenfeld, Dan. Principal. Urban Partners, LLC. Personal Interview. 5/8/05.
11. Southern California Association of Governments. Creating Livable Places. 2005.. http://www.scag.ca.gov/livable.
12. TerraServer. Microsoft Corporation. 2005. http://terraserver.microsoft.com.
13. United States Census Bureau. Housing Unit data. Block Group. 2000 Census. http://www.census.gov
14. Urban Partners. 2005. www.urbanpartnersllc.com.


Policy Background


15. Planning Department. "Generalized Summary of Zoning Regulations". City of Los Angeles. 2005. www.ci.la.ca.us/pln/zone_code/Appendices/sum_of_zone.pdf

16. Planning Department. "Housing Element". City of Los Angeles. 2002.
17. Planning Department. "Land Use /Transportation Policy: A Guide to Transit-Oriented Development for the City & the County Metropolitan Transportation Authority". City of Los Angeles. 1993.
18. Planning Department. "Vermont-Western TOD Station Neighborhood Area Plan". City of Los Angeles. 2001.
19. City of Los Angeles, Planning Department. "Avenue 57 TOD Neighborhood Plan". 2002.
20. County of Los Angeles. "Draft Blue & Green Line Transit-Oriented District Ordinance". Ordinance No. 2005-0011. 2005.
21. Housing Production Committee. "L.A.'s Housing Supply Crisis: A Plan to Increase Housing Production in Los Angeles". Central City Association of Los Angeles. May, 2003.
22. Environment Now. Urban Program. Smart Growth - Infill Initiative. 2005. http://www.environmentnow.org/urban.html.
23. Metropolitan Transit Authority. "Joint Development Program". 1994. http://www.mta.net/projects_plans/joint_development.
24. Metropolitan Transit Authority. "Short Range Transportation Plan for Los Angeles County". http://www.metro.net/projects_plans/shortrange/SRTP.htm. 2003.
25. Moule & Polyzoides, Azusa General Plan and Development Code. 2005. http://www.mparchitects.com/index2.html.
26. Transcript of Rick Cole's presentation to Council IV. Santa Fe, NM. October 19, 2002. Transcription by Jason Miller.

Literature

27. "Affordable Housing Developer Launches Mixed-Use, Mixed-Income Housing to Relief LA Housing Crunch." June 30, 2004. http://multi-housingnews.com.
28. Belzer, Dena and Autler, Gerald. "Transit Oriented Development: Moving from Rhetoric to Reality." Brookings Institution Center on Urban and Metropolitan Policy June. 2002.
Bernick, Michael. *Transit Villages in the 21st Century*. New York: McGraw-Hill. 1997.
29. Boarnet, Marlon G. and Randall Crane. "L.A. Story: A Reality Check for Transit-Based Housing." Journal of the American Planning Association. Vol. 63: pgs 189-204. Spring. 1997.
30. California Department of Transportation. "Statewide Transit-Oriented Development Study: Factors for Success in California." Business, Transportation and Housing Agency. 2002.

31. California State Polytechnic University. "Issues and Opportunities Report: Highland Park Station." Community Planning Studio Final Report. Department of Urban and Regional Planning. Instructed by Dr. Richard Wilson. 2004.
32. Calthorpe, Peter. *The Next American Metropolis: Ecology, Community, and the American Dream.* New York, N.Y.: Princeton Architectural Press. 1993.
33. Cervero, Robert, Michael Bernick and Jill Gilbert. "Market Opportunities and Barriers to Transit-Based Development in California." University of California at Berkeley. University of California Transportation Center. Working Paper No. 223. 1994.
34. Cervero, Robert, et al. "Transit Oriented Development and Joint Development in the United States: A Literature Review." 2002.
35. Diamond, Henry L. and Patrick F. Noonan. *Land Use in America.* Island Press: Washington, D.C. 1996.
36. Dittmar, Hank, and Gloria Ohland. *The New Transit Town: Best Practices in Transit-Oriented Development.* Island Press: Washington, DC. 2004.
37. Fogelson, Robert M. *The Fragmented Metropolis: Los Angeles, 1850-1930.* Classics in Urban History. University of California Press: Berkeley. 1993.
38. Goodwill, Julie. "Building Transit Oriented Development in Established Communities". Center for Urban Transportation Research. 2002.
39. Guerra, Fernando J., Mara A Marks and Harold Brackman. "Rebuilding the Dream: A New Housing Agenda for Los Angeles". Center for the Study of Los Angeles. Loyola Marymont University. 2001.
40. Hirano, Steve. "Hot Projects Highlight Rising Trend in Transit-Oriented Development". February/March 2002.
41. Holtzclaw, John. "Communities Characteristics Promoting Transit Use" from *Using Residential Patterns and Transit To Decrease Auto Dependence and Costs*. Natural Resources Defense Council. June 1994. http://www.sierraclub.org/sprawl/articles/characteristics.asp
42. Holtzclaw, John, and Hank Dittmar, et al. "Location Efficiency: Neighborhood and Socio Economic Characteristics Determine Auto Ownership and Use – Studies in Chicago, Los Angeles and San Francisco." Transportation Planning and Technical. Vol. 25. pgs 1-27. 2002.
43. Housing Crisis Task Force. "In Short Supply: Recommendation of the Los Angeles Housing Crisis Task Force." March 2000.
44. Institute of Transportation Engineers. *A Toolbox for Alleviating Traffic Congestion.* Washington, D.C. 1989.
45. Jones, Timothy E. and Matthew A. Bavoso. "Overlay Zoning: Application and Implementation in New York State – Part A." Land Use Law Center. 1996. http://www.law.pace.edu/landuse/overla.html#B.%20Special%20Districts.
46. Kayden, Jarold S. "The Constitution Neither Prohibits Nor Requires Smart Growth" in Smart Growth: *Form and Consequences*. Lincoln Institute of Land Policy: Canada. 2000.

47. Kirk, Patricia L. "Los Angeles Grows Up". National Real Estate Investor. September 1, 2003.
48. Kublicki, Nicolas, M. "Innovative Solutions to Euclidean Sprawl". Environmental Law Reporter. New & Analysis. Environmental law Institute. Washington, D.C. 31. pg. 8. 2001.
49. Levine, Jonathan and Aseem Inam. "The Market for Transportation-Land Use Integration: Do Developers Want Smarter Growth than Regulations Allow?" Kluwer Academic Publishers. Transportation. 31: pgs 409–427. 2004.
50. Lowe, Marcia. "City Limits". World Watch. January, 1992.
51. Loukaitou-Sideris, Anastasia, and T. Banerjee. "The Blue Line Blues: Why the Vision of Transit Village May Not Materialize Despite Impressive Growth in Transit Ridership." Journal of Urban Design. 5:2. pgs 101-125. 2000.
52. Lui, Caitlin. "Higher Density Projects Urged; Regional Planners Say Such a Strategy is Needed to Deal with Growth Issues". Los Angeles Times. June 30, 2004.
53. Mobility 21 Smart Growth Partnership. "LA County Moving Together to Promote Smarter Growth: Report on Infill Opportunities." May, 2004.
54. Ohland, Gloria. "It's Time for Los Angeles to Grow Up." Los Angeles Times. Sunday. August 4, 2002.
55. Porter, Douglas R. "Transit-Focused Development: A Synthesis of Research and Experience." Transportation Research Board of the National Academy of Sciences. 1997.
56. Pushkarev, Boris. *Public Transportation and Land Use Policy*. Indiana University Press: Bloomington. 1977.
57. Pushkarev, Boris and J. M. Zupan. "Where Transit Works: Urban Densities for Public Transportation." Urban Transportation: Perspectives and Prospects. 1982.
58. Sacramento Rapid Transit. "Design Guide for Bus and Rail Facilities". Sacramento, CA. 1987.
59. Seattle Department of Transportation. "Station Area Planning - Transit-Oriented Development Case Studies: Los Angeles Metro". http://www.ci.seattle.wa.us/transportation/ppmp_sap_todstudies.htm.
60. Southern California Studies Center. University of Southern California. "Sprawl Hits the Wall: Confronting the Realities of Metropolitan Los Angeles." Brookings Center on Urban and Metropolitan Policy. March, 2001.
61. Transportation Research Board. "Transit and Urban Form." Report 16: Part 3. pg 5. 1996.
62. Tumlin, Jeffrey and Adam Millard-Ball. "How to Make Transit-Oriented Development Work." Planning. Chicago. Vol. 69. Issue 5. pg 14. May, 2003.

63. Wachs, Martin. "Autos, Transit, and the Sprawl of Los Angeles: The 1920s." Journal of the American Planning Association. 50. 3, 1984. pp 297-310.
64. Zoning News. "Is Growth Management Really Alphabet Soup?" Zoning News. December: 2. 1986a.

# Appendix

**Figure 9.4-2 Maximum Densities Allowed by LA's Zoning Types**

| Land Use Category | Zoning District | Max. du/acre |
|---|---|---|
| Suburban | RA | 2.5 |
| Residential Estate Zones | RE9-RE40 | 1-5 |
| Suburban | RS | 6 |
| One Family Zone | R-1 | 9 |
| Residential Urban | R-U | 12 |
| Residential Zero Side Yard | RZ2.5 | 17 |
| Residential Zero Side Yard | RZ3 | 15 |
| Residential Zero Side Yard | RZ4 | 11 |
| One-Family Res Waterways | RW1 | 19 |
| Two-Family Res Waterways | RW2 | 38 |
| Two-Family | R2 | 17 |
| Restricted Multiple Dwelling | RD2 | 29 |
| Restricted Multiple Dwelling | RD3 | 15 |
| Restricted Multiple Dwelling | RD4 | 11 |
| Restricted Multiple Dwelling | RD5 | 9 |
| Restricted Multiple Dwelling | RD6 | 12 |
| Multiple Dwelling Zone | R3 | 54 |
| Residential Accessory | RAS 3 | 54 |
| Multiple Dwelling Zone | R4 | 109 |
| Residential Accessory | RAS 4 | 109 |
| Multiple Dwelling Zone | R5 | 218 |
| Limited Commercial | CR* | 109** |
| Limited Commercial | C1* | 109** |
| Limited Commercial | C1.5-C5 | 109** |
| Commercial Manufacturing | CM | 109** |

*Residential is a permitted use in the above commercial zones

** same as R4

Source: Density Guide for Affordable Housing

**Figure 9.4-3 Zoning Characteristics: Case Study Station Areas**

| Zoning Type | Description | Wilshire/ Vermont | Vermont/ Bev | Highland Park | La Brea/ Expo | San Pedro/ Wash |
|---|---|---|---|---|---|---|
| R1-1 | Single Family | - | - | - | 13% | - |
| R2-1 | Two Family Dwelling. | - | - | - | 5% | 10% |
| RD1.5-1, RD1.5-1* | Res. Density Multiple Dwelling | - | - | 10% | 9% | 2% |
| RD2-1, RD2-1* | Res. Density Multiple. Family | - | - | 39% | 1% | 8% |
| R3-1 | Multiple Dwelling | - | 21% | - | 6% | - |
| R4-1 | Multiple Dwelling | 1% | 9% | - | - | - |
| R4-2 | Multiple Dwelling | 12% | - | - | - | 2% |
| R5-2 | Multiple Dwelling | 7% | - | - | - | - |
| R5P-2 | Multiple Dwelling | 3% | - | - | - | - |
| CR-1 | Limited Commercial | 3% | - | - | - | - |
| C1.5-1 VL (Q) | Limited Commercial | - | - | - | 3% | - |
| C1-2 | Limited Commercial | 2% | - | - | - | - |
| C2-1 | Commercial | 12% | 16% | - | 2% | - |
| C2-2 | Commercial | 18% | - | - | - | - |
| C2-2 (Q) | Commercial | - | - | - | - | 1% |
| C2-2D* | Commercial | - | - | 5% | - | - |
| C4-2 | Commercial | 21% | - | - | - | - |
| C4-2D* | Commercial | - | - | 14% | - | - |
| CM-1VL (Q) | Commercial Manufacture Restricted | - | - | - | 2% | - |
| M1-1 | Light Manufacturing | - | 13% | - | - | - |
| M1-1VL, M1-1VL (Q) | Light Manufacturing | - | - | - | 21% | 2% |
| MR1-1VL | Limited Industry | - | 1% | - | - | 1% |
| M1-2 | Limited Industry | - | - | - | - | 14% |
| M2-2 | Industry | - | - | - | - | 31% |
| OS-1XL | Open Space | - | - | - | 12% | - |
| PF-1 | Public Facility (all) | - | 7% | 10% | 2% | 2% |
| P-1, P-2 | Parking | - | - | - | 6% | - |
| PB-1 | Parking | 1% | 1% | - | - | - |
| Roadways** | Streets & Freeways | 20% | 32% | 20% | 20% | 20% |
| Total Radius Area | | 100% | 100% | 100% | 100% | 100% |
| Total Res Dev Land*** | | 79% | 47% | 69% | 40% | 23% |

Notes: highlighted cells represent proportions of land 10% or greater, *historic district, includes additional restrictions**assumed 20% land devoted to roadways ***residential and commercial land