Institutional Response to Transit Oriented Development in the Los Angeles Metropolitan Area: Understanding Local Differences through the Prism of Density, Diversity, and Design

Final Report

METRANS PROJECT 17-09

December 6, 2018

Tridib Banerjee (P.I.)
Deepak Bahl (Co-P.I.)

Kevin Barrow
Andrew Eisenlohr
Janet Rodriguez
Quinn Wallace
Huê-Tâm Webb Jamme

Sol Price School of Public Policy
University of Southern California
Los Angeles, CA 90007

Disclaimer

The contents of this report reflect the views of the authors, who are responsible for the accuracy of the data and information presented herein. This document is disseminated under the sponsorship of the Department of Transportation, University Transportation Centers Program, the California Department of Transportation and the METRANS Transportation Center in the interest of information exchange. The U.S. Government, the California Department of Transportation, and the University of Southern California assume no liability for the contents or use thereof. The contents do not necessarily reflect the official views or policies of the State of California, USC, or the Department of Transportation. This report does not constitute a standard, specification, or regulation.

Abstract

This study explores local initiatives and institutional responses to promote transit-oriented development (TOD) around the rail transit stations in the Los Angeles metropolitan area. The primary objective is to understand the extent and circumstances of municipal responses to achieve TOD. Secondarily, the study examines what inferences can be drawn about local response to the design and planning of TODs, their relative success, and future outlook. The methodology includes both qualitative and quantitative components. It draws on in-depth structured interviews of senior planners from seven case study cities. The quantitative analysis examines variable policy landscape enfolding 93 stations. A Guttman scalogram analysis ranks the likely application of various policy tools identified by LA Metro. The findings underscore the primacy of local policies and plans for consistency, effectiveness, and flexibility in implementation. Second, over time municipalities become increasingly sophisticated in application of TOD policies. Third, while TOD-supportive policies are necessary for development, their mere presence is not always sufficient. Fourth, fewer Guttman errors for higher density downtown locations and older stations correspond to a multi-faceted approach to TOD promotion. Lastly, the relative success or failure of TOD seemingly is the byproduct of a proactive city and market demand, coupled with community engagement.

(*200 words*)

Table of Contents

List of Figures and Tables

Disclosure

N/A

Acknowledgements

We are thankful to local governments in Los Angeles County who responded to our survey questionnaire. In addition, we are especially grateful to the following individuals for their expertise, insights, and cooperation, and with whom we conducted one-on-one interviews.

Los Angeles Metro
Jenna Hornstock, Executive Officer – Transit Oriented Communities & System Connectivity, Access & Design
Elizabeth Carvajal, Sr. Director, Countywide Planning & Development

City of Compton
Robert Delgadillo, Sr. Planner

City of Inglewood
Fred Jackson, Sr. Planner
Eddy Ikemefuna, Sr. Planner

City of Long Beach
Christopher Koontz, Planning Manager
Alison Spindler, Planner IV and Budget Specialist

City of Los Angeles
Patricia Diefenderfer, Senior City Planner
Lameese Chang, City Planner
Renata Dragland, City Planner

City of Monrovia
Sheri Bermejo, Planning Division Manager
Craig Jimenez, Community Development Director

City of Pasadena
Fred Dock, Director of Transportation
Eric Duyshart, Economic Development Manager
Anita Cerna, Sr. Planner

City of Santa Monica
Jing Yeo, Planning Manager
Francie Stefan, Mobility Manager

Chapter 1: Introduction

Despite its polycentric structure and sprawled urban form, long considered a challenge for mass transit development, the Los Angeles metropolitan area has benefitted from almost three decades of rail transit development. Since the inauguration of the Blue Line in 1990, the system has grown to some 105 miles of rail transit lines, including four light-rail and two subway lines, involving 93 stations across 22 incorporated cities and communities.

Such rapid rail transit expansion encapsulates L.A.'s efforts towards *The Next American Metropolis* (Calthorpe, 1993). The challenge is to move away from the car-based suburban lifestyle typical of 20th century American cities, that L.A. epitomizes, towards a more sustainable transit-oriented living. Calthorpe (1993) first coined the term transit-oriented development (TOD) to designate the expansion of a denser and more diverse urban form conducive to a greater sense of community and a more sustainable urban way of life.

Still, there is little to no evidence that L.A. has effectively become "transit-oriented," especially along the oldest lines—the Blue and Red lines that opened in the 1990s (Loukaitou-Sideris & Banerjee, 2000). Development within walking distance of transit stations has been uneven, the usual and understandable lag notwithstanding. Only in some stand-alone locations have true transit-oriented real estate developments emerged from the ground up. In the specific case of the Hollywood/Vine station for example, the local government played a critical role as a "facilitator" for the joint development of a large mixed-use building integrated with the transit station (Schuetz, Giuliano, & Shin, 2018). Furthermore, annual levels of light rail boardings for Metro have been consistently decreasing since 2013 (Manville, Taylor, & Blumenberg, 2018).

Drawing on Los Angeles County's diverse institutional, political, and socio-economic landscape, the objective of this study is to examine local initiatives and institutional responses to rail transit. To what extent and under what circumstances have municipal responses supported the implementation of the transit-oriented development (TOD) idea? What inferences can be drawn about local governments' response to the design and planning of transit-oriented developments, their relative success, and future outlook? What lessons can be gleaned about the essential performance characteristics for designing a transit neighborhood from the short yet dynamic history of transit expansion in metropolitan Los Angeles?

In order to better assess the potential and actual role that municipal levels of government can play in promoting TOD, the scope of the project comprises all of the 22 incorporated cities and communities where at least one Metro station currently operates. The effects of local policies on station areas' TOD performance are measured through the prism of the 3-D framework proposed by Cervero and Kockelman (1997), where Density, Diversity, and Design are considered three key antecedents of successful TOD.

Based on a comprehensive inventory of institutional responses to rail transit development, the study unfolded as a mixed-method project comprising two main components: (i) a system-wide quantitative analysis of the relationship between TOD-supportive policies and 3-D performance levels, and (ii) seven interview-based in-depth case studies at the municipal level of the policy and incentive mix provided by local governments to leverage TOD investments. Ultimately, the study identifies best case institutional responses for successful implementation of transit-oriented neighborhoods.

Chapter 2: Literature Review

The literature review detailed in this chapter provides a comprehensive overview of TOD literature preceding and informing our study. We review a variety of themes, among others, the evolving definition of transit neighborhood, market response and the supply side story, as well as the growing footprint of rail transit in the LA metropolitan area.

Re-visiting the Transit Neighborhood through the 3-D Prism

In the early TOD literature, TOD station areas have been conceptualized as transit neighborhoods, also referred to as "transit villages" (Bernick, Michael & Cervero, 1997) or "transit towns" (Dittmar & Ohland, 2012). Such conception reconnected with a long history of neighborhood planning in urban design (Rohe, 2009). The transit neighborhood concept brought back to the fore Clarence Perry's (1929) *neighborhood unit* of a quarter to half mile-radius area. Instead of Perry's idea of an elementary school in this area's center as a point of congregation for neighborhood residents, the transit neighborhood centers on a transit station.

Stemming from the New Urbanism movement, TOD was originally defined by architect and urban designer Peter Calthorpe (1993), who first conceptualized a TOD, or "pedestrian pocket," as a "mixed-use community within an average 2,000-foot (or 10-minute) walking distance of a transit stop and core commercial area." Most subsequent definitions promoted in land use and transportation studies have included similar components: a sustainable environment promoting non-motorized transportation behaviors—walking and biking—and relatively higher housing and employment densities near transit stations, typically within walking distance of the station.

In the transit neighborhood conception, Cervero and Kockelman's (1997) three Ds—Density, Diversity, and Design—can be seen as the necessary conditions for TOD success. While rail transit development is supposed to ensure regional accessibility to jobs (Belzer, Srivastava, Wood, & Greenberg, 2011; Noland, Ozbay, DiPetrillo, & Iyer, 2014; Renne, Hamidi, & Ewing, 2016), *Density* of population near transit is necessary to generate the critical mass of transit patrons for the system's viability and efficiency. *Diversity* of land uses—with housing, services, and retail activities co-existing near transit stations (Banai, 1998; Nelson & Niles, 1999)—is essential to the formation of transit-dependent communities. A pedestrian-friendly *Design* of station areas ensures access to transit by non-motorized modes (Badland et al., 2013; Huang, Moudon, Zhou, Stewart, & Saelens, 2017; Kim, Park, & Hong, 2018; Laham & Noland, 2017; Noland & DiPetrillo, 2015; Schlossberg & Brown, 2004; Talen & Knaap, 2003; Weinstein Agrawal, Schlossberg, & Irvin, 2008; Zuo, Wei, & Rohne, 2018), therefore contributing to reducing vehicle-miles traveled (VMT).

The conjunction of the three *Ds* is expected to promote urban living conditions in line with sustainability and community development goals like reducing greenhouse gas emissions (Nasri & Lei Zhang, ; Schlossberg & Brown, 2004; Vale, 2015), and bringing together mixed-income communities in TOD areas (Bostic, Boarnet, Rodnyansky, Santiago-Bartolomei, & Leslie, 2016; California Housing Partnership Corporation, 2013; Clagett, 2014; Fan & Guthrie, 2013; FTA Department of Housing and Urban Development & Office of Policy Development and Research, 2008; Great Communities Collaborative, 2007; Palm & Niemeier, 2016;

Reconnecting America, 2007; Saunders & Smith, 2014; Tumlin, Millard-Ball, Zucker, & Siegman, 2003).

To the extent that they meet the 3-D requirements, mixed-use land (re)developments near transit stations have become the TOD gold standard, and research on TOD benefits has mostly focused on economic development opportunities that this type of development projects brings about (Cervero & Dai, 2014; Dunphy et al., 2004; Schuetz et al., 2016; Schuetz et al., 2018; Suzuki, Murakami, Hong, & Tamayose, 2015).

Joint Development and Market Responses

TOD studies have always been concerned with "making it happen" (Renne, 2016), with moving the promising TOD concept "from idea to implementation" (Cervero, 1994; Cervero, Ferrell, & Murphy, 2002a; Parker, 2002b). This largely explains why much of the TOD literature has focused either on the economic benefits or on the market demand for TOD living, so as to facilitate the financing and implementation of TOD (Renne, John & Newman, 2002). The initial challenges and roadblocks to TOD implementation included: (i) timid private developers, unsure about the market demand for TOD, (ii) political aversion to density, and (iii) lack of collaboration and cooperation between land-use and transit planning agencies, and between local and regional levels. TOD implementation is still fraught with challenges and must overcome economic, financial, political, and structural barriers including NIMBYism and localism (Boarnet & Crane, 1998; Boarnet & Compin, 1999; Cervero, Robert, 2004; Gard, 2007; Loukaitou-Sideris, 2001).

The overt objective of the early TOD literature was to demonstrate that TOD was a viable option, and even profitable in the short- to middle-term, so that this new type of dense and mixed-use developments actually emerge from the ground up and eventually support long-term sustainability goals. In the late 1990s and early 2000s, TOD research simply posed the hypothesis of value-added effects of rail for housing and commercial land value. This hypothesis was framed so as to become a convincing argument for reticent public and private stakeholders and to motivate them to embrace the TOD concept (Babsin, 1997; Bernick & Freilich, 1998; Cervero & Duncan, 2002a; 2002b; Knaap, Ding, & Hopkins, 2001; White, Freilich Attorney, & Leitner, 1999). The point was to suggest that there is a latent market demand for TOD environments (Reconnecting America, 2004) and to invite various stakeholders to accommodate each other's complementary interests (Marx, Stallsmith, & Zimmerman, 2006). It was also to establish the virtuous relationship between transit ridership and density: dense and mixed-use developments matter for transit financial viability whereas massive transit use is necessary for market attractiveness of compact mixed-use environments (Boarnet & Crane, 1998; Dunphy & Porter, 2006; Parker, 2001b).

Early studies on the economic benefits of joint developments were critical in the context of market reticence to invest in TOD. Joint development schemes consist in public-private partnerships where the transit agency typically invests some land they owe near a transit station and share the revenue (possibly also the costs) of land development with the private developer (Hess & Lombardi, 2004a; Landis, Cervero, & Hall, 1991). Joint development as a specific institutional cooperation and collaboration solution assumed importance as planners and developers have recognized the positive externalities—community, economic, and ridership benefits—accruing from development in close proximity to transit. Landis, Cervero and Hall (1991) identified four conditions necessary for successful joint development, as follows: (1) an active and vibrant real estate market, (2) lead agency pursuing joint development to have an entrepreneurial spirit, (3) sponsoring agency to coordinate activities amongst public and private

stakeholders, and (4) an understanding that there are intangible benefits of joint development that go well beyond revenue generation. Bragado (1999) exemplified successful joint development by a transit agency along with private developers in a case study of San Diego. The project had to provide benefits both system-wide and to the community in which it was located, with an emphasis on increasing ridership potential system-wide and less on increasing revenues.

There is now solid empirical evidence that rail transit can lead to dynamic real estate development (Guthrie & Fan, 2013), but this relationship has taken two decades to be fully acknowledged and accepted. Since 2010, many studies have focused on market responses to transit development, especially on capitalization of transit proximity through land and housing premiums, and modelled and quantified such effects (Cao & Lou, 2017; Duncan, 2011a; Duncan, 2011b; Golub, Guhathakurta, & Sollapuram, 2012; Higgins & Kanaroglou, 2016; Mathur & Ferrell, 2009; Park, Huang, & Newman, 2016; Zhang, Wang, Barchers, & Lee, 2018). Most studies use hedonic price models (see literature review on this topic by Bartholomew & Ewing, 2011) with substantial efforts to control for negative externalities such as neighborhood opposition, air and environmental pollution, and to account for self-selection.

Critical Perspectives on Market-Driven TODs

With the rise of a dynamic market for TOD, higher-density housing and mixed-use developments have become increasingly visible in the immediate vicinity of some transit stations, but not in others. A collection of individual TOD projects may not necessarily mean that TOD as a complete concept has been fully implemented, and that the set of overarching community goals are being achieved. In fact, whereas closer proximity to a transit stop has been shown to contribute to housing premiums, it is not necessarily the case of enhanced density, street connectivity, and mixed land uses—the 3 Ds (Park et al., 2016). This indicates that market may value transit access, but not necessarily TOD as a complete neighborhood concept. Therefore, the continuing appreciation for transit access, as reflected by increased land values and housing premiums near *some* transit stations, has raised concerns regarding the possibility for market-driven TOD to build sustainable, affordable, and equitable transit-oriented communities.

In recent years in particular, scholars have become increasingly concerned with potential gentrification and displacement effects of TOD, although they have not yet found any statistical evidence of neighborhood change in the vicinity of transit stations (Baker & Lee, 2017; Clagett, 2014; Dong, 2017; Sandoval & Herrera, 2015; Sandoval, 2016). Such findings may overlook another reality depicted by neighborhood activists' who report on taxing coping strategies by low-income and minority households living near transit to stay in place at all cost when faced with rent increases (doubling up, lowering food or transportation expenses, etc.). Concerns remain that TOD benefits such as greater transit access, lower transportation costs, and improved neighborhood amenities, do not primarily serve transit-dependent populations (Boarnet et al., 2018; Chapple, Loukaitou-Sideris, Waddell, Chatman, & Ong, 2017) who do not choose their residential location from a full range of market possibilities. Meanwhile the preference for the denser, more diverse and pedestrian-oriented way of life permitted by TOD may continue to grow among the millennial generation and the upper-middle class who can afford to choose such lifestyle.

Interestingly, concerns regarding the possible limitations for TOD to build equitable communities echo the criticism received by Clarence Perry's *neighborhood unit* concept, which finally led to its abandonment by the policy community. Perry first introduced the concept as an organizing principle for the Regional Plan of New York. It was a simple idea. The grade school

should be at the center of the neighborhood unit, and the territorial limits of the neighborhood space would be defined by the ideal walking distance – ¼ to ½ mile – of grade school children. The idea caught on and became a principal paradigm of residential planning, as adopted by initially the Garden City movement, and later more broadly in the suburban low-density single-family subdivisions in the post-World War II era. The Committee of Healthful Housing and Hygiene of the American Public Health Association adopted the concept as the basis for establishing the essential standards for residential planning. Its endorsement essentially institutionalized the idea and presaged its widespread use for years to come.

By the latter part of the 20th century, the concept came under serious scrutiny by social scientists and other detractors from the policy world. The neighborhood unit, they argued, was a middle-upper class utopia that did not provide for apartments and other multi-family housing options, or a mix of land use, thus excluding a large portion of urban population, especially lower-income or minority population typically dependent on such housing type. The idea of a city organized spatially as a cluster of cellular neighborhood units did not seem that appealing anymore (Banerjee and Baer, 1984).

While TOD on the contrary does expand the stock of mixed-use and multi-family housing units, in addition to transit access, the question of whether such developments serve disadvantaged populations most in need for such amenities challenges the validity of market-driven TOD responses for building sustainable and equitable transit neighborhoods. Market responses alone do not create TOD villages as hypothesized from the beginning by Bernick & Cervero. Porter (1998), for example, has spotted since the beginnings of the TOD that development outcomes are strongly influenced by community and neighborhood groups, and key stakeholders in the decision-making process. He argued that successful transit-focused development occurs when stations are not only located in presence of vibrant real estate markets, but also when there is strong political will to promote public policies in favor of intensive development around station areas (Porter 1997).

Towards a Supply Side Story of Transit Neighborhoods

Whereas most studies measure TOD outcomes in terms of market responses, the supply side story seems underrepresented in the literature, despite the fact that institutional responses from local governments largely shape the possibilities for land (re)development by the private sector. This study here attempts to expand a nascent inquiry into those supply side processes.

The local level of governance mostly appears in TOD studies as a mere facilitator for localized private investments. The literature outlines the important role of city governments in drafting and implementing policies encouraging TOD (Cervero, Robert, Ferrell, & Murphy, 2002b; Hess & Lombardi, 2004), in addition to their financing role as in the joint development scheme. White et al. (1999) developed early case studies of joint development projects in Portland, Oregon; Oakland, California; Chicago, Illinois; Plano, Texas; and Morristown, New Jersey. They highlighted salient legal issues, contract instruments, and financial tools embedded in this type of institutional arrangement. The report underscored the importance of strong leadership from the public sector, and active cooperation between the public-, nonprofit- and private sectors in ensuring project success. Transit agencies have responded to this emerging trend by increasing their capacity and technical knowhow in conducting joint development, assisting in land assemblage, and even helping with financing (Bernick & Freilich, 1998).

Local governments may, in fact, be best positioned to influence development in transit station areas, through a wide range of public policies including general and transportation plans;

specific station-area plans; special zoning provisions allowing higher density and more land-use mix options; transit-supportive design guidelines and parking requirements; density bonuses; or expedited review process for projects located near transit stations. Other facilitating factors include inter-agency and inter-departmental collaboration, leveraging of resources and integration of TOD districts into citywide and regional initiatives, and coordination with the private sector for planning, developing and building joint developments (Renne & Newman, 2002).

However, Schuetz, Giuliano, and Shin (2018) said earlier this year that "no research to date has explicitly examined the extent to which local land use regulations either constrain or enhance development near stations" (with the only exception of their study). Furthermore, there has been no study to date examining the role of institutional responses in light of TOD as a total concept, such as the *transit neighborhood* concept promoted in this report.

Rail Transit Development and TOD in the L.A. Area

Within Los Angeles County, the relatively large number of cities affected by Los Angeles Metro development (twenty-two in total, including unincorporated communities) offers a rare opportunity for comparing city-level institutional responses to rail transit development. All of them fall under the same county jurisdiction and the same transit agency, a key partner of local governments to promote TOD.

Metro, the Los Angeles transit agency, has developed and continues to build one of the largest urban rail transit systems in the nation with substantial support from the community, as reaffirmed again with the passage of the sales tax ballot "Measure M" in November 2016 to finance further rail transit expansions. The role of the federal government has remained limited in California as most of urban transit development has been funded locally. The State government has played an important role in encouraging local jurisdictions to plan TOD around station areas since the 1994 California Transit Village Act, although the Act did not offer any direct fiscal incentives. Generally, in California, TOD planning and implementation have largely been initiated at local level, by the public sector (Parker, 2001a). Redevelopment agencies, transit agencies, and local governments have key roles to play and powerful tools to use to promote TOD. In addition, California's S.B. 375 (2008) stipulates that Metropolitan Planning Organizations (in the Los Angeles Metropolitan Area's case, the Southern California Association of Governments) work with individual cities to integrate their transportation, land use, and housing policies in a "Sustainable Communities Strategy", hence promoting TOD in cities throughout the Los Angeles region.

Many different communities are engaged with local governance powers, and the combinations of TOD responses have played differently in the locations of various lines and stations. Transit agencies, especially when they own land in the vicinity of stations, are in a position to take the lead to coordinate TOD design and planning activities. Both cities and Metro are the potential main beneficiaries of TOD in locations where they own land or a right-of-way available for joint development, via increased tax bases, revenues from leases, and higher ridership (Bernick, Michael & Robert Cervero, 1997; Parker, 2002a).

However, Schuetz, Giuliano, and Shin's (2018) recent study involving six cases of L.A. Metro stations area showed that public interventions such as easing zoning and land use planning were not sufficient to spur redevelopment in TOD areas. Complex interactions were involved with the built environment and economic conditions. Where locational advantages existed, along with supportive institutional response, development had followed, albeit with locational differences. Pershing Square, Hollywood/Vine, and Del Mar stations are three examples where

interactions between physical environment, economic conditions, and public policies have led to successful implementation of TOD projects.

In another recent study, Schuetz, Giuliano, and Shin (2016) empirically showed the importance of sustained policy and planning support for car-oriented cities like Los Angeles to become transit-oriented, the type of TOD goal that a series of individual TOD projects may not be able to achieve without strong policy support for TOD as a model of urban redevelopment. After analyzing a sample of 28 stations on the Red, Purple, and Gold Lines, they found no evidence of change in employment density and housing characteristics five to ten years after station openings, mostly because the new stations were built in long established communities (Schuetz, Giuliano, & Shin, 2016). Research on performance of TOD station areas in the United States has tended to focus on suburban greenfield development and often overlooked brownfield or infill development (Hess & Lombardi, 2004b). This comes as a stark contrast to the average context for transit development in California cities, where in fact most recent projects have occurred in redevelopment districts (Cervero, Robert, 1998).

An earlier study of Blue Line stations found that antecedents of station area development are often missing, and for understandable reasons: backdoor location, missing density gradient, inaccessible stations, pedestrian unfriendly locations, the "broken window" syndrome, and so forth (Loukaitou-Sideris & Banerjee, 1996; 2000). The rail transit development in Southern California has been a process of retrofitting a primarily auto-oriented urban form to a rail transit system. The rights-of-way of these lines have been opportunistic choices to avail of existing underused or abandoned rail lines and easements that belonged to an earlier era of industrial economy. More recently, freeway rights of way have been used to keep the easement acquisition costs down, with poor accessibility or possibilities for proximate TOD (Loukaitou-Sideris, Higgins, Cuff, & Oprea, 2013). Furthermore, community opposition may have effectively obviated more desirable locations for transit lines and stations. It can be hypothesized that the absence of market response can be attributed to poor local access, disadvantages of a "backdoor" location, but also variable local initiatives and institutional measures.

The overall objective of the study was to take advantage of L.A. County's large Metro system and its variety of political contexts and built environments, in order to investigate the range of TOD-supportive responses, the local motivations driving their adoption (or absence thereof), and to identify best cases in terms of implementation of TOD as a transit neighborhood concept.

Chapter 3: Methodology

Overview

The overall scope of this study encompassed all 22 localities connected to the L.A. Metro system, thus comprising 93 stations representative of a range of built environments within the 3-D framework. This study built on a range of qualitative and quantitative methods, crossing two units of analysis.

On the one hand a system-wide analysis was conducted using quantitative methods (descriptive statistics, Guttman scales of institutional responses) using the ½-mile station area as a unit of analysis. The objective was to identify different levels of TOD support as represented in a range of TOD-supportive policy mixes applying to different station areas, while controlling for area factors related to the 3 Ds.

On the other hand, case studies were conducted at the municipal level based on a series of interviews with local planning and/or transportation departments' representatives. This study here builds on very recent renewed interest in interviewing stakeholders in order to reveal their perspectives on TOD (Guthrie & Fan, 2016; Schuetz et al., 2016) instead of relying just on market price modeling to reveal preferences in terms urban form and related community life in the urban context.

Scope and Case Study Selection

The initial proposal for this project considered selecting "at least 10 station areas representing the five categories proposed by Bostic, Boarnet et al. (2016) [High-Density Downtown, Central Place, Neighborhood Center, Single Family Home Area, and Industrial Employment Center, see Figure 3.1 and see report for more detail on typology development], and for each category at least two stations representative of different political jurisdictions." For each station of the sample, the study entailed developing a comprehensive inventory of institutional responses and policy initiatives supporting TOD at the city level.

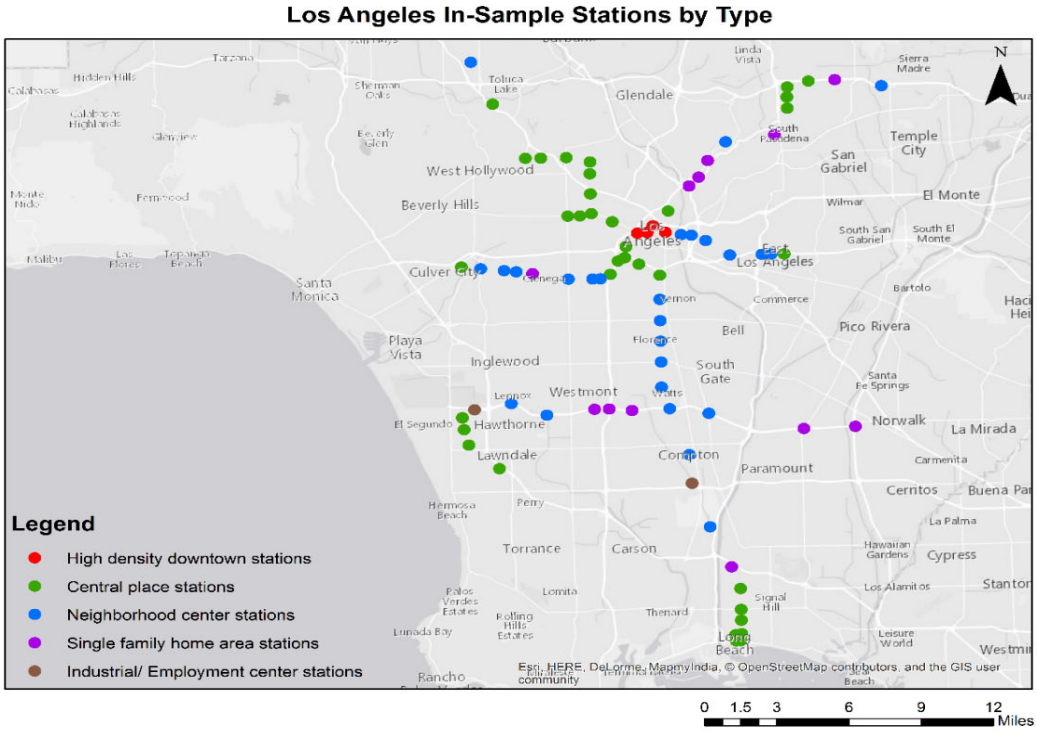

Figure 3.1 – L.A. Metro stations by type
Source: Boarnet, Bostic et al., 2016

The scope of the project was finally expanded to include a comprehensive inventory of TOD-supportive policy responses not just for the sample, but for all 93 Metro station areas. Moreover, the case studies were conducted not at the station area, but at the municipal level. Seven case studies were finally conducted, representing seven different jurisdictions—Compton, Inglewood, Long Beach, Los Angeles, Monrovia, Pasadena, and Santa Monica. Inglewood, Monrovia and Santa Monica were added to the initial selection of stations and cities, whereas Culver City and South Pasadena cases were finally not developed, mostly because interviews could not be held with city representatives.

Table 3.1 – Initial case study selection (16 stations, 5 station area types, 7 jurisdictions)

City	Station	Year	Line	Classification
*Culver City	Culver City	2012	Expo	Central Place
Compton	Artesia	1990	Blue	Industrial/ Employment Center
Long Beach	Anaheim St.	1990	Blue	Central Place
Los Angeles	Hollywood/Vine	1999	Red	Central Place
	7th St./ Metro Center	1991	Purple, Red, Blue, Expo	High Density Downtown
	Little Tokyo/ Arts District	2009	Gold	High Density Downtown
	Civic Center	1993	Red, Purple	High Density Downtown
	Expo/Crenshaw	2012	Expo	Neighborhood Center
	Highland Park	2003	Gold	Neighborhood Center
	North Hollywood	2000	Red	Neighborhood Center
	Crenshaw	1995	Green	Neighborhood Center
	Vermont/ Beverly	1999	Red	Single Family Home Area
	Lincoln Cypress	2003	Gold	Single Family Home Area
	Vernon	1990	Blue	Industrial/ Employment Center
Pasadena	Del Mar	2003	Gold	Central Place
*South Pasadena	South Pasadena	2003	Gold	Single Family Home Area

*Note: *not included in final case studies*

Data Collection

Throughout the course of this study, two datasets were compiled simultaneously: (i) a database of TOD-supportive policies and 3-D characteristics at the station area level, and (ii) a collection of interviews with local planning and transportation representatives about institutional approaches to TOD in their respective localities.

Database of TOD-supportive policies and 3-D characteristics

An extensive database was compiled including information about the TOD-supportive policies applicable to each ½-mile-radius station area included in the L.A. Metro system, as well as some information regarding the density and diversity of land uses, and some design characteristics of the station area (the 3 Ds).

First of all, a list of TOD policies was built using Metro's transit supportive planning toolkit available at: https://www.metro.net/interactives/toolkit/tools.html. The tools, institutional in nature, include four categories:

1. TOD-supportive land use and planning policies: *e.g.*, mentions of TOD in the general plan, specific plans, corridor plans, overlay zoning, etc.

2. Transportation and Parking: *e.g.,* traffic calming measures, Traffic Demand Management (TDM) ordinance, car-share program, shared parking, etc.
3. Urban Design: *e.g.,* Building standards and design guidelines, Community Design Overlays, etc.
4. Affordable Housing: *e.g.,* inclusionary zoning, joint public/private development, etc.
5. Financing: *e.g.,* Metro TOD Planning Grant Program, New Markets Tax Credit, etc.

Each planning division for selected case study jurisdictions received by email a table to fill out the entire list of TOD-supportive tools by lines, by category, and by the Metro stations falling under their jurisdiction in columns (see Appendix 1). They were asked to check the boxes for the TOD policies that applied to each station area. After several reminders, the response rate was 55% given that 12 localities out of 22 filled out the form, for a total of 32 stations out of 93 in the system (30%). Missing values were reported by the research team based on an Internet search through city's website policy documents, such as general plans, community plans, specific plans, and other guiding documents. Through our data collection we recognized that some of the transit supportive tools from Metro are not institutional, but implementation based (Bicycle Sharing Programs, Building Standards and Design Guidelines, Streetscape Standards and Design Guidelines, Community Design Overlays, Community Land Trusts, Joint Public/Private Development, and all listed in the Metro toolkit financing list), therefore although we collected that data, it was not used for the Guttmann statistical analysis discussed later. This implementation based data was collected through internet search are a culmination of state funds documents, grant award lists, non-profit and community land trust organization websites that inform related transit supportive actions near transit stations. Meanwhile, a repertoire of planning reports and technical documents was built for future reference when developing the case studies.

Information on the 3-D characteristics was mostly collected by the research team. An attempt was made to collect this information directly from local jurisdictions by sending an additional detailed request to all jurisdictions encompassing one of the initially selected case stations (see Appendix 2). The questions being asked concerned things like transit ridership and building permit data trends, number of joint developments, development outcomes in terms for example of square footage of commercial space, some information about design improvements, bike lanes, etc. However, the response rate was zero for this exercise. The local jurisdictions who responded said that even they do not collect this type of data for themselves. Therefore, all the 3-D data included in the database was collected by the research team.

Interviews with local representatives

Eight semi-guided interviews were conducted between October 2017 and July 2018, including seven interviews with representatives of seven different jurisdictions and one additional interview with representatives of Metro transit agency (see Table 3.2). Except for the interview at Metro, the questions aimed to reveal for example the level of local involvement in the transit planning stage, the political context and process explaining the jurisdiction's institutional TOD response, how it has evolved over time, the local community's attitude towards TOD, etc. (see Appendix 3). All the interviews were recorded and then transcribed for content analysis.

Table 3.2 – Interviews schedule (7 jurisdictions + Metro transit agency)

Interviews	**Date**	**Local Department Representatives**
Los Angeles Metro	October 27, 2017	Jenna Hornstock, Executive Officer – Transit Oriented Communities & System Connectivity, Access & Design Elizabeth Carvajal, Sr. Director, Countywide Planning & Development
**Santa Monica	February 23, 2018	Jing Yeo, Planning Manager Francie Stefan, Mobility Manager
Long Beach	March 07, 2018	Christopher Koontz, Planning Manager Alison Spindler, Planner IV and Budget Specialist
Los Angeles	March 09, 2018	Patricia Diefenderfer, Senior City Planner Lameese Chang, City Planner Renata Dragland, City Planner
Compton	May 02, 2018	Robert Delgadillo, Sr. Planner
Pasadena	May 09, 2018	Fred Dock, Director of Transportation Eric Duyshart, Economic Development Manager Anita Cerna, Sr. Planner
**Inglewood	June 22, 2018	Fred Jackson, Sr. Planner Eddy Ikemefuna, Sr. Planner
**Monrovia	July 16, 2018	Sheri Bermejo, Planning Division Manager Craig Jimenez, Community Development Director

*Note: **not included in initial case study selection*

Chapter 4: Qualitative Analysis of Selected Institutional Responses

This section provides qualitative analysis of the main themes derived from interviews with senior planning staff in seven different jurisdictions. The seven jurisdictions are Compton, Inglewood, Long Beach, Los Angeles, Monrovia, Pasadena, and Santa Monica. Interviewees received a Semi-Directed Interview Guide (See Appendix 3) prior to our arranged interview appointments. We conducted content analysis to highlight the major themes emerging from these interviews, in addition to analyzing the content through the lens of TOD performance criteria – density, diversity, and design.

Following the analytical summaries below is a matrix detailing jurisdictions' responses to our questionnaire on the various policies and/or factors influencing transit supportive or transit-oriented development. Together, the qualitative analysis presents an in-depth analysis of planners' perspective on institutional responses to support TOD.

Compton

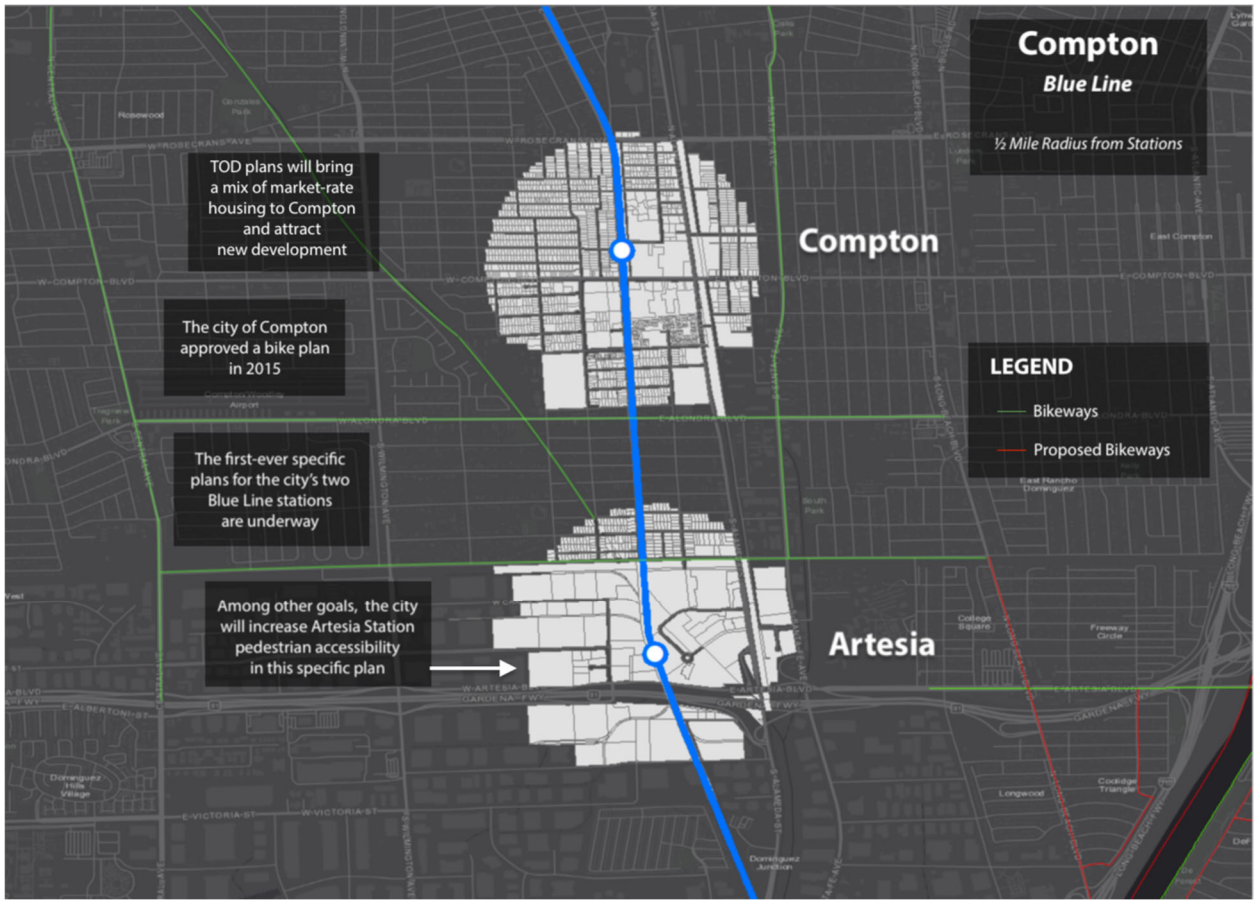

Figure 4.1 - City of Comtpon stations and surrounding TOD specific plan areas

Compton is in a critical need of job creation, commercial space occupancy, and market-rate housing. The city has an abundance of affordable housing, and the City is currently conducting a market analysis to support future formulation of specific plans for their three Blue Line stations. The goal is to provide substantive data and evidence that Compton is an attractive place for developers. The City is trying to minimize preconceived notions of what should constitute the TOD plans in order to let the macro-economic market analysis be the driving factor of land use planning in station areas. The city is working on their first TOD plan. It will have significant land use implications, as the general plan and zoning code are both outdated. Overall, the TOD idea provides some hope in improving Compton's reputation as a place in which development can occur.

- *Density:* Currently, density in Compton's general plan is designated at about 34 units per acre, and the City representative wants to push it up to 50 units per acre in the TOD plans, depending on the results of the market analysis.
- *Diversity:* TOD is slated to bring in a mix of housing types, as Compton currently has an abundance of low-income housing. By bringing in both moderate and market-rate housing, the City hopes to increase Compton's lucrativeness to developers and please community members by stimulating the local economy.
- *Design:* TOD plans will correct some of Compton's poorly planned Blue Line stations, namely Artesia Station, to make them more pedestrian-friendly. The City approved a bicycle master plan three years ago.

Inglewood

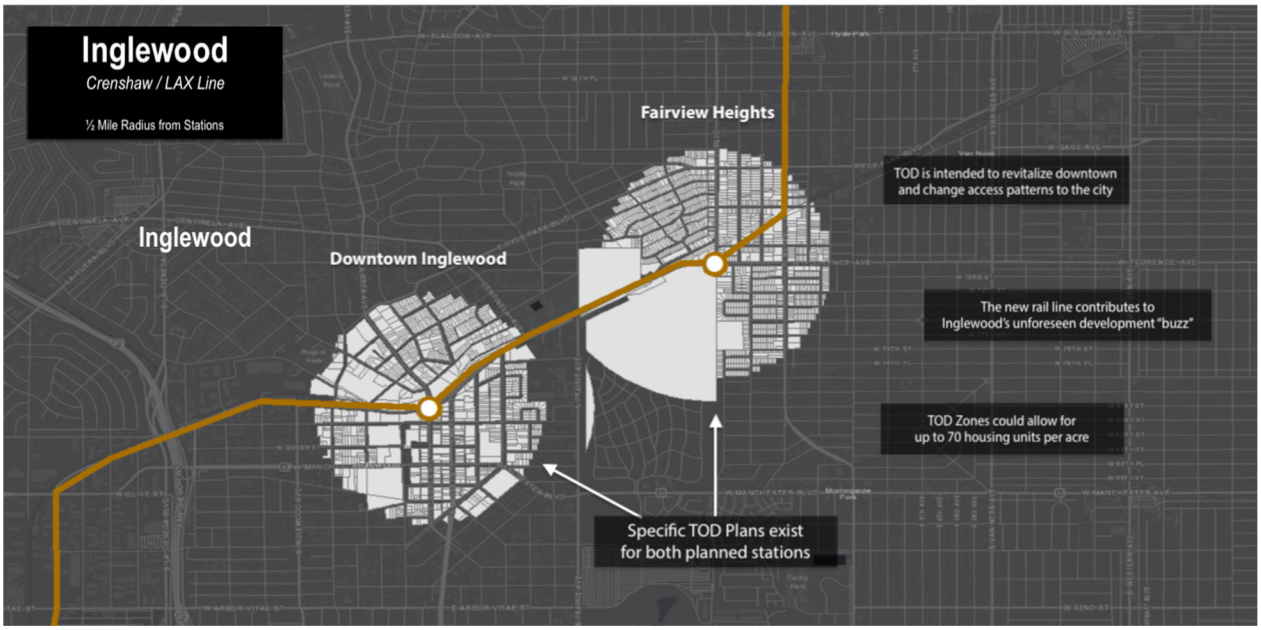

Figure 4.2 - City of Inglewood future station areas and it's TOD specific plan areas

In Inglewood, TOD is primarily being leveraged to improve overall access to the City, including to its downtown, and to revitalize areas in decay, like Market Street. The City asserts that community members are rather "excited" about the development "buzz," that rail development in

Inglewood has generated greater community engagement and closer connections with the city government as a result. Inglewood's prime location and history of managing large events and crowds, since the time it was home to the Lakers, might be what makes the location appealing to developers; the current influx of development projects was unforeseen. Property owners expect to benefit from property values increases, thanks to TOD and other developments. The City appears unconcerned about gentrification.

- *Density:* Higher densities already exist in the downtown area, and though density will be encouraged around all future stations, a four-to-five-stories height limit applies in most neighborhoods. "Normally in our general plan we have at least 3-5 dwelling units/acre maximum. But in the TOD zone you might request only 70, you can go up." The City gives density bonuses, as outlined in the code, and TOD zones might extend past where they currently are.
- *Diversity:* New investment is seen as bringing in diversity to Inglewood. There is no rent control in Inglewood, and as land values have increased in the city, local government requires that developers build some affordable units to receive a density bonus.
- *Design:* Metro requires some first/last mile planning and may help the City implement bike share. Smaller lot sizes (2,000 sq ft) in TOD zones allow for architectural benefits to the streetscape.

Long Beach

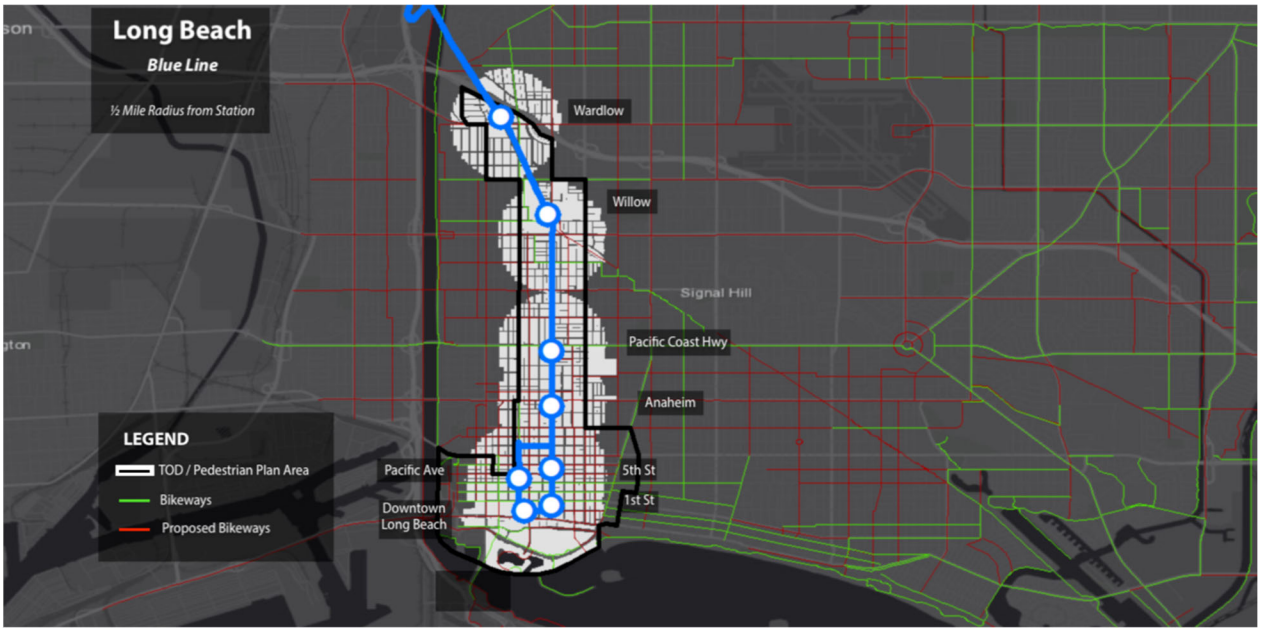

Figure 4.3 - City of Long Beach Stations and specific plan areas

In planning for increased density around transit, the City has received significant pushback, mostly attributable to NIMBYism, to certain TOD efforts and has continued forward with them. The City has struggled to attract a balance of development projects and has not always been successful in implementing progressive transportation planning methods because Metro and

Caltrans have greater leverage in negotiations. However, the City ultimately believes that if they can create the right market conditions, then developers will inevitably come. Additionally, Long Beach has received very few new affordable housing units, and TOD can increase the viability of new affordable units in the city.

- *Density:* Some community members, namely single-family homeowners, strongly oppose density increases. Dense housing development in downtown Long Beach showed a marked decrease in VMT. Transit proximity is beneficial to developers because projects then "qualify both for tax credits and potential cap and trade funding".
- *Diversity:* There is a severe mismatch of housing with job opportunities in Long Beach, which complicates the City's efforts to build affordable housing without redevelopment. Transit riders are predominantly believed to be low-income individuals. The City has several specific plans and recently updated specific plans partly to "[get] the FAR right".
- *Design:* The City's recently updated specific plans also outlined specific street design to make streets less auto-heavy. The City is balancing the character of Long Beach with increasing density and meeting open space and recreational needs. Specific plans address "increasing pedestrian access to and from the station, adding bike infrastructure including bike share, and promoting housing growth and more affordable housing". Metro has used Long Beach's station access planning as a regional example.

Los Angeles

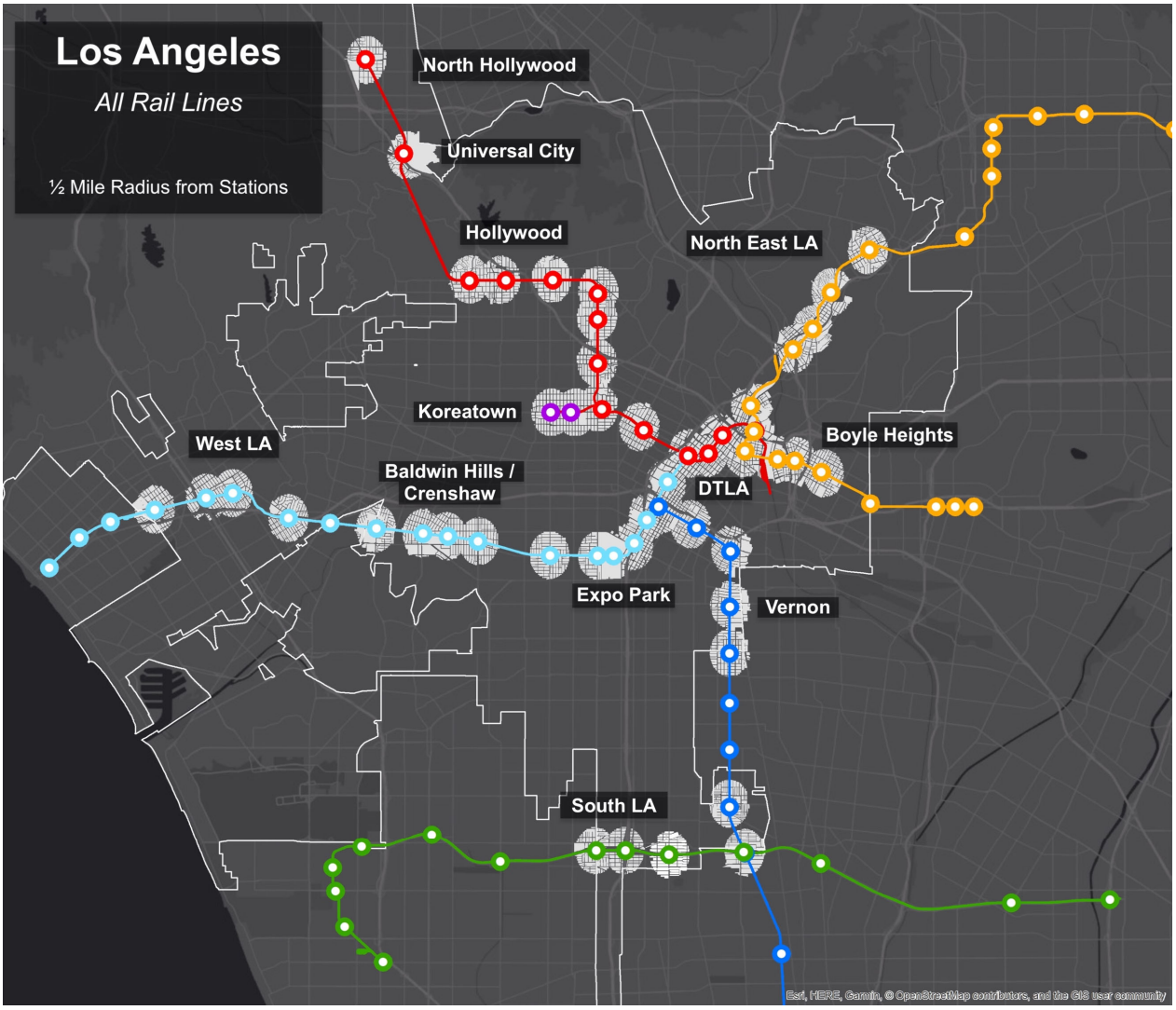

Figure 4.4 - All Metro rail lines and City of Los Angeles TOD specific plan areas

The City of LA has embraced a holistic approach to TOD ("transit-oriented districts") since Metro started planning rail lines and incorporated TOD into many of its planning documents. Community input is brought into projects when it starts to become feasible, and the City uniquely emphasizes equity in planning around transit. There are no minimum density requirements, the City has begun shifting to VMT in its analysis, and the City has worked around some parking requirements through multi-modal options in previous projects. The City is attempting to curb displacement by putting in Rent Stabilization Ordinances (RSOs); however, these cannot halt new development. As the land use authority, the City often collaborates and coordinates with Metro and SCAG in developing regional plans.

- *Density:* Hybrid zones, including the Bundy Triangle Area recently passed by LA City Council, represent a mix of low-density and high-density multi-family housing in a single-family neighborhood. The City is interested in increasing both employment and

housing density, *i.e* "intensity" of development. Density bonus projects were often taking away rent-stabilized units, so they modified their approach with RSOs.

- *Diversity:* Mixed-use has been the most common approach to TOD in LA. City has interacted with YIMBYs before and is aware of Transit-Oriented Communities (TOCs) -- Metro's new approach -- which prioritizes affordable housing around transit and eliminates parking.
- *Design:* The City has de facto minimum density requirements in downtown through a design requirement: minimum street wall heights of 100 feet. Design can support transit by providing more pedestrian-oriented accessibility. City has strong bike rack/short-term bike storage program.

Monrovia

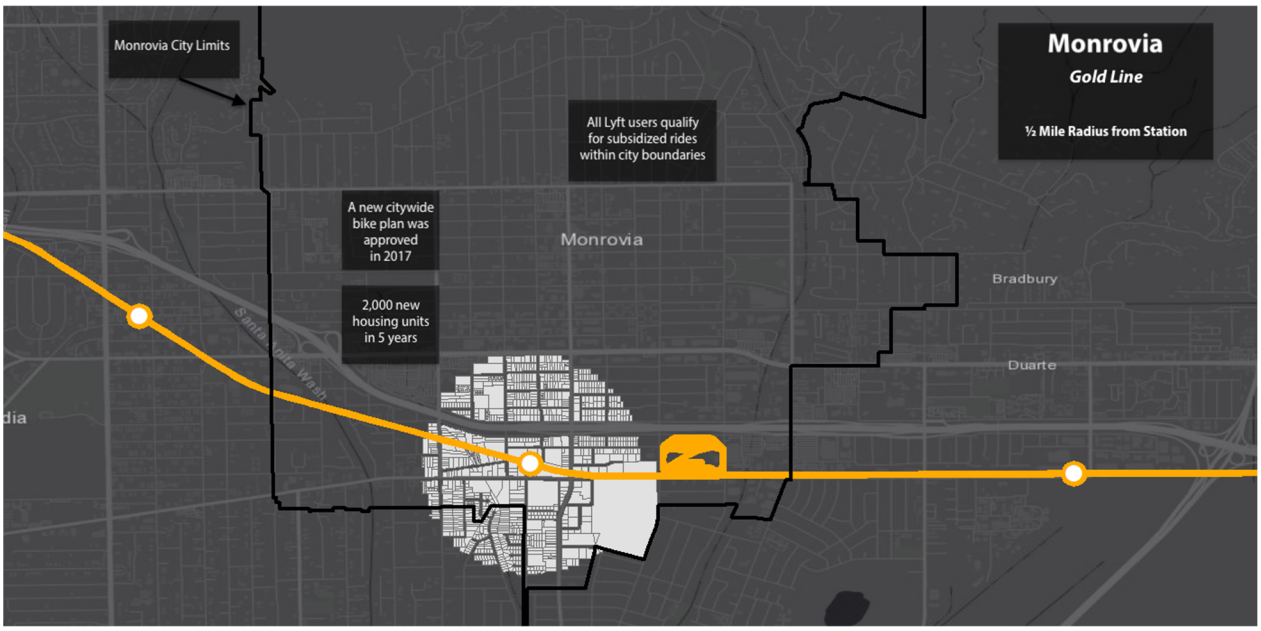

Figure 4.5 - City of Monrovia Metro station and its TOD specific plan area

As a smaller city, the City of Monrovia has general TOD guidelines formally adopted but actually reviews projects on a case-by-case basis. This stems from the City's "hands-off", pro-market development approach to TOD; Monrovia will experience a 15% housing stock increase within 5 years. With land values increasing, the City has received very little pushback from community members, and the City attributes this to keeping their TOD plans very open and well articulated from their inception in the 1990s. Notably, the City has also subsidized Lyft rides to be only $0.50 within city limits, a popular policy that made it easier for people to get around without driving and take the Gold Line out to Monrovia.

- *Density:* "Now what's been traditionally high density in Monrovia is about 25 units/acre. Medium density is typically between 10-15 units/acre. Most of them are in the core." There is no density cap in Monrovia, so it can be difficult to apply the density cap. The City allows for increasing density in certain TOD zones to increase developers' profit and draw to Monrovia. There are approximately 2000 new units coming to Monrovia.

- *Diversity:* Density bonus can be used for incentivizing affordable housing, but it is currently used to keep a mix of income levels in housing units being built. City has no inclusionary zoning, and Monrovia is currently at 50/50 split between renters and homeowners.
- *Design:* The city has no set design guidelines. A new development will open up public access to a Gold Line station to the station's south side. City adopted bike plan last year that outlined some bike lanes and partners with Lime to subsidize dockless bike share rides.

Pasadena

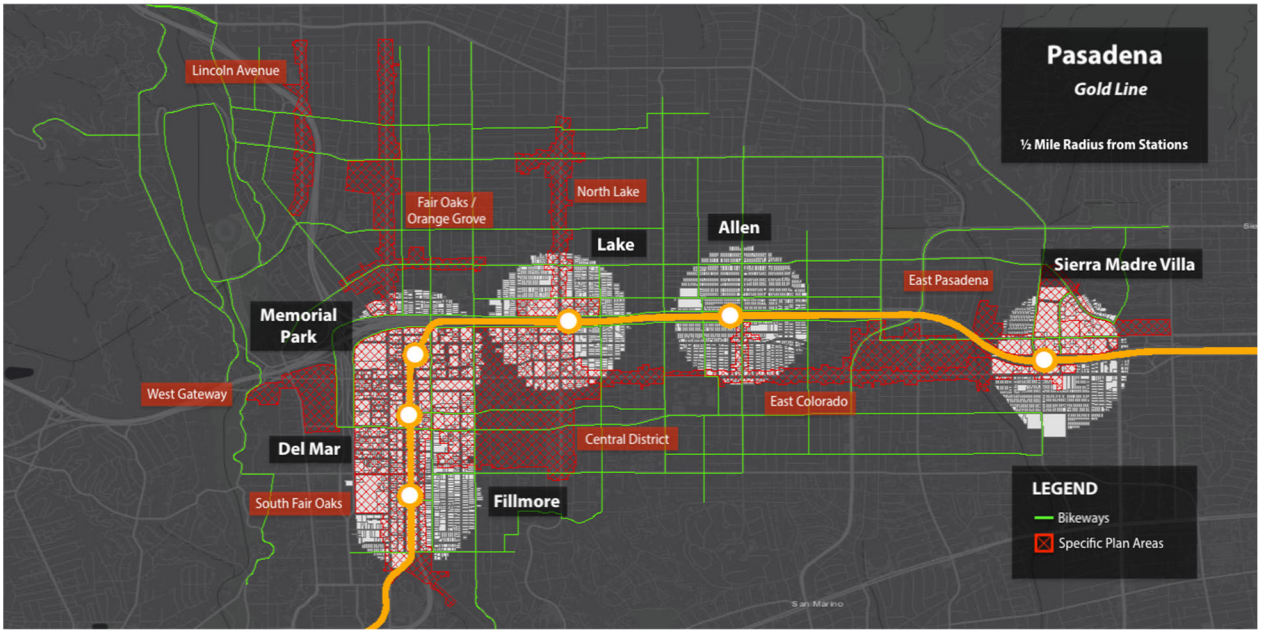

Figure 4.6 - City of Pasadena stations and corresponding specific plan areas

With TOD guidelines initially set in 1994, the City has significantly increased Pasadena's density by creating unique zones that can accommodate growth and development while preserving single-family neighborhoods. The City has updated their TOD policies and practices with time to allow for technological changes and has been extremely successful in attracting and allowing for mixed-use development. Though not attributable solely to transit, economic diversity is disappearing in the city, and community members have concerns regarding over-development. Overall, there is a new modal split within Pasadena, as VMT is decreasing; this is likely not attributable to transit but Pasadena's walkability. The City cites its approach to TOD through public amenities and capital investment as part of Pasadena's success.

- *Density:* Some areas could not be upzoned in order to preserve existing neighborhoods. The City directed significant density increases to the central district and to areas south of the highway. Increasing density has substantially increased wealth in Pasadena. Density incentives included reduced parking requirements, more curb lane parking, increases in building height, and increase in FAR.

- *Diversity:* Pasadena is missing middle-income housing, and economic diversity is lessening as low-income folks are being pushed out of the city (not attributable only to transit) through fewer low-income housing opportunities.
- *Design:* Each specific plan area has density caps. City embraces a holistic approach to TOD by providing a breadth of public amenities, particularly through design, to increase the city's livability. City has traffic impact fee and residential impact fee, and more sidewalks are being repaired. Pasadena is now highly walkable and becoming bikeable because "improving the infrastructure…go[es] along with TOD".

Santa Monica

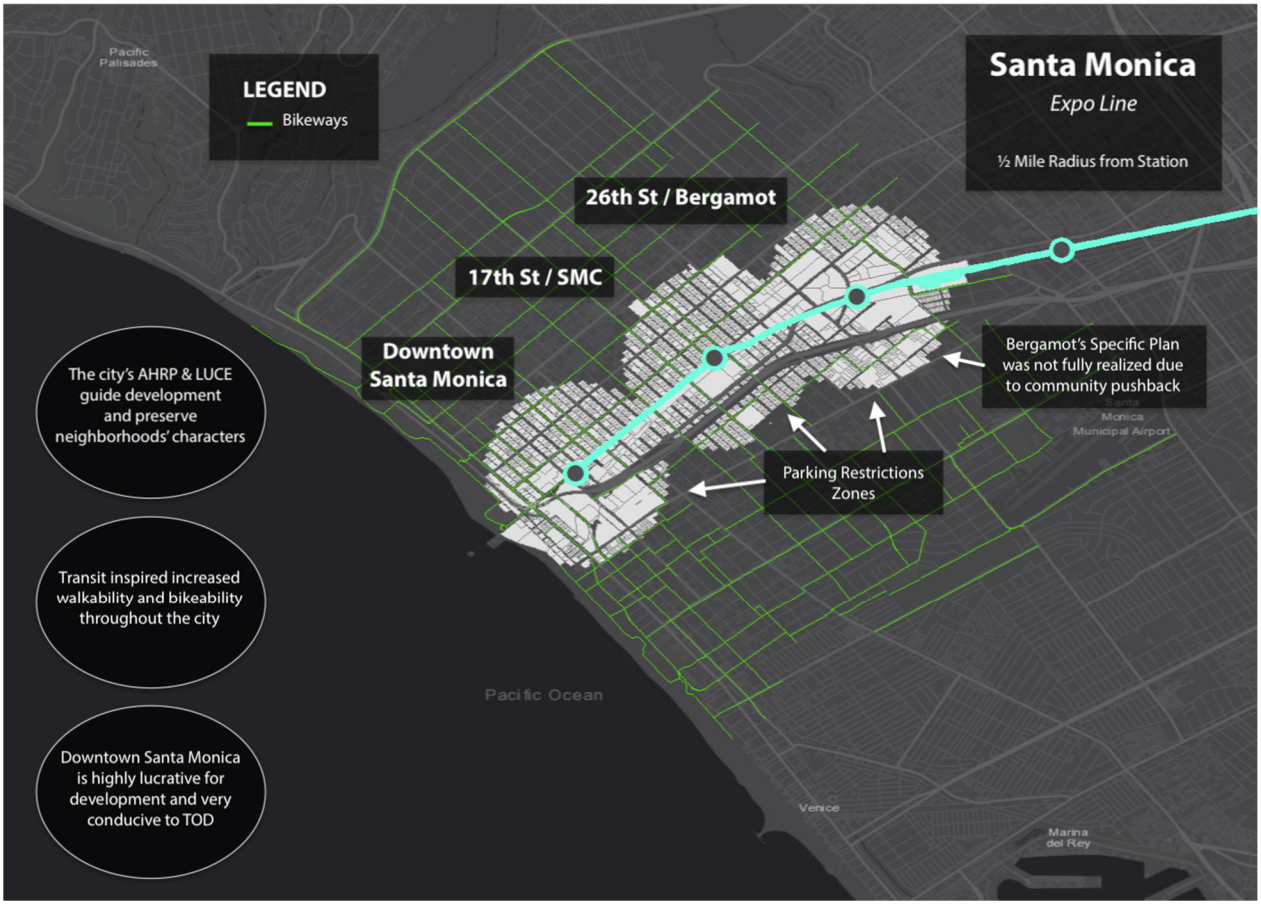

Figure 4.7 - City of Santa Monica stations and TOD specific plan areas

The City of Santa Monica has had a variety of successes in its TOD specific plans and relies primarily on its Land Use and Circulation Element (LUCE) for general policy guidance. A post-industrial area, Bergamot presented significant challenges in developing a walkable and highly livable space, and its specific plan was not fully implemented due to rising anti-growth sentiment in the community. Thus, its space is difficult to compare with downtown Santa Monica, an area that was "fertile ground" for TOD growth. Santa Monica is largely built out, and the City is primarily concerned with maintaining neighborhoods' characters and increasing multi-modality, both in response to community input and concerns. The Expo line sees very high ridership, but operation is still very new.

- *Density:* Downtown Santa Monica properties are highly lucrative with higher fees to build, but developers continue to build there. The community pushed back against increasing density between 2013 and 2017, which contributed to the shortcomings of the Bergamot specific plan.
- *Diversity:* Zoning code outlines tiered approach to FAR and affordable housing; in brief, if one wants to build higher, then one has to supply more affordable units and pay higher fees. The City took the public hearing process out of Affordable Housing Rental Program (AHRP), which is a unique program within California.
- *Design:* Walkability was a central challenge to developing the area around Bergamot because as an industrial zone, it was not initially built at a human scale. Parcel size matters in City's approach to planning for increased density. LUCE outlines types of boulevards that allow for certain kinds of development and prioritizes keeping neighborhoods' character intact. Transit has inspired greater bike usage, which prompted the City to build more bike infrastructure and invest in bike share programs.

Table 4.1 below summarizes factors or response categories influencing development around transit for the seven jurisdictions. The key factors under consideration are as follows:

- Proactiveness in supporting TOD
- Community's response
- Reference policies
- Incentives and mechanisms
- External guidance
- Benefits from Metro's policies
- Gentrification

Table 4.1 - Response on TOD Criteria by City

Questionnaire Responses by the City							
	Proactiveness in supporting TOD (1)	*Community's response (2)*	*Reference policies (4)*	*Incentives and mechanisms (5)*	*External guidance (6)*	*Benefits from Metro's policies (7)*	*Gentrification (9)*
Compton	The City was historically not proactive but is now prioritizing TOD as a method to generate investment in Compton. The City now requires completing an EIR for the whole TOD plan, rather than requiring developers to do this project by project (and thus raising the costs of development).	Transit, including the Blue Line and connecting bus lines, is heavily used in Compton. There is no track record of community response on TOD yet because this is the City's first TOD plan.	The City is current working on a general plan update and relying on a real estate/financial analysis from consultants to develop their update.	The City is saturated with affordable and low-income housing and has no trouble meeting SCAG RHNA numbers. Their biggest incentive is the economic need to attract development and facilitate development activity in Compton.	The City communicates with nearby cities to manage development, and notify other localities of development plans, at city boundaries. Communications is done primarily through personal connections, city councils, and city managers.	The City has a positive working relationship with Metro through their grant management and general guidance on the City's specific plans. There are no results from removing these barriers yet.	There was no mention of gentrification in the conversation. Gentrification and displacement is likely not a threat at this time, due to the city's economic stagnation.
Inglewood	The City has been very proactive in anticipation of the LAX/Crenshaw lines that will go through Inglewood. The City adopted two specific plans in Dec 2016 and asserts that they are doing "more than any city in LA" on TOD.	Inglewood community members are very excited at the prospect of TOD and open to development, largely due to the lack of infrastructure investment in recent decades. Residents are more active in the planning process now than previously and are reportedly not opposed to any plans.	Developers are just beginning to use the City's existing density bonuses. Density bonuses have been used in 10 TOD projects so far.	TOD is part of the City's efforts to repurpose existing land uses, form a mixed-use urban environment, and revitalize parts of city (e.g., downtown).	Inglewood has not seen any new development since the Lakers left, despite its proximity to LAX and geographic assets. TOD is one effective way to attract development.	No external connections or relationships were mentioned in the interview. Most of the City's external guidance is coming from Metro. There is a mutual relationship with Metro because Metro needs increased ridership, many Inglewood residents depend on Metro, and Metro helps make TOD easier. The City receives guidance in their TOD plans and is connected to several Metro	The City is striving for a diverse (income) urban environment, so the City sees that some degree of displacement is necessary for accomplishing this. The City denies that the current wave of investment is bringing/will bring gentrification because the wave was unforeseen and not intentional displacement on the City's part.

Questionnaire Responses by the City							
	Proactiveness in supporting TOD (1)	*Community's response (2)*	*Reference policies (4)*	*Incentives and mechanisms (5)*	*External guidance (6)*	*Benefits from Metro's policies (7)*	*Gentrification (9)*
						departments. The City appreciates Metro's involvement in making sure grant expectations are met.	
Long Beach	TOD helps the City meet several of their planning goals, including reducing VMT, building affordable units, and improving the urban environment and streetscapes in LB. The City is trying to avoid redevelopment. .	Single-family homeowners near LB stations are intensely NIMBY and make implementing TOD plans difficult. The City is aware that they are missing voices of some transit riders when collecting community input. The City has pushed forward with certain TOD plans despite public pushback.	The City's updated specific plans strengthened FAR as a TOD policy and outlined land uses. The City is staying away from inclusionary zoning because inclusionary zoning may further slow development. Instead, the City is focusing on market development mechanisms to attract development organically.	The City is using CDBG (federal) dollars to build affordable housing in areas of LB with the greatest need. The City has not met housing targets in 10 years and cannot compete with LA in attracting development. There are few joint-development projects, but all were helpful for building affordable housing	The City has connected with Compton (shares border with LB) and Culver City on TOD plans. Metro shares LB's work on their pedestrian plan with other cities. LB has collaborated with SCAG on TOD oriented projects. The City sees some similarities with Oakland.	The City has a good working relationship with Metro now, but Metro's lack of community input in determining station sites in LB sowed seeds of long-term mistrust of transit and TOD with certain areas of the community. The City engages in cross-city collaboration through ATPs.	The displacement/gentrification problem is ultimately attributable to LB's overall lack of housing supply and job/housing mis-match. There is considerable public pushback to new luxury housing. LB has many old housing units that currently or will need improvements, which the City is anticipating.
Los Angeles	The City has a long-standing document developed in 1993 for TOD guidelines. The City has been very proactive in going after TOD since rail investment began in 1990s in LA. Notably, the City is slowly shifting to VMT metrics.	The City encountered some YIMBY groups in the Bundy triangle project. Community input is generally sought after a project starts to have funding and some concrete direction.	Neighborhood plans are required to be TOD-centric. Land use policy, equity goals, and multi-modal efforts are part of successfully implementing TOD plans. The City is just starting to use overlays.	TOD helps the City approach planning from a district-level scale, rather than on a project-by-project basis. The City has the land use authority that Metro does not have, and the two entities appear to share power in visioning on more equal footing than other LA County cities.	The City has likely not met housing targets for many years; however, it is uncertain how close the City has gotten to reaching its housing goals because they have not tracked these numbers closely until recently.	The City has received $7.5 million from Metro and is a big beneficiary of Metro grants. The City is working on plans for about 25 stations on 6 lines. The City works very collaboratively with Metro and SCAG.	The City began using RSOs more frequently when it became apparent that density bonuses were incentivizing developers to tear down rent-stabilized apartments to build fewer affordable units. This is a question primarily of displacement, which is not always correlated with transit.

Questionnaire Responses by the City							
	Proactiveness in supporting TOD (1)	*Community's response (2)*	*Reference policies (4)*	*Incentives and mechanisms (5)*	*External guidance (6)*	*Benefits from Metro's policies (7)*	*Gentrification (9)*
Monrovia	The City was very proactive in allowing for TOD and made TOD plans as soon as the rail line was announced. TOD plans and policies are very general to give the City flexibility in reviewing projects on a case-by-case basis. TOD ultimately allows opportunity for Monrovia to attract development by increasing and encouraging density.	Despite a considerable spike in TOD projects, no public ire has arisen from TOD plans and new development because the City has been upfront about plans (likely also because Monrovia has not had development boom in a long time). Monrovia is a smaller community of 38,000 residents that is pro-development and relatively reachable through outreach processes.	The City operates on highly flexible land use and design policies. The City has no variance code or density cap. The very general "Planned Development" zoning guidelines allow for high-density projects and avoid specificities.	The City does not have a density cap and is just starting to apply a density bonus and FAR to certain projects. Monrovia generally has excess capacity, so FAR and zoning laws help the City get closer to RHNA production numbers. The City is typically not meeting RHNA production numbers but is not required to do so.	The City worked with ULI in 2000 when first developing their TOD policies. The City also has a TDM program that subsidizes rides with LimeBike and Lyft in Monrovia city limits.	The City has not applied for any grants from Metro because they are too far in the future (compared to development projects) and too restricting for the City's TOD approach. There is some tension with Metro over their parking policies at stations, but Metro is excited about the City's new bike plan.	Gentrification was mentioned in the interview, but land values are increasing. Currently, Monrovia has a well-diversified economy.
Pasadena	The City was particularly proactive in crafting land use policies that allowed for increasing density and development. The City land use policies were initially ahead of the market, but the development wave caught up with Gold Line's success. The City sticks to 2004 guidelines and does not make exceptions for individual projects/parcels.	TOD zones became (by default) any area that were not single-family homes. Community members are now concerned about overdevelopment and some NIMBYism persists.	The Growth Management Plan (general plan) incorporated TOD in 1994. The City is now embracing a green streets approach and has many public design elements of the general plan. There is extensive coordination across departments to implement the cohesive TOD vision detailed in specific plans.	TOD projects get built because Pasadena is a highly desirable market. The City's holistic approach to public services and quality of life contributes to TOD's success and attracts development. Pasadena is very expensive to build in due to the City's fees. The City is exceeding RHNA capacity numbers.	The Memorial Park station was an early public-private partnership (PPP) that served as a successful mixed-use/PPP example to other cities. The City recruited a US Senator to set up a JPA for all cities on Gold Line before it was built. Pasadena has served as source for multiple case studies and research on TOD.	Metro has inconsistent parking policies between station lots, so the City has tried to balance this out in their own parking policies and supply. Metro and SCAG are major funding sources for updating the City's specific plans.	Low-income residents are being priced out and displaced from Pasadena, but this is not solely attributable to TOD. This is happening throughout the city.

Questionnaire Responses by the City							
	Proactiveness in supporting TOD (1)	*Community's response (2)*	*Reference policies (4)*	*Incentives and mechanisms (5)*	*External guidance (6)*	*Benefits from Metro's policies (7)*	*Gentrification (9)*
Santa Monica	There is one joint development project in SM underway, but there are not many other opportunities for this because the City does not have much more property to redevelop. The City's AHRP existed before the Expo Line in SM.	The City was successful in increasing density substantially in downtown SM, but due to timing of the Bergamot plan with a local anti-growth wave, the City did not successfully implement the Bergamot specific plan and increase density there.	Land use policies are built on AHRP. The City committed to 5-year monitoring of its market, so it is difficult to know what effect transit and TOD is on local development. LUCE is protecting neighborhoods and appeases community members. The Civic Center is particular diverse in its land uses.	The Expo Line's success and TOD inspired a shift toward multi-modality, and the City has developed an extensive bike network. Walking is likely high, but the City is not tracking this data.	Parking requirements are much lower in TOD zones around stations, but there is significant public concern regarding parking.	The City can also require that developers provide open public space as part of projects. The City has control of the land immediately next to the Expo Line's terminus and the highway.	The City wants to develop transit boulevards around stations to encourage ridership and density, but there is public pushback to this idea.

***** = includes private development, joint development, housing (especially affordable), commercial office/retail, mixed-use

Synthesis

There is considerable variation in our sample with Los Angeles having 44 of 93 stations and a policy framework incrementally responding to market realities and demands. Compare this to the city of Compton, where after 25 years of Blue Line operations, TOD planning is just beginning. Also, in our sample are suburban cities, such as Long Beach and Monrovia that are trying to fully capitalize on TOD's potential. While Monrovia anticipates a huge surge in housing development, Long Beach (outside downtown area) has struggled with community opposition and a lukewarm demand. Pasadena and Santa Monica, in contrast, have been successful in stimulating TOD by capitalizing on robust market demand through a proactive policy agenda. Inglewood remains optimistic as it eyes transit as a catalyst and a transformative force for much awaited economic renaissance.

Chapter 5: Quantitative Analysis of Institutional Responses

This chapter provides a quantitative analysis of station areas and policies promoting TOD across multiple jurisdictions in the Los Angeles region. These analytical methods and findings using statistical tools of the Guttman scalogram analysis and factor analysis are discussed in the sections below.

5.1 Providing Descriptive Statistics for Station Areas

Our final sample of survey results comprised 93 rail station areas. For each responding station area, we recorded the municipality in which it belongs, the Metro line(s) it serviced, the station's years of operation, and the type of neighborhood in which it was located. Of the 93 surveyed station areas:

- **49** were located in the City of Los Angeles and **44** were located in 20 other municipalities;
- **22** were located along the Blue Line, **14** were located along the Red Line, **8** were located along the Purple Line, **13** were located along the Green Line, **27** were located along the Gold Line, and **19** were located along the Expo Line;
- **5** were located in High Density Downtown neighborhoods, **40** were located in Central Place neighborhoods, **2** were located in Industrial/Employment Center neighborhoods, **33** were located in Neighborhood Center neighborhoods, and **13** were located in Single Family Home Area neighborhoods; and
- **31** had been operating for less than 10 years, **20** had been operating between 10 and 20 years, and **42** had been operating for over 20 years.

These figures suggest a good amount of variation in station area characteristics, thereby enhancing the robustness of the subsequent analytical results we report. See Tables 5.1, 5.2, 5.3, and 5.4 for tabulations of station areas by municipality, line system, neighborhood type, and years of operation, respectively.

In addition, for each of the 29 questions in our survey related to local-level, institutionalized planning policies, we calculated the percentage of station areas where they have a particular policy in place.[1] We then ranked each of the 29 questions, from highest to lowest, based on the percentage of station areas who responded affirmatively to each question (*i.e.*, indicating they have such a policy). In such a system, questions with a 100% response rate would receive a rank of "1". Conversely, if only one question had a 0% response rate, it would receive a rank of "29". If two questions had a 0% response rate, they would each receive a rank of "28"; if three questions, then ranks of "27"; etc. Table A-1 depicts the average rank of survey questions at the

[1] We were unable to verify the information for the following six survey questions, which relate to state or federal-level initiatives: (1) Linkage Fees; (2) Caltrans Sustainable Transportation Planning Grant Program; (3) Inclusionary Zoning; (4) New Markets Tax Credit; (5) Affordable Housing and Sustainable Communities Program; and (6) Community Land Trusts. As a result, we did not include those six questions in this analysis.

survey sub-category level (*e.g.*, Land Use and Planning, Transportation and Parking, etc.), as ranked by the share of station areas affirmatively responding.

Table A-1: Average Institutional Response Rank by Survey Sub-Category (n=93)

Survey Sub-Category of Instituional Response	Average Response Rank	Number of Survey Questions
Average Urban Design Rank	9.3	3
Average Land Use and Planning Rank	12.8	9
Average Transportation and Parking Rank	15.9	11
Average Financing Rank	18.2	5
Average Affordable Housing Rank	20.0	1

For our total sample, station areas are more likely to have policies in place that govern the physical built environment – namely urban design, land use and planning, as well as transportation and parking – than those that help finance TOD development and/or make it more equitable from a housing perspective.

This pattern is relatively consistent when we rank responses for only station areas within the City of Los Angeles versus those station areas outside, as Table A-2 demonstrates. Still, we note that station areas within the City of Los Angeles are more likely to have an Affordable Housing policy in place than they are to have Transportation and Parking or Financing policies in place. This differs from the rankings for both the total sample of 93 station areas as well as only those station areas outside of the City of Los Angeles, where we find Affordable Housing policies least likely. We note that the sub-category of Affordable Housing may be especially sensitive to small changes in the data, as it is comprised of a single survey question related to joint public-private development partnerships.

Separating rankings for station areas within versus outside the City of Los Angeles also indicates that "outside" station areas rank Urban Design policies higher than "within" station areas (8.3 versus 11.3 ranking, respectively). Finally, while three Land Use and Planning policies – General Plan Vision and Land Use Designations, General Plan Land Use Policies and Actions, and Incentives & Bonuses – had a 100% affirmative response rate by City of Los Angeles station areas, station areas outside the City of Los Angeles did not have a comparable response rate to any policy question of our survey. This is not surprising, given that general plan policies are developed at the municipal level and that the station areas outside of the City of Los Angeles fall within 20 distinct municipalities thus representing diverse land use policy profiles. See Tables 5.5, 5.6, and 5.7 for the response rankings for each survey policy question for all 93 station areas, those areas within the City of Los Angeles, and those areas outside the City of Los Angeles, respectively.

Table A-2: Average Response Rank by Survey Sub-Category, City of Los Angeles Station Areas (n=49) versus Station Areas outside City of Los Angeles (n=44)

Survey Sub-Category	Average Response Rank Within City of Los Angeles	Average Response Rank Outside City of Los Angeles
Average Urban Design Rank	11.3	8.3
Average Land Use and Planning Rank	12.9	12.0
Average Affordable Housing Rank	15.0	21.0
Average Financing Rank	15.4	18.0
Average Transportation and Parking Rank	16.4	16.5

5.2 An Introduction to Guttman Analysis

As Tables 5.5, 5.6, and 5.7 depict, significant variation exists in station areas' response rates to the 29 survey questions related to local-level, institutionalized planning policies. To better understand the relationship between the response rates to these 29 questions, we constructed several Guttman scales. A Guttman scale is an analytical tool used to hierarchically organize survey or test questions from "easiest to answer" (*i.e.*, the question with the highest share of correct or affirmative responses) to "hardest to answer" (*i.e.*, the question with the lowest share of correct or affirmative responses). For example, given three questions asking "Are you above the age of 25?", "Are you above the age of 45", and "Are you above the age of 5?", they would be organized in the Guttman scale as follows:

1. Are you above the age of 5?
2. Are you above the age of 25?
3. Are you above the age of 45?

This is because the highest share of survey respondents will indicate they are above the age of 5 and the lowest share of survey respondents will indicate they are above the age of 45. Importantly, this example is also an instance of a *perfect* Guttman scale. Nobody who indicates they are above the age of 45 is not also above the ages of 25 and 5.

Unfortunately, though, many hierarchical scales are *imperfect*, such as educational assessments or more qualitative surveys. For instance, it is possible a student correctly answers the hardest question on a subject test yet incorrectly answers the easiest question on that test. As a result, Guttman analyses are used not only to hierarchically organize questions but to determine how error-prone those hierarchical scales are per empirical data. The above subject test example is one case of such a "Guttman error". The fewer Guttman errors generated by a Guttman scale, the more predictive a selected question's responses are of the responses to questions that are considered less difficult.

5.3 General Results of Guttman Analysis

We used empirical responses of the 93 station areas to construct several Guttman scales. In each of the Guttman scales described below, we ranked survey questions based on their share of affirmative responses, from the question with the highest share to the one with the lowest share. For example, 96.8% of all station areas said they had General Plan Vision and Land Use Designations while only 19.4% of all station areas said they had Form-Based Codes. Therefore, we placed General Plan Vision and Land Use Designations before Form-Based Codes, just as the question about being 5 years of age would come before the question about being 45 years of age. Using this methodology, we constructed the following Guttman scales:

- All 29 survey questions
- Land Use and Planning (9 survey questions)
- Transportation and Parking (11 survey questions)
- Urban Design (3 survey questions)
- Financing (5 survey questions)

We did not construct a Guttman scale for Affordable Housing, as that survey sub-section contained only one question related to local-level, institutionalized planning policies, namely Joint Public/Private Development. When constructing these Guttman scales, if any survey questions had equivalent shares of affirmative responses, we ordered the questions in the way that minimized the number of Guttman errors generated.

For each Guttman scale, we then calculated the number of Guttman errors attributable to each of the 93 station areas per the applied scale. A Guttman error was equivalent to any pair of survey questions in the scale where: (1) the station area did not affirmatively respond to the "easier" question (*i.e.*, the question with the higher aggregate affirmative response rate), and (2) the station area did affirmatively respond to the "harder" question (*i.e.*, the question with the lower aggregate affirmative response rate). Table A-3 provides a visual example of how we identified these Guttman errors for each station area.

Table A-3: Example of Guttman Error Identification by Survey Respondent

	Question 1 ("Easiest")	**Question 2 ("Medium Difficulty")**	**Question 3 ("Hardest")**	**# of Guttman Errors**
Respondent 1	Yes	No	No	0
Respondent 2	Yes	No	Yes	1 (Questions 2/3)
Respondent 3	No	No	Yes	2 (Questions 1/3, 2/3)

For each of our five Guttman scales, we used the errors calculated for each station area to determine the Guttman coefficient of reproducibility (Van Schuur, 2011, Chapter 3). For a given Guttman scale, the coefficient of reproducibility equals: (1) 1 minus (2) the sum of Guttman errors across all observations, divided by the number of observations times the number of questions in the scale. The closer the coefficient is to 1, the fewer Guttman errors a scale generates and hence the more "reproducible" it is, in the sense that it is highly predictive of the

empirical results. When calculating the coefficient of reproducibility for a given scale, we did not include any station area that did not affirmatively respond to any question in the scale. We did so as, by definition, such a station area cannot ever generate any Guttman errors. We calculated the coefficients of reproducibility for each of our five scales.

Table A-4: Coefficients of Reproducibility for Guttman Scales

Guttman Scale	Coefficient of Reproducibility
All 29 survey questions	12.3%
Land Use and Planning survey questions	78.1%
Transportation and Parking survey questions	78.4%
Urban Design survey questions	92.8%
Financing survey questions	77.9%

As shown in Table A-4, the Guttman scale composed of all 29 questions has a very low coefficient of reproducibility. It is therefore not predictive of station areas' patterns of responses. Nevertheless, the coefficients of reproducibility are relatively high for the survey sub-section scales, especially for the Urban Design scale. This implies that, for a given area of planning policy, the majority of station areas are predictable – and perhaps even intentional – in how they incrementally implement individual policies. That is, within a given sub-section Guttman scale, the survey responses are relatively well-ordered and predictive of responses.

In this case, it becomes interesting to identify which station areas have high numbers of Guttman errors, as well as whether the number of Guttman errors differs across stations according to specific station area attributes like municipality, Metro line, neighborhood type, and years operating. Doing so may help identify whether particular station area characteristics are associated with differing levels of predictability and/or intentionality (*i.e.*, Guttman errors) in the implementation of planning policies. In turn, these relationships may unveil whether particular groups of station areas require assistance in formulating and implementing policy.

5.4 Guttman Errors and Station Area Characteristics

For each Guttman scale, we calculated the median, average, and variance of Guttman errors across the following sets of characteristics:

- Municipality indicator (within versus outside the City of Los Angeles)
- Metro rail line
- Neighborhood type
- Years operating (< 10 years, 10-20 years, > 20 years)

Tables 5.8, 5.9, 5.10, and 5.11 report the median, average, and variance statistics for these four characteristic sets and by Guttman scale. As when we calculated each Guttman scale's coefficient of reproducibility, we excluded station areas for a particular Guttman scale if they did not affirmatively respond to any survey questions in that scale. Given its very low coefficient of

reproducibility, we did not calculate summary statistics of Guttman errors for the scale composed of all 29 local-level, institutionalized planning policy questions.

The remainder of this section summarizes our primary findings regarding average Guttman errors across station sub-groups. In each case, we report differences significant at the 10% level and lower. For the t-statistics and associated p-values for the reported differences, please see Tables 5.12-5.15. Our primary findings can be summarized under four broad categories:

1. Metropolitan Location: Station areas within the City of Los Angeles average fewer Guttman errors than external station areas in our Land Use and Planning as well as Transportation and Parking sub-section scales; however, for the Urban Design scale the external station areas average significantly fewer Guttman errors than station areas within the City of Los Angeles.

2. Line Systems: Station areas on the Gold and Expo lines tend to average significantly more Guttman errors than stations on other lines, particularly the Red and Purple lines. This is especially the case in our Land Use and Planning, Transportation and Parking, and Urban Design survey sub-section scales. Somewhat slightly less frequently, Blue line station areas also average significantly more Guttman errors than Purple line and Red line station areas in multiple cases (for Land Use and Planning, significantly more than the Purple line; for Transportation and Parking, significantly more than the Red line; and for Urban Design, significantly more than both lines).

3. Station Area Typology: High Density Downtown station areas average significantly fewer Guttman errors than station areas in other neighborhood types in our Land Use and Planning sub-section scale. In our Transportation and Parking scale, Single Family Home Area stations average significantly fewer Guttman errors than station areas in High Density Downtown regions and Neighborhood Centers.

4. Years of Operation: Station areas that have been operating for less than 10 years tend to average significantly more Guttman errors than station areas operating for 10-20 years or for more than 20 years, regardless of Guttman scale employed.

The fourth finding listed above is our clearest finding regarding Guttman errors by a station area characteristic. It suggests that years of operation may be the most significant determinant of the predictability (and potentially the level of intentionality) of station area planning policies. Relatively "young" station areas may address issues in a more ad-hoc and less systematic way. Alternatively, some policies may require longer amounts of time to develop and/or activate than others, a discrepancy that may naturally manifest itself when comparing relatively "young" station areas with more "mature" station areas. We note that of the 31 station areas that have been open for less than 10 years: almost exactly half (17) are within the City of Los Angeles; 14 are on the Gold Line and 17 are on the Expo Line. One is located in a High Density Downtown neighborhood, nine are located in a Central Place neighborhood, nineteen are located in a Neighborhood Center area, and two are located in a Single Family Home Area. Based on these data, our findings regarding "young" station areas having more Guttman errors appear to explain the findings we report above for the Metro line categories (*i.e.*, Gold and Expo Lines tend to have more errors).

The first finding listed above implies that City of Los Angeles station areas tend to have a more predictable "layering" of Land Use and Planning as well as Transportation and Parking policies than station areas outside of the City. However, it is possible that the City's emphasis on this zoning work has come at the expense of context-specific urban design, given the City's higher average Guttman errors in that sub-scale. We note that stations outside of the City of Los Angeles span a multitude of different municipalities, and hence areas with varying sociodemographic characteristics (see Table 5.16 for a few sociodemographic measures by municipality). This jurisdictional variation may be driving such stations' lack of predictability in Land Use and Planning as well as Transportation and Parking policies, especially given the higher number of possible policies in these sub-scales (nine and eleven, respectively) compared to our Urban Design category, which has only three policies. Like our finding regarding years of operation, this finding also appears to drive the high number of Guttman errors attributable to the Gold and Expo lines, given that they span the most jurisdictions of the Metro lines.

Finally, we examine our third finding listed above. Given High Density Downtown stations' location in the heart of the City of Los Angeles, it is unremarkable that these areas would tend to have the most predictable (and potentially comprehensive) Land Use and Planning policies in place. It is probable that such stations benefit from general zoning and planning efforts to manage urban core development in ways that Neighborhood Center stations do not. Furthermore, given the importance of parking in Single Family Home Area neighborhoods, it is also unremarkable that station areas in Single Family Home Areas tend to have the most predictable Transportation and Parking policies in place.

5.5 Using Factor Analysis to Identify Similar Policies

The above Guttman analyses helped us uncover the ways in which station areas systematically differ in their use of local-level, institutionalized planning policies. Still, they do not reveal how similar individual policies are in driving differences across station areas, nor can they tell us how similar a given station area is to other station areas. Yet both of these questions may be of interest to scholars and practitioners. Accordingly, we utilized factor analysis to address these two questions.

For each of the survey sub-sections used in our Guttman analyses (*i.e.*, Land Use and Planning, Transportation and Parking, Urban Design, and Financing), we first conducted a principal-component factor analysis. We employed a principal-component methodology as we assumed that all policy variation across our station areas could be captured by our produced factors. For each of the four factor analyses we conducted (*i.e.*, for each of the four survey sub-sections analyzed in this report), we retained factors with eigenvalues greater than or equal to one. We then rotated the matrix of eigenvectors with values greater than or equal to one to maximize the variance explained by the individual policy variables in a given factor.[2] After applying this rotation, we focused on policy variables with rotated factor loadings greater than or equal to 0.60. We selected this cutoff in accordance with guidance from Guadagnoli & Velicer (1988) in conducting factor analyses.

[2] Equivalent to the "varimax" rotation option in Stata.

Finally, we attempted to name or characterize each factor underpinning a given survey sub-section based on the policy variables with rotated loadings that met the 0.60 threshold. Doing so allowed us to identify how similar individual policies are in driving differences across station areas. We display the results of this exercise in Table 5.17; rotated loadings that meet the 0.60 threshold are highlighted in yellow.

The analysis identified three factors (*i.e.*, three sets of individual policies) that explain the majority of variation in station areas' Land Use and Planning. We interpret the primary factor, whose significant policies (*i.e.*, those with rotated loadings that meet the 0.60 threshold) are TOD Specific Plans, Corridor Plans, and Form-Based Codes, to represent *granular design planning*. We interpret the secondary factor, whose significant policies are General Plan Land Use Policies/Actions, General Plan Vision and Land Use Designations, and Conventional Zoning, to represent *general zoning and planning*. We interpret the tertiary factor, whose significant policies are Overlay Zoning and Minimum Densities, to represent *district zoning*.

For Transportation and Parking, the analysis identified four factors that explain the majority of variation across station areas. We interpret the primary factor, whose significant policies are Bicycle Sharing Programs and Bike Stations, to represent *bicycle policies*. We interpret the secondary factor, whose significant policies are Traffic Calming and Parking Management Districts, to represent *parking and street conditions*. We interpret the tertiary factor, whose only significant policy is the TDM Ordinance, to represent the *Transportation District Management*. We interpret the quaternary factor, whose significant policies are Transportation Master Plans and Car-Share Programs, to represent *VMT reduction*.

For Financing, the analysis identified three factors that explain the majority of variation across station areas. We interpret the primary factor, whose only significant policy is Fast Track Permitting, Fee Waivers, and Other Financial/Process Incentives, to represent *reduced entitlement processes*. We interpret the secondary factor, whose significant policies are the Metro TOD Planning Grant Program and the TOD Housing Program, to represent *TOD programming*. We interpret the tertiary factor, whose significant policies are Historic Preservation Tools and Special Districts, to represent *special overlay financing*.

Finally, given the Urban Design sub-section of our survey contained only three policy questions, it is unsurprising that the analysis identified only a single factor. This single factor contains significant loadings for each of the three Urban Design policies: Building Standards and Design Guidelines, Streetscape Standards and Design Guidelines, and Community Design Overlays. Therefore, we interpreted this factor to represent the overall category of *urban design*.

Two aspects of this factor analysis give us confidence in its results. First, for a given survey sub-section (*e.g.*, Land Use and Planning), significant loadings are mutually exclusive across identified factors. For example, across Land Use and Planning's three identified factors, Form-Based Codes is a significant loading for only one factor, the primary one we interpret as *granular design planning*. Second, the significant loadings for each factor represented policy clusters that were intuitive and readily identifiable. As a result, we did not have difficulty developing the factor "names" we have reported in italics in the preceding paragraphs.

In aggregate, our analysis identified eleven distinct factors with which we can measure stations. These factors have value in and of themselves, as they indicate significant relationships between policies in our survey. Yet the factors have equal or greater value in their application to station areas' survey responses. Doing so uncovers the degree to which individual station areas resemble the other station areas in our sample. In the final portion of this Results section, we detail the findings that stem from this application of our factor analysis.

5.6 Identifying Similar and Dissimilar Station Areas per Factor Analysis

In the discussion of results that follows, we describe the levels of similarity between station areas based on the application of our factor analysis. To make these determinations, we took each rotated factor – out of the eleven that our analysis identified – and translated its loadings into linear regression coefficients. For each of the 93 observed station areas, these coefficients were then multiplied by that station area's actual, relevant responses. As an example, the *granular design planning* factor has loadings for the nine policy questions under the Land Use and Planning survey sub-section. We translated these nine loadings into nine regression coefficients; afterwards, and for each of the 93 station areas, we multiplied each of the nine regression coefficients to each station area's relevant response (*e.g.*, the translated coefficient for Form-Based Codes was multiplied by a station area's actual response to whether or not Form-Based Codes were present). The sum of this vector multiplication exercise is equivalent to regression "scores" for all 93 station areas along a particular factor. We note that the regression coefficients generated by this matrix algebra for a given factor result in scores with a mean of 0 and a standard deviation of 1.

To simplify this exercise of clustering similar station areas, we aggregated individual factor scores to mirror the sub-sections of the survey we disseminated to station areas. That is, we:

1. Combined each station area's scores under *granular design planning*, *general zoning and planning*, and *district zoning* to generate an overall Land Use and Planning factor score;
2. Combined each station area's scores under *bicycle policies*, *parking and street conditions*, *TDM Ordinance*, and *VMT reduction* to generate an overall Transportation and Parking factor score;
3. Used each station area's score under *urban design* to represent its Urban Design factor score; and
4. Combined each station area's scores under *reduced entitlement processes*, *TOD programming*, and *special overlay financing* to generate an overall Financing factor score.

We then focused on station areas in the top and bottom deciles of the score distributions for each of these four factor scoring criteria. We provide the full ranking of station areas along the four criteria in Tables 5.18-5.21; in these same Tables we demarcate the top and bottom deciles that we describe below.

5.6.1 Land Use and Planning Factor Scores

Of the 12 station areas in the top decile of Land Use and Planning factor scores, we note two unifying characteristics. First, nine of these station areas (*i.e.*, 75%) have been operating for fewer than 10 years. Second, seven of these station areas (58%) are Gold line stations. The latter fact also means that station areas in the top decile of Land Use and Planning factor scoring tend to be located east of downtown Los Angeles.

Of the 10 station areas in the bottom decile of Land Use and Planning, we also observe two unifying characteristics, both of which contrast with those of the top decile. First, eight of these station areas (*i.e.*, 80%) have been operating for over 20 years. Second, eight of the station areas (80%) are Blue or Green line stations. This latter fact means that station areas in the bottom decile of Land Use and Planning factor scoring tend to be located south and southwest of downtown Los Angeles.

These results demonstrate that the most dissimilar stations along our Land Use and Planning dimension are recently-opened stations – particularly on the Gold line – versus long-operating stations, especially on the Blue and Green lines. We hypothesize this dissimilarity may occur for two reasons. First, the Blue and Green lines are two of the three oldest lines in Los Angeles' Metro rail system. It is possible that less attention was given to land use and planning when the Blue and Green line's station areas opened compared to when the Gold line's newest station areas opened. Second, the Blue line lies along an existing railroad right-of-way while the Green line runs along a grade-separated track, often parallel to a highway. Compared to the Gold line, which often runs at street level and did not utilize an existing rail track, the Blue and Green lines' alignment constraints may have reduced immediate scope of proximate land use and planning around the station areas.

5.6.2 Transportation and Parking Factor Scores

Of the 12 station areas in the top decile of Transportation and Parking factor scores, we note a single unifying characteristic. Namely, nine of these station areas (*i.e.*, 75%) are located in Central Place neighborhoods. Unlike with Land Use and Planning, we do not discern a clear pattern by years of operation or rail line.

Of the 12 station areas in the bottom decile of Transportation and Parking, we also observe two unifying characteristics, both of which contrast with those of the top decile. First, nine of these station areas (*i.e.*, 75%) are located on the Blue or Green line; and they appear clustered in the southern Los Angeles area. Second, seven of the station areas (58%) are located in Neighborhood Center places.

These results demonstrate that the most dissimilar stations along our Transportation and Parking dimension tend to be station areas in Central Places versus those in Neighborhood Centers and/or those in southern Los Angeles. As with our Land Use and Planning factor, we hypothesize this dissimilarity may occur for two reasons. First station areas in Central Places, such as Downtown Santa Monica or Downtown Pasadena, are by definition co-located with areas of relatively high parking demand. It is likely that Central Places require greater attention to parking regulations than Neighborhood Centers. Paradoxically, given the importance of parking regulation in Single Family Home Areas (*e.g.*, driveway versus on-street parking, etc.), station areas in Neighborhood

Centers may be least compelled to introduce parking regulations. Second, it may be easier to implement bike-share and other bicycle programming in denser places (*i.e.*, Central Areas), which may tend to have more pedestrian or other non-vehicle traffic. Alternatively, it may be easier to implement such bicycle programming at ground-level station areas. This would explain why many Green line station areas are in the bottom decile of our Transportation and Parking factor scoring.

5.6.3 Urban Design Factor Scores

Of the 19 station areas in the top decile of Urban Design factor scores, we note two unifying characteristics. First, thirteen of these station areas (*i.e.*, 68%) are located in municipalities other than the City of Los Angeles. Second, fifteen of these station areas (79%) have been open for less than 10 years, which also means they are located on either the Gold or Expo line.

Of the 24 station areas in the bottom decile of Urban Design, we also observe a single unifying characteristic. Namely, seventeen of these station areas (*i.e.*, 71%) are located within the City of Los Angeles.

These results suggest a divide in station areas' urban design characteristics depending on whether or not they are located within the City of Los Angeles. We hypothesize this dissimilarity is attributable to two mechanisms. First, compared to station areas in other municipalities, station areas within the City of Los Angeles may pay greater attention to their Land Use and Planning, Transportation and Parking, and/or Financing. Second, station areas in other municipalities, especially those on the Gold or Expo lines, tend to be newer than station areas in the City of Los Angeles. Thus, the dissimilarities in Urban Design scores we note may be unrelated to station areas' municipalities and instead related to how recently the station areas opened—an emphasis on station areas' urban design may be a phenomenon that appeared only within the last decade. Still, we note that recently opened station areas along the Expo Line appear in the bottom decile of our Urban Design factor scoring (*e.g.*, Westwood/Rancho Park), suggesting our second hypothesis may not be fully valid.

5.6.4 Financing

Of the 13 station areas in the top decile of Financing factor scores, we note a single unifying characteristic. Namely, eleven of these station areas (*i.e.*, 85%) are located within either the City of Long Beach or East Los Angeles.

Of the 17 station areas in the bottom decile of Financing, we also observe a single unifying characteristic. Namely, thirteen of these station areas (*i.e.*, 76%) are located within either the City of Los Angeles or the City of El Segundo.

Perhaps unsurprisingly, these results suggest a divide in station areas' financing depending on the municipality in which they are located. Station areas in Long Beach and East Los Angeles appear to have access to many more financing tools than station areas in Los Angeles or El Segundo, implying an area of improvement for the latter two jurisdictions.

Table 5.1 Tabulation of station areas by municipality

City	Station
Arcadia	Arcadia
Azusa	APU / Citrus College
	Azusa Downtown
Compton	Artesia
	Compton
	Del Amo
Culver City	Culver City
Downey	Lakewood
Duarte	Duarte / City of Hope
East Los Angeles	Atlantic
	East LA Civic Center
	Indiana
	Maravilla
El Segundo	Douglas
	El Segundo
	Mariposa
Florence-Graham	Firestone
	Florence
	Slauson
Hawthorne	Hawthorne / Lennox
Irwindale	Irwindale
Long Beach	1st Street Station
	5th Street Station
	Anaheim St
	Downtown Long Beach
	Pacific Avenue
	Pacific Coast Highway
	Wardlow
	Willow
Los Angeles	103rd Street Station
	7th Street / Metro Center
	Avalon
	Aviation LAX
	Chinatown
	Civic Center
	Crenshaw
	Expo / Bundy
	Expo / Crenshaw
	Expo / La Brea
	Expo / Sepulveda
	Expo Park / USC
	Expo / Vermont
	Expo / Western
	Farmdale
	Grand / LATTC
	Harbor Freeway
	Heritage Square
	Highland Park
	Hollywood / Highland
	Hollywood / Vine
	Hollywood / Western
	Jefferson / La Cienega
	Jefferson / USC
	LATTC / Ortho Institute
	Lincoln / Cypress
	Little Tokyo / Arts District
	Mariachi Plaza
	North Hollywood
	Palms
	Pershing Square
	Pico
	Pico / Aliso
	San Pedro St
	Soto
	Southwest Museum
	Union Station
	Universal City / Studio City
	Vermont / Athens
	Vermont / Beverly
	Vermont / Santa Monica
	Vermont / Sunset
	Vernon
	Washington
	Westlake / Macarthur Park
	Westwood / Rancho Park
	Wilshire / Normandie
	Wilshire / Vermont
	Wilshire / Western
Lynwood	Long Beach Boulevard
Monrovia	Monrovia
Norwalk	Norwalk
Pasadena	Allen
	Del Mar
	Fillmore
	Lake
	Memorial Park
	Sierra Madre Villa
Redondo Beach	Redondo Beach
Santa Monica	17th St / SMC
	26th St / Bergamot
	Downtown Santa Monica
South Pasadena	South Pasadena
Willowbrook	Willowbrook / Rosa Parks

Table 5.2 Tabulation of station areas by Metro Line

Metro Line	Station
Blue, Expo	Pico
Blue, Red, Purple, Expo	7th Street / Metro Center
Red, Purple, Gold	Union Station
Red, Purple	Civic Center
Red, Purple	Pershing Square
Red, Purple	Westlake / Macarthur Park
Red, Purple	Wilshire / Vermont
Blue	103rd Street Station
	1st Street Station
	5th Street Station
	Anaheim St
	Artesia
	Compton
	Del Amo
	Downtown Long Beach
	Firestone
	Florence
	Grand / LATTC
	Pacific Avenue
	Pacific Coast Highway
	San Pedro St
	Slauson
	Vernon
	Wardlow
	Washington
	Willowbrook / Rosa Parks
	Willow
Red	Hollywood / Highland
	Hollywood / Vine
	Hollywood / Western
	North Hollywood
	Universal City / Studio City
	Vermont / Beverly
	Vermont / Santa Monica
	Vermont / Sunset
Purple	Wilshire / Normandie
	Wilshire / Western
Green	Avalon
	Aviation LAX
	Crenshaw
	Douglas
	El Segundo
	Harbor Freeway
	Hawthorne / Lennox
	Lakewood
	Long Beach Boulevard
	Mariposa
	Norwalk
	Redondo Beach
	Vermont / Athens
Gold	Allen
	APU / Citrus College
	Arcadia
	Atlantic
	Azusa Downtown
	Chinatown
	Del Mar
	Duarte / City of Hope
	East LA Civic Center
	Fillmore
	Heritage Square
	Highland Park
	Indiana
	Irwindale
	Lake
	Lincoln / Cypress
	Little Tokyo / Arts District
	Maravilla
	Mariachi Plaza
	Memorial Park
	Monrovia
	Pico / Aliso
	Sierra Madre Villa
	Soto
	South Pasadena
	Southwest Museum
Expo	17th St / SMC
	26th St / Bergamot
	Culver City
	Downtown Santa Monica
	Expo / Bundy
	Expo / Crenshaw
	Expo / La Brea
	Expo / Sepulveda
	Expo / Vermont
	Expo / Western
	Expo Park / USC
	Farmdale
	Jefferson / La Cienega
	Jefferson / USC
	LATTC / Ortho Institute
	Palms
	Westwood / Rancho Park

Table 5.3 Tabulation of station areas by neighborhood type

Neighborhood Type	Station
High Density Downtown	7th Street / Metro Center
	Civic Center
	Little Tokyo / Arts District
	Pershing Square
	Union Station
Central Place	17th St / SMC
	1st Street Station
	26th St / Bergamot
	5th Street Station
	Anaheim St
	Atlantic
	Chinatown
	Culver City
	Del Mar
	Douglas
	Downtown Long Beach
	Downtown Santa Monica
	El Segundo
	Expo / Bundy
	Expo / Sepulveda
	Fillmore
	Grand / LATTC
	Hollywood / Highland
	Hollywood / Vine
	Hollywood / Western
	Jefferson / USC
	Lake
	LATTC / Ortho Institute
	Mariposa
	Memorial Park
	Pacific Avenue
	Pacific Coast Highway
	Pico
	Redondo Beach
	San Pedro St
	Universal City / Studio City
	Vermont / Beverly
	Vermont / Santa Monica
	Vermont / Sunset
	Washington
	Westlake / Macarthur Park
	Willow
	Wilshire / Normandie
	Wilshire / Vermont
	Wilshire / Western
Industrial/ Employment Center	Artesia
	Aviation LAX
Neighborhood Center	103rd Street Station
	APU / Citrus College
	Arcadia
	Compton
	Crenshaw
	Del Amo
	Duarte / City of Hope
	East LA Civic Center
	Expo / La Brea
	Expo / Vermont
	Expo / Western
	Expo Park / USC
	Farmdale
	Firestone
	Florence
	Hawthorne / Lennox
	Highland Park
	Indiana
	Irwindale
	Jefferson / La Cienega
	Long Beach Boulevard
	Maravilla
	Mariachi Plaza
	Monrovia
	North Hollywood
	Palms
	Pico / Aliso
	Sierra Madre Villa
	Slauson
	Soto
	Vernon
	Westwood / Rancho Park
	Willowbrook / Rosa Parks
Single Family Home Area	Allen
	Avalon
	Azusa Downtown
	Expo / Crenshaw
	Harbor Freeway
	Heritage Square
	Lakewood
	Lincoln / Cypress
	Norwalk
	South Pasadena
	Southwest Museum
	Vermont / Athens
	Wardlow

Table 5.4 Tabulation of station areas by years operating

Years Operating	Station
< 10 years	17th St / SMC
	26th St / Bergamot
	APU / Citrus College
	Arcadia
	Atlantic
	Azusa Downtown
	Culver City
	Downtown Santa Monica
	Duarte / City of Hope
	East LA Civic Center
	Expo / Bundy
	Expo / Crenshaw
	Expo / La Brea
	Expo / Sepulveda
	Expo / Vermont
	Expo / Western
	Expo Park / USC
	Farmdale
	Indiana
	Irwindale
	Jefferson / La Cienega
	Jefferson / USC
	LATTC / Ortho Institute
	Little Tokyo / Arts District
	Maravilla
	Mariachi Plaza
	Monrovia
	Palms
	Pico / Aliso
	Soto
	Westwood / Rancho Park
10 - 20 years	Allen
	Chinatown
	Del Mar
	Fillmore
	Heritage Square
	Highland Park
	Hollywood / Highland
	Hollywood / Vine
	Hollywood / Western
	Lake
	Lincoln / Cypress
	Memorial Park
	North Hollywood
	Sierra Madre Villa
	South Pasadena
	Southwest Museum
	Universal City / Studio City
	Vermont / Beverly
	Vermont / Santa Monica
	Vermont / Sunset
> 20 years	103rd Street Station
	1st Street Station
	5th Street Station
	7th Street / Metro Center
	Anaheim St
	Artesia
	Avalon
	Aviation LAX
	Civic Center
	Compton
	Crenshaw
	Del Amo
	Douglas
	Downtown Long Beach
	El Segundo
	Firestone
	Florence
	Grand / LATTC
	Harbor Freeway
	Hawthorne / Lennox
	Lakewood
	Long Beach Boulevard
	Mariposa
	Norwalk
	Pacific Avenue
	Pacific Coast Highway
	Pershing Square
	Pico
	Redondo Beach
	San Pedro St
	Slauson
	Union Station
	Vermont / Athens
	Vernon
	Wardlow
	Washington
	Westlake / Macarthur Park
	Willow
	Willowbrook / Rosa Parks
	Wilshire / Normandie
	Wilshire / Vermont
	Wilshire / Western

Table 5.5 Survey question response rankings for all 93 station areas

Institutional Planning Response Rates for All Respondents		Rank
General Plan Vision and Land Use Designations	**96.8%**	**1**
General Plan Land Use Policies and Actions	**96.8%**	**1**
TDM Ordinance	**81.7%**	**3**
Transportation Master Plans	**81.7%**	**3**
Incentives & Bonuses	**78.5%**	**5**
Building Standards and Design Guidelines	**73.1%**	**6**
Shared Parking	**62.4%**	**7**
Streetscape Standards and Design Guidelines	**49.5%**	**8**
Parking Minimums and Maximums	**48.4%**	**9**
Historic Preservation Tools	**48.4%**	**9**
Overlay Zoning	**47.3%**	**11**
Traffic Calming	**45.2%**	**12**
Metro TOD Planning Grant Program	**37.6%**	**13**
Community Design Overlays	**35.5%**	**14**
Bike Stations	**34.4%**	**15**
TOD Specific Plans	**34.4%**	**15**
Bicycle Sharing Programs	**31.2%**	**17**
Conventional Zoning	**26.9%**	**18**
Special Districts	**25.8%**	**19**
Joint Public/Private Development	**24.7%**	**20**
Minimum Densities	**24.7%**	**20**
Corridor Plans	**19.4%**	**22**
Form-Based Codes	**19.4%**	**22**
Fast Track Permitting, Fee Waivers, and Other Financial/Process Incentives	**11.8%**	**24**
Parking Management Districts	**10.8%**	**25**
TOD Housing Program	**9.7%**	**26**
Innovative Parking Design	**7.5%**	**27**
Car-Share Programs	**4.3%**	**28**
Parking Benefit Districts	**0.0%**	**29**

Color Key

Land Use and Planning questions
Transportation and Parking questions
Urban Design questions
Financing questions
Affordable Housing questions

Table 5.6 Survey question response rankings for City of Los Angeles station areas

Institutional Planning Response Rates for City of Los Angeles Respondents		Rank
General Plan Vision and Land Use Designations	100.0%	1
General Plan Land Use Policies and Actions	100.0%	1
Incentives & Bonuses	100.0%	1
TDM Ordinance	98.0%	4
Transportation Master Plans	98.0%	4
Building Standards and Design Guidelines	65.3%	6
Shared Parking	63.3%	7
Historic Preservation Tools	53.1%	8
Traffic Calming	53.1%	8
Parking Minimums and Maximums	49.0%	10
Community Design Overlays	38.8%	11
Minimum Densities	36.7%	12
Overlay Zoning	34.7%	13
Special Districts	28.6%	14
Joint Public/Private Development	24.5%	15
Bicycle Sharing Programs	22.4%	16
TOD Specific Plans	20.4%	17
Streetscape Standards and Design Guidelines	20.4%	17
Parking Management Districts	16.3%	19
Form-Based Codes	8.2%	20
Metro TOD Planning Grant Program	8.2%	20
Fast Track Permitting, Fee Waivers, and Other Financial/Process Incentives	8.2%	20
TOD Housing Program	8.2%	20
Bike Stations	8.2%	20
Corridor Plans	6.1%	25
Conventional Zoning	2.0%	26
Innovative Parking Design	0.0%	27
Car-Share Programs	0.0%	27
Parking Benefit Districts	0.0%	27

Color Key

Land Use and Planning questions
Transportation and Parking questions
Urban Design questions
Financing questions
Affordable Housing questions

Table 5.7 Survey question response rankings for station areas outside the City of Los Angeles

Institutional Planning Response Rates for All Other Respondents		Rank
General Plan Vision and Land Use Designations	93.2%	1
General Plan Land Use Policies and Actions	93.2%	1
Building Standards and Design Guidelines	81.8%	3
Streetscape Standards and Design Guidelines	81.8%	3
Metro TOD Planning Grant Program	70.5%	5
TDM Ordinance	63.6%	6
Transportation Master Plans	63.6%	6
Bike Stations	63.6%	6
Overlay Zoning	61.4%	9
Shared Parking	61.4%	9
Incentives & Bonuses	54.5%	11
Conventional Zoning	54.5%	11
TOD Specific Plans	50.0%	13
Parking Minimums and Maximums	47.7%	14
Historic Preservation Tools	43.2%	15
Bicycle Sharing Programs	40.9%	16
Traffic Calming	36.4%	17
Corridor Plans	34.1%	18
Community Design Overlays	31.8%	19
Form-Based Codes	31.8%	19
Joint Public/Private Development	25.0%	21
Special Districts	22.7%	22
Fast Track Permitting, Fee Waivers, and Other Financial/Process Incentives	15.9%	23
Innovative Parking Design	15.9%	23
TOD Housing Program	11.4%	25
Minimum Densities	11.4%	25
Car-Share Programs	9.1%	27
Parking Management Districts	4.5%	28
Parking Benefit Districts	0.0%	29

Color Key

Land Use and Planning questions

Transportation and Parking questions

Urban Design questions

Financing questions

Affordable Housing questions

Table 5.8 Summary statistics of Guttman Errors by Municipality Indicator

Comparing City of LA Station Areas to Other Station Areas

	Median Guttman Errors			
	Land Use and Planning	Transportation and Parking	Urban Design	Financing
City of Los Angeles Station Areas	1	0	0	1
All Other Station Areas	2	3	0	1

	Non-Zero Observations			
	Land Use and Planning	Transportation and Parking	Urban Design	Financing
City of Los Angeles Station Areas	49	49	32	38
All Other Station Areas	44	38	37	37

	Average Guttman Errors			
	Land Use and Planning	Transportation and Parking	Urban Design	Financing
City of Los Angeles Station Areas	1.24	1.27	0.41	1.05
All Other Station Areas	2.77	3.82	0.05	1.16

	Sample Variance of Guttman Errors			
	Land Use and Planning	Transportation and Parking	Urban Design	Financing
City of Los Angeles Station Areas	1.73	3.45	0.25	1.67
All Other Station Areas	6.41	9.24	0.05	0.53

Table 5.9 Summary statistics of Guttman Errors by Metro Line

Comparing Metro Lines

	Median Guttman Errors				Non-Zero Observations			
	Land Use and Planning	Transportation and Parking	Urban Design	Financing	Land Use and Planning	Transportation and Parking	Urban Design	Financing
Blue Line	1.5	2	0	1	22	22	21	21
Red Line	1	0	0	1	14	14	10	12
Purple Line	0	1	0	1	8	8	4	7
Green Line	2	2	0	1	13	8	7	8
Gold Line	2	2	0	1	27	26	20	20
Expo Line	2	2	0	1	19	19	15	15

	Average Guttman Errors			
	Land Use and Planning	Transportation and Parking	Urban Design	Financing
Blue Line	1.73	2.45	0.24	0.95
Red Line	0.86	1.07	0.00	1.25
Purple Line	0.00	1.50	0.00	1.00
Green Line	1.77	2.63	0.29	1.13
Gold Line	2.63	3.42	0.10	1.15
Expo Line	2.05	2.11	0.40	1.27

	Sample Variance of Guttman Errors			
	Land Use and Planning	Transportation and Parking	Urban Design	Financing
Blue Line	3.26	4.35	0.19	0.75
Red Line	1.67	3.15	0.00	1.30
Purple Line	0.00	4.29	0.00	2.00
Green Line	3.53	6.55	0.24	1.84
Gold Line	7.40	13.85	0.09	0.45
Expo Line	3.61	3.88	0.26	1.92

Table 5.10 Summary statistics of Guttman Errors by Neighborhood Type

Comparing Station Area Typology Categories

	Median Guttman Errors			
	Land Use and Planning	Transportation and Parking	Urban Design	Financing
High Density Downtown	0	2	0	1
Central Place	1	1	0	1
Neighborhood Center	2	2	0	1
Industrial/Employment Center	0	4	0	3
Single Family Home Area	3	1	0	1

	Non-Zero Observations			
	Land Use and Planning	Transportation and Parking	Urban Design	Financing
High Density Downtown	5	5	5	5
Central Place	40	37	28	34
Neighborhood Center	33	31	24	25
Industrial/Employment Center	2	2	1	2
Single Family Home Area	13	12	11	10

	Average Guttman Errors			
	Land Use and Planning	Transportation and Parking	Urban Design	Financing
High Density Downtown	0.00	3.40	0.00	1.00
Central Place	1.70	1.92	0.21	0.88
Neighborhood Center	2.45	3.16	0.25	1.40
Industrial/Employment Center	0.00	4.00	0.00	2.50
Single Family Home Area	2.62	1.08	0.27	0.80

	Sample Variance of Guttman Errors			
	Land Use and Planning	Transportation and Parking	Urban Design	Financing
High Density Downtown	0.00	3.80	0.00	0.50
Central Place	4.47	6.24	0.17	0.71
Neighborhood Center	5.51	10.34	0.20	1.25
Industrial/Employment Center	0.00	18.00	N/A	4.50
Single Family Home Area	1.59	1.90	0.22	1.51

Table 5.11 Summary statistics of Guttman Errors by Years Operating

Comparing Station Area Years Operating

	Median Guttman Errors			
	Land Use and Planning	**Transportation and Parking**	**Urban Design**	**Financing**
< 10 years	2	2	0	1
10-20 years	1	0	0	1
> 20 years	0.5	2	0	1

	Non-Zero Observations			
	Land Use and Planning	**Transportation and Parking**	**Urban Design**	**Financing**
< 10 years	31	30	23	23
10-20 years	20	20	15	17
> 20 years	42	37	31	35

	Average Guttman Errors			
	Land Use and Planning	**Transportation and Parking**	**Urban Design**	**Financing**
< 10 years	2.81	3.27	0.30	1.30
10-20 years	1.75	1.20	0.07	1.06
> 20 years	1.45	2.30	0.23	1.00

	Sample Variance of Guttman Errors			
	Land Use and Planning	**Transportation and Parking**	**Urban Design**	**Financing**
< 10 years	6.89	12.96	0.22	1.49
10-20 years	2.30	2.38	0.07	0.43
> 20 years	3.13	4.83	0.18	1.18

Table 5.12 T-statistics for Differences in Guttman Errors by Municipality Indicator

** p<0.10 ** p<0.05 *** p<0.01*

	Land Use and Planning t-stats (row MINUS column)	
Within City of LA		-3.59***
Outside City of LA		
	Within City of LA	**Outside City of LA**

	Transportation and Parking t-stats (row MINUS column)	
Within City of LA		-4.56***
Outside City of LA		
	Within City of LA	**Outside City of LA**

	Urban Design t-stats (row MINUS column)	
Within City of LA		3.67***
Outside City of LA		
	Within City of LA	**Outside City of LA**

	Financing t-stats (row MINUS column)	
Within City of LA		-0.45
Outside City of LA		
	Within City of LA	**Outside City of LA**

Table 5.13 *T-statistics for Differences in Guttman Errors by Metro Line*

** p<0.10 ** p<0.05 *** p<0.01*

Land Use and Planning t-stats (row MINUS column)						
Blue Line		1.68	4.49***	-0.06	-1.39	-0.56
Red Line			2.48**	-1.46	-2.83***	-2.15**
Purple Line				-3.40***	-5.02***	-4.71***
Green Line					-1.17	-0.42
Gold Line						0.85
Expo Line						
	Blue Line	**Red Line**	**Purple Line**	**Green Line**	**Gold Line**	**Expo Line**

Transportation and Parking t-stats (row MINUS column)						
Blue Line		2.13**	1.11	-0.17	-1.13	0.55
Red Line			-0.49	-1.52	-2.70**	-1.58
Purple Line				-0.97	-1.86*	-0.70
Green Line					-0.69	0.51
Gold Line						1.54
Expo Line						
	Blue Line	**Red Line**	**Purple Line**	**Green Line**	**Gold Line**	**Expo Line**

Urban Design t-stats (row MINUS column)						
Blue Line		2.50**	2.50**	-0.23	1.18	-1.00
Red Line			n/a	-1.55	-1.45	-3.06***
Purple Line				-1.55	-1.45	-3.06***
Green Line					0.94	-0.51
Gold Line						-2.03*
Expo Line						
	Blue Line	**Red Line**	**Purple Line**	**Green Line**	**Gold Line**	**Expo Line**

Financing t-stats (row MINUS column)						
Blue Line		-0.79	-0.08	-0.34	-0.82	-0.78
Red Line			0.40	0.22	0.28	-0.03
Purple Line				-0.17	-0.27	-0.41
Green Line					-0.05	-0.24
Gold Line						-0.30
Expo Line						
	Blue Line	**Red Line**	**Purple Line**	**Green Line**	**Gold Line**	**Expo Line**

Table 5.14 T-statistics for Differences in Guttman Errors by Neighborhood Type

** p<0.10 ** p<0.05 *** p<0.01*

Land Use and Planning t-stats (row MINUS column)				
High Density Downtown	-5.08***	-6.01***	n/a	-7.48***
Central Place		-1.43	5.08***	-1.89*
Neighborhood Center			6.01***	-0.30
Industrial/Employment Center				-7.48***
Single Family Home Area				
	High Density Downtown	**Central Place**	**Neighborhood Center**	**Industrial/Employment Center**	**Single Family Home Area**

Transportation and Parking t-stats (row MINUS column)				
High Density Downtown	1.54	0.23	-0.19	2.42*
Central Place		-1.75*	-0.69	1.46
Neighborhood Center			-0.27	2.96*
Industrial/Employment Center				0.96
Single Family Home Area				
	High Density Downtown	**Central Place**	**Neighborhood Center**	**Industrial/Employment Center**	**Single Family Home Area**

Urban Design t-stats (row MINUS column)				
High Density Downtown	n/a	-2.77**	n/a	-1.94*
Central Place		-0.30	n/a	-0.36
Neighborhood Center			n/a	-0.14
Industrial/Employment Center				n/a
Single Family Home Area				
	High Density Downtown	**Central Place**	**Neighborhood Center**	**Industrial/Employment Center**	**Single Family Home Area**

Financing t-stats (row MINUS column)				
High Density Downtown	0.34	-1.03	-0.98	0.40
Central Place		-1.94*	-1.07	0.20
Neighborhood Center			-0.73	1.34
Industrial/Employment Center				1.10
Single Family Home Area				
	High Density Downtown	**Central Place**	**Neighborhood Center**	**Industrial/Employment Center**	**Single Family Home Area**

Table 5.15 T-statistics for Differences in Guttman Errors by Years Operating

** p<0.10 ** p<0.05 *** p<0.01*

	Land Use and Planning t-stats (row MINUS column)		
< 10 years		1.82*	2.48**
10-20 years			0.68
> 20 years			
	< 10 years	**10-20 years**	**> 20 years**

	Transportation and Parking t-stats (row MINUS column)		
< 10 years		2.78***	1.29
10-20 years			-2.20**
> 20 years			
	< 10 years	**10-20 years**	**> 20 years**

	Urban Design t-stats (row MINUS column)		
< 10 years		2.00*	0.63
10-20 years			-1.57
> 20 years			
	< 10 years	**10-20 years**	**> 20 years**

	Financing t-stats (row MINUS column)		
< 10 years		0.82	0.97
10-20 years			0.24
> 20 years			
	< 10 years	**10-20 years**	**> 20 years**

Table 5.16 Sociodemographic Characteristics for Municipalities Surveyed

Sources: 2016 5-year ACS Tables DP05 and S1901

Municipality	Total Population	Median Household Income (2016 USD)	Share of Households with Income Below $10,000 (percentage points)	Share of Households that are Not "Non-Hispanic White Alone"[3] (percentage points)
Arcadia	57,755	83,958	5.8	76.5
Azusa	48,498	56,569	4.9	79.3
Compton	97,740	45,406	7.9	98.9
Culver City	39,395	82,000	4.7	52.0
Downey	113,223	65,332	4.4	85.3
Duarte	21,792	65,571	5.6	75.7
East Los Angeles	124,191	41,193	7	98.2
El Segundo	16,901	91,623	3.1	33.3
Florence-Graham	63,390	34,738	10.2	99.4
Hawthorne	86,938	45,089	6.3	90.7
Irwindale	1,319	55,000	3	95.4
Long Beach	469,793	55,151	6.6	72.3
Los Angeles	3,918,872	51,538	7.7	71.5
Lynwood	71,233	43,848	6	97.7
Monrovia	37,090	67,167	4.9	61.8
Norwalk	106,360	61,050	4.3	88.7
Pasadena	140,268	73,029	7.5	62.8
Redondo Beach	67,664	103,782	2.6	38.0
Santa Monica	92,247	82,123	5.8	34.6
South Pasadena	25,936	84,593	5.1	57.8
Willowbrook	22,035	38,070	7.5	99.0

[3] Where "Non-Hispanic White Alone" is official terminology employed by the U.S. Census Bureau.

Table 5.17 Factor Analysis Results by Survey Sub-section (Loadings Rotated to Maximize Variance)

Land Use and Planning Factors

	Granular Design Planning	General Zoning and Planning	District Zoning
General Plan Land Use Policies and Actions	0.17	0.81	-0.01
General Plan Vision and Land Use Designations	0.14	0.84	0.11
TOD Specific Plans	0.74	0.10	-0.14
Corridor Plans	0.84	0.00	0.14
Conventional Zoning	0.34	-0.64	0.11
Form-Based Codes	0.75	0.08	0.18
Overlay Zoning	0.30	-0.01	0.86
Minimum Densities	-0.14	0.09	0.86
Incentives & Bonuses	-0.37	0.55	0.33

Transportation and Parking Factors

	Bicycle Policies	Parking and Street Conditions	TDM Ordinance	VMT Reduction
Transportation Master Plans	0.19	0.13	0.52	0.71
Traffic Calming	0.11	0.82	0.04	-0.11
TDM Ordinance	0.02	0.08	0.91	0.07
Car-Share Programs	0.13	0.09	0.11	-0.91
Shared Parking	0.01	0.54	0.53	-0.20
Innovative Parking Design	0.55	0.37	-0.50	0.21
Parking Management Districts	-0.39	0.60	0.16	0.09
Parking Minimums and Maximums	0.38	0.57	0.03	0.31
Bicycle Sharing Programs	0.81	-0.02	0.19	0.12
Bike Stations	0.80	0.06	-0.09	-0.28

Urban Design Factors

	Urban Design
Building Standards and Design Guidelines	0.90
Streetscape Standards and Design Guidelines	0.74
Community Design Overlays	0.64

Financing Factors

	Reduced Entitlement Processes	TOD Programming	Special Overlay Financing
Fast Track Permitting, Fee Waivers, and Other Financial/Process Incentives	0.89	-0.01	0.09
Historic Preservation Tools	0.23	-0.01	0.84
Metro TOD Planning Grant Program	0.45	0.66	-0.13
Special Districts	-0.41	0.02	0.66
TOD Housing Program	-0.11	0.89	0.05

Table 5.18 Land Use and Planning Factor Scores (top and bottom deciles indicated by lines)

Station	City	Line	Years Operating	Neighborhood Type	Land Use & Planning Score
Artesia	Compton	Blue	28	Industrial/ Employment Center	3.46
Crenshaw	Los Angeles	Green	23	Neighborhood Center	3.46
Willobrook / Rosa Parks	Willowbrook	Blue	28	Neighborhood Center	3.46
26th St / Bergamot	Santa Monica	Expo	2	Central Place	2.76
Arcadia	Arcadia	Gold	2	Neighborhood Center	2.61
Expo / Crenshaw	Los Angeles	Expo	6	Single Family Home Area	2.58
Apu/Citrus College	Azusa	Gold	2	Neighborhood Center	2.57
Azusa Downtown	Azusa	Gold	2	Single Family Home Area	2.57
Atlantic	East Los Angeles	Gold	9	Central Place	2.18
East La Civic Center	East Los Angeles	Gold	9	Neighborhood Center	2.18
Indiana	East Los Angeles	Gold	9	Neighborhood Center	2.18
Maravilla	East Los Angeles	Gold	9	Neighborhood Center	2.18
17th St / Smc	Santa Monica	Expo	2	Central Place	2.17
Downtown Santa Monica	Santa Monica	Expo	2	Central Place	2.17
Duarte/City Of Hope	Duarte	Gold	2	Neighborhood Center	1.85
Monrovia	Monrovia	Gold	2	Neighborhood Center	1.49
103rd Street Station	Los Angeles	Blue	28	Neighborhood Center	0.95
Grand / Lattc	Los Angeles	Blue	28	Central Place	0.95
San Pedro St	Los Angeles	Blue	28	Central Place	0.95
Vernon	Los Angeles	Blue	28	Neighborhood Center	0.95
Washington	Los Angeles	Blue	28	Central Place	0.95
Expo / La Brea	Los Angeles	Expo	6	Neighborhood Center	0.95
Expo / Vermont	Los Angeles	Expo	6	Neighborhood Center	0.95
Expo / Western	Los Angeles	Expo	6	Neighborhood Center	0.95
Expo Park / Usc	Los Angeles	Expo	6	Neighborhood Center	0.95
Farmdale	Los Angeles	Expo	6	Neighborhood Center	0.95
Jefferson / La Cienega	Los Angeles	Expo	6	Neighborhood Center	0.95
Jefferson / Usc	Los Angeles	Expo	6	Central Place	0.95
Lattc / Ortho Institute	Los Angeles	Expo	6	Central Place	0.95
Avalon	Los Angeles	Green	23	Single Family Home Area	0.95
Harbor Freeway	Los Angeles	Green	23	Single Family Home Area	0.95
Florence	Florence-Graham	Blue	28	Neighborhood Center	0.92
Allen	Pasadena	Gold	15	Single Family Home Area	0.76
South Pasadena	South Pasadena	Gold	15	Single Family Home Area	0.67
Lake	Pasadena	Gold	15	Central Place	0.46
Chinatown	Los Angeles	Gold	15	Central Place	0.08
Heritage Square	Los Angeles	Gold	15	Single Family Home Area	0.08
Lincoln / Cypress	Los Angeles	Gold	15	Single Family Home Area	0.08
1St Street Station	Long Beach	Blue	28	Central Place	0.06
5th Street Station	Long Beach	Blue	28	Central Place	0.06
Downtown Long Beach	Long Beach	Blue	28	Central Place	0.06
Pacific Avenue	Long Beach	Blue	28	Central Place	0.06
Long Beach Boulevard	Lynwood	Green	23	Neighborhood Center	0.06
Universal City / Studio City	Los Angeles	Red	18	Central Place	0.04
Vermont / Athens	Los Angeles	Green	23	Single Family Home Area	-0.10
Lakewood	Downey	Green	23	Single Family Home Area	-0.12
Del Mar	Pasadena	Gold	15	Central Place	-0.13
Fillmore	Pasadena	Gold	15	Central Place	-0.13
Memorial Park	Pasadena	Gold	15	Central Place	-0.13
Sierra Madre Villa	Pasadena	Gold	15	Neighborhood Center	-0.13
Anaheim St	Long Beach	Blue	28	Central Place	-0.41
Pacific Coast Highway	Long Beach	Blue	28	Central Place	-0.41
Wardlow	Long Beach	Blue	28	Single Family Home Area	-0.41
Highland Park	Los Angeles	Gold	15	Neighborhood Center	-0.41
Hollywood / Highland	Los Angeles	Red	18	Central Place	-0.41
Hollywood / Vine	Los Angeles	Red	19	Central Place	-0.41
Hollywood / Western	Los Angeles	Red	19	Central Place	-0.41
North Hollywood	Los Angeles	Red	18	Neighborhood Center	-0.41
Vermont / Beverly	Los Angeles	Red	19	Central Place	-0.41
Vermont / Santa Monica	Los Angeles	Red	19	Central Place	-0.41
Vermont / Sunset	Los Angeles	Red	19	Central Place	-0.41
Norwalk	Norwalk	Green	23	Single Family Home Area	-0.73
Pico	Los Angeles	Blue, Expo	28	Central Place	-1.00
Expo / Bundy	Los Angeles	Expo	2	Central Place	-1.00
Expo / Sepulveda	Los Angeles	Expo	2	Central Place	-1.00
Palms	Los Angeles	Expo	2	Neighborhood Center	-1.00
Westwood / Rancho Park	Los Angeles	Expo	2	Neighborhood Center	-1.00
7th Street / Metro Center	Los Angeles	Expo, Purple, Red, Blue	27	High Density Downtown	-1.00
Little Tokyo / Arts District	Los Angeles	Gold	9	High Density Downtown	-1.00
Mariachi Plaza	Los Angeles	Gold	9	Neighborhood Center	-1.00
Pico / Aliso	Los Angeles	Gold	9	Neighborhood Center	-1.00
Soto	Los Angeles	Gold	9	Neighborhood Center	-1.00
Southwest Museum	Los Angeles	Gold	15	Single Family Home Area	-1.00
Union Station	Los Angeles	Gold, Purple, Red	25	High Density Downtown	-1.00
Aviation Lax	Los Angeles	Green	23	Industrial/ Employment Center	-1.00
Wilshire / Normandie	Los Angeles	Purple	22	Central Place	-1.00
Wilshire / Western	Los Angeles	Purple	22	Central Place	-1.00
Civic Center	Los Angeles	Purple, Red	25	High Density Downtown	-1.00
Pershing Square	Los Angeles	Purple, Red	25	High Density Downtown	-1.00
Westlake / Macarthur Park	Los Angeles	Purple, Red	25	Central Place	-1.00
Wilshire / Vermont	Los Angeles	Purple, Red	22	Central Place	-1.00
Firestone	Florence-Graham	Blue	28	Neighborhood Center	-1.17
Slauson	Florence-Graham	Blue	28	Neighborhood Center	-1.17
Douglas	El Segundo	Green	23	Central Place	-1.57
El Segundo	El Segundo	Green	23	Central Place	-1.57
Mariposa	El Segundo	Green	23	Central Place	-1.57
Compton	Compton	Blue	28	Neighborhood Center	-1.76
Irwindale	Irwindale	Gold	2	Neighborhood Center	-1.76
Del Amo	Compton	Blue	28	Neighborhood Center	-1.76
Culver City	Culver City	Expo	6	Central Place	-2.44
Hawthorne / Lennox	Hawthorne	Green	23	Neighborhood Center	-4.39
Willow	Long Beach	Blue	28	Central Place	-6.70
Redondo Beach	Redondo Beach	Green	23	Central Place	-6.70

Table 5.19 Transportation and Parking Factor Scores (top and bottom deciles indicated by lines)

Station	City	Line	Years Operating	Neighborhood Type	Transportation & Parking Score
Downtown Santa Monica	Santa Monica	Expo	2	Central Place	3.61
Hollywood / Vine	Los Angeles	Red	19	Central Place	2.70
Lake	Pasadena	Gold	15	Central Place	2.60
Apu/Citrus College	Azusa	Gold	2	Neighborhood Center	2.49
Azusa Downtown	Azusa	Gold	2	Single Family Home Area	2.49
Grand / Latte	Los Angeles	Blue	28	Central Place	2.28
San Pedro St	Los Angeles	Blue	28	Central Place	2.28
Washington	Los Angeles	Blue	28	Central Place	2.28
Monrovia	Monrovia	Gold	2	Neighborhood Center	2.14
Del Mar	Pasadena	Gold	15	Central Place	2.14
Fillmore	Pasadena	Gold	15	Central Place	2.14
Memorial Park	Pasadena	Gold	15	Central Place	2.14
Willobrook / Rosa Parks	Willowbrook	Blue	28	Neighborhood Center	2.03
17th St / Smc	Santa Monica	Expo	2	Central Place	2.03
26th St / Bergamot	Santa Monica	Expo	2	Central Place	2.03
Pico	Los Angeles	Blue, Expo	28	Central Place	1.72
7th Street / Metro Center	Los Angeles	Expo, Purple, Red, Blue	27	High Density Downtown	1.72
Civic Center	Los Angeles	Purple, Red	25	High Density Downtown	1.72
Pershing Square	Los Angeles	Purple, Red	25	High Density Downtown	1.72
Atlantic	East Los Angeles	Gold	9	Central Place	1.63
East La Civic Center	East Los Angeles	Gold	9	Neighborhood Center	1.63
Indiana	East Los Angeles	Gold	9	Neighborhood Center	1.63
Maravilla	East Los Angeles	Gold	9	Neighborhood Center	1.63
Expo / Crenshaw	Los Angeles	Expo	6	Single Family Home Area	1.61
Expo / La Brea	Los Angeles	Expo	6	Neighborhood Center	1.61
Farmdale	Los Angeles	Expo	6	Neighborhood Center	1.61
Jefferson / La Cienega	Los Angeles	Expo	6	Neighborhood Center	1.61
103rd Street Station	Los Angeles	Blue	28	Neighborhood Center	1.16
Vernon	Los Angeles	Blue	28	Neighborhood Center	1.16
Jefferson / Usc	Los Angeles	Expo	6	Central Place	1.16
Latte / Ortho Institute	Los Angeles	Expo	6	Central Place	1.16
Avalon	Los Angeles	Green	23	Single Family Home Area	1.16
Harbor Freeway	Los Angeles	Green	23	Single Family Home Area	1.16
Hollywood / Highland	Los Angeles	Red	18	Central Place	1.16
Hollywood / Western	Los Angeles	Red	19	Central Place	1.16
Vermont / Santa Monica	Los Angeles	Red	19	Central Place	1.16
Vermont / Sunset	Los Angeles	Red	19	Central Place	1.16
1St Street Station	Long Beach	Blue	28	Central Place	1.07
5th Street Station	Long Beach	Blue	28	Central Place	1.07
Anaheim St	Long Beach	Blue	28	Central Place	1.07
Downtown Long Beach	Long Beach	Blue	28	Central Place	1.07
Pacific Avenue	Long Beach	Blue	28	Central Place	1.07
Union Station	Los Angeles	Gold, Purple, Red	25	High Density Downtown	0.96
Vermont / Beverly	Los Angeles	Red	19	Central Place	0.60
Expo / Vermont	Los Angeles	Expo	6	Neighborhood Center	0.54
Expo / Western	Los Angeles	Expo	6	Neighborhood Center	0.54
Expo Park / Usc	Los Angeles	Expo	6	Neighborhood Center	0.54
Vermont / Athens	Los Angeles	Green	23	Single Family Home Area	0.54
Chinatown	Los Angeles	Gold	15	Central Place	0.53
Little Tokyo / Arts District	Los Angeles	Gold	9	High Density Downtown	0.53
Allen	Pasadena	Gold	15	Single Family Home Area	0.35
Sierra Madre Villa	Pasadena	Gold	15	Neighborhood Center	0.35
Aviation Lax	Los Angeles	Green	23	Industrial/ Employment Center	0.09
South Pasadena	South Pasadena	Gold	15	Single Family Home Area	0.09
Pacific Coast Highway	Long Beach	Blue	28	Central Place	-0.47
Wardlow	Long Beach	Blue	28	Single Family Home Area	-0.47
Wilshire / Normandie	Los Angeles	Purple	22	Central Place	-0.47
Wilshire / Western	Los Angeles	Purple	22	Central Place	-0.47
Wilshire / Vermont	Los Angeles	Purple, Red	22	Central Place	-0.47
Long Beach Boulevard	Lynwood	Green	23	Neighborhood Center	-0.71
North Hollywood	Los Angeles	Red	18	Neighborhood Center	-0.72
Willow	Long Beach	Blue	28	Central Place	-1.15
Expo / Bundy	Los Angeles	Expo	2	Central Place	-1.15
Expo / Sepulveda	Los Angeles	Expo	2	Central Place	-1.15
Palms	Los Angeles	Expo	2	Neighborhood Center	-1.15
Westwood / Rancho Park	Los Angeles	Expo	2	Neighborhood Center	-1.15
Heritage Square	Los Angeles	Gold	15	Single Family Home Area	-1.15
Highland Park	Los Angeles	Gold	15	Neighborhood Center	-1.15
Lincoln / Cypress	Los Angeles	Gold	15	Single Family Home Area	-1.15
Mariachi Plaza	Los Angeles	Gold	9	Neighborhood Center	-1.15
Pico / Aliso	Los Angeles	Gold	9	Neighborhood Center	-1.15
Soto	Los Angeles	Gold	9	Neighborhood Center	-1.15
Southwest Museum	Los Angeles	Gold	15	Single Family Home Area	-1.15
Westlake / Macarthur Park	Los Angeles	Purple, Red	25	Central Place	-1.15
Universal City / Studio City	Los Angeles	Red	18	Central Place	-1.15
Compton	Compton	Blue	28	Neighborhood Center	-1.32
Del Amo	Compton	Blue	28	Neighborhood Center	-1.32
Culver City	Culver City	Expo	6	Central Place	-1.87
Artesia	Compton	Blue	28	Industrial/ Employment Center	-2.20
Norwalk	Norwalk	Green	23	Single Family Home Area	-2.45
Crenshaw	Los Angeles	Green	23	Neighborhood Center	-2.88
Firestone	Florence-Graham	Blue	28	Neighborhood Center	-2.99
Florence	Florence-Graham	Blue	28	Neighborhood Center	-2.99
Slauson	Florence-Graham	Blue	28	Neighborhood Center	-2.99
Duarte/City Of Hope	Duarte	Gold	2	Neighborhood Center	-3.13
Arcadia	Arcadia	Gold	2	Neighborhood Center	-3.69
Redondo Beach	Redondo Beach	Green	23	Central Place	-3.95
Lakewood	Downey	Green	23	Single Family Home Area	-4.37
Douglas	El Segundo	Green	23	Central Place	-4.37
El Segundo	El Segundo	Green	23	Central Place	-4.37
Mariposa	El Segundo	Green	23	Central Place	-4.37
Hawthorne / Lennox	Hawthorne	Green	23	Neighborhood Center	-4.37
Irwindale	Irwindale	Gold	2	Neighborhood Center	-4.37

Table 5.20 Urban Design Factor Scores (top and bottom deciles indicated by lines)

Station	City	Line	Years Operating	Neighborhood Type	Urban Design Score
Apu/Citrus College	Azusa	Gold	2	Neighborhood Center	1.21
Azusa Downtown	Azusa	Gold	2	Single Family Home Area	1.21
Artesia	Compton	Blue	28	Industrial/ Employment Center	1.21
Duarte/City Of Hope	Duarte	Gold	2	Neighborhood Center	1.21
Atlantic	East Los Angeles	Gold	9	Central Place	1.21
East La Civic Center	East Los Angeles	Gold	9	Neighborhood Center	1.21
Indiana	East Los Angeles	Gold	9	Neighborhood Center	1.21
Maravilla	East Los Angeles	Gold	9	Neighborhood Center	1.21
Expo / Crenshaw	Los Angeles	Expo	6	Single Family Home Area	1.21
Expo / La Brea	Los Angeles	Expo	6	Neighborhood Center	1.21
Farmdale	Los Angeles	Expo	6	Neighborhood Center	1.21
Jefferson / La Cienega	Los Angeles	Expo	6	Neighborhood Center	1.21
Little Tokyo / Arts District	Los Angeles	Gold	9	High Density Downtown	1.21
Crenshaw	Los Angeles	Green	23	Neighborhood Center	1.21
Long Beach Boulevard	Lynwood	Green	23	Neighborhood Center	1.21
17th St / Smc	Santa Monica	Expo	2	Central Place	1.21
26th St / Bergamot	Santa Monica	Expo	2	Central Place	1.21
Downtown Santa Monica	Santa Monica	Expo	2	Central Place	1.21
Willobrook / Rosa Parks	Willowbrook	Blue	28	Neighborhood Center	1.21
Compton	Compton	Blue	28	Neighborhood Center	0.46
Lakewood	Downey	Green	23	Single Family Home Area	0.46
Firestone	Florence-Graham	Blue	28	Neighborhood Center	0.46
Florence	Florence-Graham	Blue	28	Neighborhood Center	0.46
Slauson	Florence-Graham	Blue	28	Neighborhood Center	0.46
1St Street Station	Long Beach	Blue	28	Central Place	0.46
5th Street Station	Long Beach	Blue	28	Central Place	0.46
Anaheim St	Long Beach	Blue	28	Central Place	0.46
Del Amo	Compton	Blue	28	Neighborhood Center	0.46
Downtown Long Beach	Long Beach	Blue	28	Central Place	0.46
Pacific Avenue	Long Beach	Blue	28	Central Place	0.46
Pacific Coast Highway	Long Beach	Blue	28	Central Place	0.46
Wardlow	Long Beach	Blue	28	Single Family Home Area	0.46
Pico	Los Angeles	Blue, Expo	28	Central Place	0.46
7th Street / Metro Center	Los Angeles	Expo, Purple, Red, Blue	27	High Density Downtown	0.46
Chinatown	Los Angeles	Gold	15	Central Place	0.46
Union Station	Los Angeles	Gold, Purple, Red	25	High Density Downtown	0.46
Monrovia	Monrovia	Gold	2	Neighborhood Center	0.46
Norwalk	Norwalk	Green	23	Single Family Home Area	0.46
Allen	Pasadena	Gold	15	Single Family Home Area	0.46
Del Mar	Pasadena	Gold	15	Central Place	0.46
Fillmore	Pasadena	Gold	15	Central Place	0.46
Lake	Pasadena	Gold	15	Central Place	0.46
Memorial Park	Pasadena	Gold	15	Central Place	0.46
Sierra Madre Villa	Pasadena	Gold	15	Neighborhood Center	0.46
South Pasadena	South Pasadena	Gold	15	Single Family Home Area	0.46
Arcadia	Arcadia	Gold	2	Neighborhood Center	0.38
103rd Street Station	Los Angeles	Blue	28	Neighborhood Center	0.38
Grand / Lattc	Los Angeles	Blue	28	Central Place	0.38
San Pedro St	Los Angeles	Blue	28	Central Place	0.38
Vernon	Los Angeles	Blue	28	Neighborhood Center	0.38
Washington	Los Angeles	Blue	28	Central Place	0.38
Expo / Vermont	Los Angeles	Expo	6	Neighborhood Center	0.38
Expo / Western	Los Angeles	Expo	6	Neighborhood Center	0.38
Expo Park / Usc	Los Angeles	Expo	6	Neighborhood Center	0.38
Jefferson / Usc	Los Angeles	Expo	6	Central Place	0.38
Lattc / Ortho Institute	Los Angeles	Expo	6	Central Place	0.38
Lincoln / Cypress	Los Angeles	Gold	15	Single Family Home Area	0.38
Avalon	Los Angeles	Green	23	Single Family Home Area	0.38
Harbor Freeway	Los Angeles	Green	23	Single Family Home Area	0.38
Vermont / Athens	Los Angeles	Green	23	Single Family Home Area	-0.37
Civic Center	Los Angeles	Purple, Red	25	High Density Downtown	-0.37
Pershing Square	Los Angeles	Purple, Red	25	High Density Downtown	-0.37
Hollywood / Highland	Los Angeles	Red	18	Central Place	-0.37
Hollywood / Vine	Los Angeles	Red	19	Central Place	-0.37
Hollywood / Western	Los Angeles	Red	19	Central Place	-0.37
Vermont / Beverly	Los Angeles	Red	19	Central Place	-0.37
Vermont / Santa Monica	Los Angeles	Red	19	Central Place	-0.37
Vermont / Sunset	Los Angeles	Red	19	Central Place	-0.37
Culver City	Culver City	Expo	6	Central Place	-0.68
Douglas	El Segundo	Green	23	Central Place	-1.51
El Segundo	El Segundo	Green	23	Central Place	-1.51
Mariposa	El Segundo	Green	23	Central Place	-1.51
Hawthorne / Lennox	Hawthorne	Green	23	Neighborhood Center	-1.51
Irwindale	Irwindale	Gold	2	Neighborhood Center	-1.51
Willow	Long Beach	Blue	28	Central Place	-1.51
Expo / Bundy	Los Angeles	Expo	2	Central Place	-1.51
Expo / Sepulveda	Los Angeles	Expo	2	Central Place	-1.51
Palms	Los Angeles	Expo	2	Neighborhood Center	-1.51
Westwood / Rancho Park	Los Angeles	Expo	2	Neighborhood Center	-1.51
Heritage Square	Los Angeles	Gold	15	Single Family Home Area	-1.51
Highland Park	Los Angeles	Gold	15	Neighborhood Center	-1.51
Mariachi Plaza	Los Angeles	Gold	9	Neighborhood Center	-1.51
Pico / Aliso	Los Angeles	Gold	9	Neighborhood Center	-1.51
Soto	Los Angeles	Gold	9	Neighborhood Center	-1.51
Southwest Museum	Los Angeles	Gold	15	Single Family Home Area	-1.51
Aviation Lax	Los Angeles	Green	23	Industrial/ Employment Center	-1.51
Wilshire / Normandie	Los Angeles	Purple	22	Central Place	-1.51
Wilshire / Western	Los Angeles	Purple	22	Central Place	-1.51
Westlake / Macarthur Park	Los Angeles	Purple, Red	25	Central Place	-1.51
Wilshire / Vermont	Los Angeles	Purple, Red	22	Central Place	-1.51
North Hollywood	Los Angeles	Red	18	Neighborhood Center	-1.51
Universal City / Studio City	Los Angeles	Red	18	Central Place	-1.51
Redondo Beach	Redondo Beach	Green	23	Central Place	-1.51

Table 5.21 Financing Factor Scores (top and bottom deciles indicated by lines)

City	Station	Line	Years Operating	Neighborhood Type	Financing Score
Los Angeles	Expo / Crenshaw	Expo	6	Single Family Home Area	4.38
Los Angeles	Hollywood / Vine	Red	19	Central Place	3.96
Long Beach	1St Street Station	Blue	28	Central Place	3.45
Long Beach	5th Street Station	Blue	28	Central Place	3.45
Long Beach	Anaheim St	Blue	28	Central Place	3.45
Long Beach	Downtown Long Beach	Blue	28	Central Place	3.45
Long Beach	Pacific Avenue	Blue	28	Central Place	3.45
Long Beach	Pacific Coast Highway	Blue	28	Central Place	3.45
Long Beach	Wardlow	Blue	28	Single Family Home Area	3.45
East Los Angeles	Atlantic	Gold	9	Central Place	3.25
East Los Angeles	East La Civic Center	Gold	9	Neighborhood Center	3.25
East Los Angeles	Indiana	Gold	9	Neighborhood Center	3.25
East Los Angeles	Maravilla	Gold	9	Neighborhood Center	3.25
Azusa	Apu/Citrus College	Gold	2	Neighborhood Center	1.89
Azusa	Azusa Downtown	Gold	2	Single Family Home Area	1.89
Santa Monica	Downtown Santa Monica	Expo	2	Central Place	1.89
Compton	Artesia	Blue	28	Industrial/ Employment Center	1.39
Los Angeles	Vermont / Athens	Green	23	Single Family Home Area	1.17
Downey	Lakewood	Green	23	Single Family Home Area	0.46
Los Angeles	Pico	Blue, Expo	28	Central Place	0.46
Los Angeles	7th Street / Metro Center	Expo, Purple, Red, Blue	27	High Density Downtown	0.46
Los Angeles	Chinatown	Gold	15	Central Place	0.46
Los Angeles	Lincoln / Cypress	Gold	15	Single Family Home Area	0.46
Los Angeles	Civic Center	Purple, Red	25	High Density Downtown	0.46
Los Angeles	Pershing Square	Purple, Red	25	High Density Downtown	0.46
Los Angeles	Hollywood / Highland	Red	18	Central Place	0.46
Monrovia	Monrovia	Gold	2	Neighborhood Center	0.46
Santa Monica	17th St / Smc	Expo	2	Central Place	0.46
Santa Monica	26th St / Bergamot	Expo	2	Central Place	0.46
Los Angeles	Expo / La Brea	Expo	6	Neighborhood Center	0.16
Los Angeles	Farmdale	Expo	6	Neighborhood Center	0.16
Los Angeles	Jefferson / La Cienega	Expo	6	Neighborhood Center	0.16
Lynwood	Long Beach Boulevard	Green	23	Neighborhood Center	0.03
Willowbrook	Willobrook / Rosa Parks	Blue	28	Neighborhood Center	0.03
Los Angeles	Crenshaw	Green	23	Neighborhood Center	-0.04
Los Angeles	Westlake / Macarthur Park	Purple, Red	25	Central Place	-0.04
Los Angeles	103rd Street Station	Blue	28	Neighborhood Center	-0.25
Los Angeles	Grand / Lattc	Blue	28	Central Place	-0.25
Los Angeles	San Pedro St	Blue	28	Central Place	-0.25
Los Angeles	Vernon	Blue	28	Neighborhood Center	-0.25
Los Angeles	Washington	Blue	28	Central Place	-0.25
Los Angeles	Expo / Vermont	Expo	6	Neighborhood Center	-0.25
Los Angeles	Expo / Western	Expo	6	Neighborhood Center	-0.25
Los Angeles	Expo Park / Usc	Expo	6	Neighborhood Center	-0.25
Los Angeles	Jefferson / Usc	Expo	6	Central Place	-0.25
Los Angeles	Lattc / Ortho Institute	Expo	6	Central Place	-0.25
Los Angeles	Avalon	Green	23	Single Family Home Area	-0.25
Los Angeles	Harbor Freeway	Green	23	Single Family Home Area	-0.25
Los Angeles	Wilshire / Normandie	Purple	22	Central Place	-0.25
Los Angeles	Wilshire / Western	Purple	22	Central Place	-0.25
Los Angeles	Wilshire / Vermont	Purple, Red	22	Central Place	-0.25
Los Angeles	Hollywood / Western	Red	19	Central Place	-0.25
Los Angeles	Vermont / Beverly	Red	19	Central Place	-0.25
South Pasadena	South Pasadena	Gold	15	Single Family Home Area	-0.25
Compton	Compton	Blue	28	Neighborhood Center	-0.69
Duarte	Duarte/City Of Hope	Gold	2	Neighborhood Center	-0.69
Florence-Graham	Firestone	Blue	28	Neighborhood Center	-0.69
Florence-Graham	Florence	Blue	28	Neighborhood Center	-0.69
Florence-Graham	Slauson	Blue	28	Neighborhood Center	-0.69
Irwindale	Irwindale	Gold	2	Neighborhood Center	-0.69
Long Beach	Willow	Blue	28	Central Place	-0.69
Los Angeles	Aviation Lax	Green	23	Industrial/ Employment Center	-0.69
Pasadena	Allen	Gold	15	Single Family Home Area	-0.69
Pasadena	Del Mar	Gold	15	Central Place	-0.69
Pasadena	Fillmore	Gold	15	Central Place	-0.69
Pasadena	Lake	Gold	15	Central Place	-0.69
Pasadena	Memorial Park	Gold	15	Central Place	-0.69
Pasadena	Sierra Madre Villa	Gold	15	Neighborhood Center	-0.69
Redondo Beach	Redondo Beach	Green	23	Central Place	-0.69
Culver City	Culver City	Expo	6	Central Place	-1.40
Los Angeles	Highland Park	Gold	15	Neighborhood Center	-1.40
Los Angeles	Little Tokyo / Arts District	Gold	9	High Density Downtown	-1.40
Los Angeles	North Hollywood	Red	18	Neighborhood Center	-1.40
Los Angeles	Vermont / Santa Monica	Red	19	Central Place	-1.40
Los Angeles	Vermont / Sunset	Red	19	Central Place	-1.40
Arcadia	Arcadia	Gold	2	Neighborhood Center	-2.12
El Segundo	Douglas	Green	23	Central Place	-2.12
El Segundo	El Segundo	Green	23	Central Place	-2.12
El Segundo	Mariposa	Green	23	Central Place	-2.12
Hawthorne	Hawthorne / Lennox	Green	23	Neighborhood Center	-2.12
Compton	Del Amo	Blue	28	Neighborhood Center	-2.12
Los Angeles	Expo / Bundy	Expo	2	Central Place	-2.12
Los Angeles	Expo / Sepulveda	Expo	2	Central Place	-2.12
Los Angeles	Palms	Expo	2	Neighborhood Center	-2.12
Los Angeles	Westwood / Rancho Park	Expo	2	Neighborhood Center	-2.12
Los Angeles	Heritage Square	Gold	15	Single Family Home Area	-2.12
Los Angeles	Mariachi Plaza	Gold	9	Neighborhood Center	-2.12
Los Angeles	Pico / Aliso	Gold	9	Neighborhood Center	-2.12
Los Angeles	Soto	Gold	9	Neighborhood Center	-2.12
Los Angeles	Union Station	Gold, Purple, Red	25	High Density Downtown	-2.12
Los Angeles	Universal City / Studio City	Red	18	Central Place	-2.12
Norwalk	Norwalk	Green	23	Single Family Home Area	-2.12

Chapter 6: Conclusions

With nearly three decades of transit development, the Los Angeles metropolitan area is in its TOD infancy compared to New York, which started such development more than a century ago. In fact, one could argue that LA's system is undergoing a growth spurt with construction of new lines and station development underway. This study narrowly examines institutional response and initiatives to support TOD implementation. We draw on qualitative interviews from seven case studies and quantitatively analyze policy landscape supporting TOD for 93 stations.

In the following section, we draw conclusions from our research. It should be noted that the small sample of qualitative interviews with seven municipalities prevents us from reaching definitive conclusions. Nevertheless, based on factor and Guttman analyses, and information we gleaned from the interviews, we are able to draw broad generalizations that we share herewith.

Plans & Policies Matter

The underlying driver for TOD are policies and plans – General Plans, Specific Plans, Community Plans, land use and zoning, overlays, and combinations thereof – that articulate community vision into goals, objectives, and performance criteria. A large city like Los Angeles with 44 stations is a prime example where over the last 25 plus years, the policy framework has directed new growth in centers or corridors, shaped station area development, and linked land use with transportation investments. Pasadena is yet another example where a coordinated set of citywide policies, whether transportation or public works or land use, have been integrated to create a network of TODs. Investments in transit create mobility options and encourage patterns of development that facilitate multimodal use. The lattice of policies at the local level creates the foundation for density, diversity, and design – key performance criteria for TODs. Citywide policies thus become instrumental in ensuring consistency, effectiveness in implementation, and flexibility in context-based planning.

Sophistication Develops Over Time

Municipalities become increasingly sophisticated on how they apply their policies to facilitate TOD over time. We observe this aspect in three ways. First, over time municipalities start applying the full palette of tools, policies, and best practices at their disposal to facilitate TOD. Second, with more experience, and by learning from doing, their decision-making process becomes less ad hoc and more systematic as revealed by fewer Guttman errors in policy application. Third, over time cities start experimenting and creating new strategies to address issues at the local level. For example, Los Angeles is considering hybrid zoning with an incentive structure, an innovative way to stimulate higher density development in the Bundy station area on the Expo Line. The approach clearly stems from Los Angeles City Planning staff drawing from a wealth of experience working in different neighborhood contexts over nearly three decades. Whether it relates to accessing funding or building inter-agency relationships or leveraging public-private partnerships or working with the community, our research shows that municipalities with more TOD experience perform better overall.

The Policy Conundrum?

While lack of TOD-supportive policies hinder development, their presence is not sufficient to spur TOD. Compton is an example where the obvious absence of policies has resulted in no TOD outcomes. The similar could be said of many stations on the Blue Line that have suffered due to benign neglect – lack of vision, community engagement, and implementation – that has invariably resulted in no there there. Yet in an odd way, places with adequate set of TOD policies have also languished with sub-optimal outcomes. Long Beach, and especially outside downtown Long Beach, has not been able to fully capitalize on TOD. What might be the reasons for such a phenomenon? Our interviews reveal lukewarm demand outside downtown Long Beach coupled with fierce community opposition to transit, in general, and density in particular. Community opposition harkens back to Metro's selection of station sites without community input that sowed seeds of long-term distrust of transit and TOD. Residents have perceived density with social change, fear of the outsider, and loss of property values. This disconnect reveals the fault lines between policy intentions and community perceptions, evidence of a resistant community and exasperated policy makers.

Intentionality & Predictability

Guttman analysis provides a measure of intentionality and predictability of TOD policy application. Fewer Guttman errors correspond to a higher coefficient of reproducibility. Our quantitative analysis reveals three main findings:

- First, the years of operation may be the most significant determinant of predictability (and potentially the level of intentionality) of station area planning policies. Station areas operating for more than 20 years had fewer Guttman errors than stations operating for 10-20 years or for less than 10 years. It appears that relatively "young" station areas may address issues in a more ad-hoc and less systematic way.
- Second, High Density Downtown station areas average significantly fewer Guttman errors than station areas in other neighborhood types in our Land Use and Planning sub-section scale. The underlying reason might be that such stations benefit from concerted land use planning and policy efforts to revitalize inner city/urban core in ways that Neighborhood Center stations do not.
- Third, station areas within the City of Los Angeles average significantly fewer Guttman errors in Land Use & Planning as well as Transportation & Parking sub-section scales compared to station areas outside the City of Los Angeles. We hypothesize that this is due to the relatively consistent application of policies across its station areas over the last 25 plus years. It appears, however, that the City has had a medley of urban design strategies for station areas as reflected in higher average Guttman errors in that sub-scale.

Path-Dependency and Policy Prioritization

Factor analysis identifies contrasting groups of station areas per the station areas' responses to four sub-sections of the survey: Land Use and Planning, Transportation and Parking, Urban Design, and Financing. Under Land Use and Planning, the contrasting groups of station areas are: (1) those station areas that are on the Gold line and have been operating for less than 10 years, and (2) those station areas that lie along the Blue or Green lines. Under Transportation and Parking, the contrasting groups are: (1) those station areas that are in "Central Area" neighborhoods, and (2) those station areas that lie along the Blue or Green lines and are in "Neighborhood Center" regions of South Los Angeles. Under Urban Design, the contrasting

groups are: (1) station areas that are outside of the City of Los Angeles, have been operating for fewer than 10 years, and thereby are on the Gold or Expo lines, which have high levels of intentionality of design; and (2) some station areas within the City of Los Angeles, which have low levels of intentionality of design. And under Financing, the contrasting groups are: (1) station areas in the City of Long Beach or East Los Angeles, which have relatively high access to financing, and (2) station areas in the City of Los Angeles or City of El Segundo, which have relatively low access to financing.

These results suggest two important dynamics determining station areas' characteristics across the Los Angeles region. First, the similarities across Blue and Green line station areas (under both Land Use and Planning as well as Transportation and Parking) appear to stem from their historical development along existing rights-of-way and planning/engineering decisions to place these lines' station areas above street level. It is possible that these historical events have produced path-dependent TOD, whereby certain policies become practical or impractical based on initial development conditions and/or planning decisions. If this is the case, it underscores the need for sophisticated planning of new station areas that takes such path-dependency into account.

Second, the results for Urban Design and Financing imply that the municipalities surveyed are prioritizing disparate TOD policies. Given the path-dependency noted above, it is possible that variations in station areas' emphasis on aesthetic design, as well as their levels of access to financing options, will result in differentiated TOD across the station areas. If this is the case, the factor analysis indicates that station areas within the City of Los Angeles will systematically differ from outside station areas, both in their design and their proximate housing environment.

TOD – A Byproduct of Economic Strength & Market Demand

TODs' relative success or failure is driven primarily by market demand. While public policies create an enabling environment, market demand provides signals on emerging opportunities in the marketplace. Local governments engage in public-private partnerships and often provide sweeteners to developers to leverage private sector investments. Their efforts notwithstanding, it is not enough to make TOD actually happen where the market will not go. For instance, there is lukewarm demand outside Downtown Long Beach or in Compton, where there is no measurable impact. In contrast, however, Los Angeles, Monrovia, Pasadena, and Santa Monica enjoy a healthy market demand for TODs. Developers build in Pasadena without almost any public subsidies, according to City staff. They point out that market demand has remained rather steady with developers building higher end expensive units in a booming economy and switching to rental units in times of economic slowdown. Yet they emphasize that the apparent success of TOD in Pasadena is driven by factors above and beyond the prescriptive policy framework. With a diverse and growing population, strong employer and industry base, a skilled labor force, proximity to world class educational institutions, a rich choice of cultural and entertainment amenities, state-of-the art infrastructure, and excellent location, Pasadena remains a highly desirable place to live and work. Add to this mix a pent up demand for housing; the rapid increase in housing sales price that has made the region increasingly unaffordable and priced out the large renter community. Those local factors and regional housing dynamics drive the demand for goods (housing) and services making transit-oriented, transit-adjacent, or transit-supportive development an inevitable byproduct of the city's overall economic strength. However, this is not unique to Pasadena. Monrovia, for example, is poised to build approximately 2,000 housing

units in the near future, a function of pent up market demand and facilitated by City's Planned District zoning, a flexible set of policies, and community buy-in. Similarly, many of the LA metropolitan area cities on various transit lines are well positioned to capitalize on building the next generation of TODs. The City of Inglewood anticipates new station development on the Crenshaw Line with cautious optimism knowing fully well that promises made to the community in the past were not delivered. Inglewood station will be nearly two miles away from the new $2.6 billion Rams and Chargers stadium, an arena for the Clippers, and an estimated 3,000 housing units projected to be built on the old Hollywood Park racetrack property. Clearly, Inglewood is on the cusp of economic renaissance with transit, among others, serving as a major catalyst. The question is how effectively can they (and other municipalities) capture this market demand for TOD and serve diverse market segments – singles, young families, seniors – with differentiated products (ownership, rental, and mixed-income) at different price points.

Finally, some general observations can be offered about the nature of planning responses toward transit-oriented development. The Gutman scores reflect a hiearachy of institutional responses toward TOD with varying degrees of predictability among jurisdictions as discussed previously. From the planner's perspective, the general plan instrument is the most readily available and state mandated policy instrument for land use disposition across the community. So, it is no surprise that the general plan instrument along with its common policy derivative such as the specific plan mechanism are the common tool for defining the TOD concept in space. Our findings show that other institutional tools involving urban design, traffic and parking management or active financial engagement are determined by local politics and interests. And this is why the initiatives for affordable housing, a need in the forefront of public discussion these days, remain scant in the policy visioning of TOD in Southern California.

Chapter 7: Appendices

Appendix 1: Example of Data Request on TOD policies

In the table below, please check all the transit-supportive policies that have applied to each of **Long Beach stations**.

	1st St.	5th St.	Anaheim St.	Del Amo	DTLB	Pacific Ave.	Pacific Coast Highway	Wardlow	Willow
Land Use and Planning									
General Plan Land Use Policies and Actions Designations									
General Plan Vision and Land Use									
TOD Specific Plans									
Corridor Plans									
Conventional Zoning									
Form-Based Codes									
Overlay Zoning									
Minimum Densities									
Incentives & Bonuses									
Transportation and Parking									
Transportation Master Plans									
Traffic Calming									
TDM Ordinance									
Car-Share Programs									
Shared Parking									
Innovative Parking Design									
Parking Benefit Districts									
Parking Management Districts									
Parking Minimums and Maximums									
Bicycle Sharing Programs									
Bike Stations									
Urban Design									
Building Standards and Design Guidelines									
Streetscape Standards and Design Guidelines									
Community Design Overlays									
Affordable Housing									
Inclusionary Zoning									

	1st St.	5th St.	Anaheim St.	Del Amo	DTLB	Pacific Ave.	Pacific Coast Highway	Wardlow	Willow
Linkage Fees									
Community Land Trusts									
Joint Public/Private Development									
Financing									
Affordable Housing and Sustainable Communities Program									
Caltrans Sustainable Transportation Planning Grant Program									
Fast Track Permitting, Fee Waivers, and Other Financial/Process Incentives									
Historic Preservation Tools									
Metro TOD Planning Grant Program									
New Markets Tax Credit									
Special Districts									
TOD Housing Program									

Source: Based on Metro's Transit Supportive Planning Toolkit

Appendix 2: Example of Data Request on 3 Ds in Case Station Area

The following questions concern ANAHEIM STATION ONLY (selected case study). Feel free to provide additional data for other stations if available, but Anaheim station is the one that has been selected for a case study.

1. What have been the ridership trends since the station opening? Could you please provide us with ridership data trends for **Anaheim St. station?**

2. Could you please provide us with information about all the joint developments that have occurred in the transit station area, i.e. within 0.5 mile of the station (approximately).

3. Could you please provide building permit activity trends data from station opening to now within the station area?
4. What have been the development outcomes within the station area? Could you please fill out the following table:

Development Type	Unit	Quantity
Commercial		
Office Space	Square footage	
Retail Space	Square footage	
Housing		
Market Rate Housing	# of units	
Affordable Housing	# of units	
Parking		
Bundled parking	# of spots	
Unbundled parking	# of spots	

5. Have any infrastructure investments been made to facilitate multi-modal integration in the station area? Could you please fill-out the following table:

Investment Type	Unit	Quantity
Investments		
Biking-supportive investments	US$	
Walking-supportive investments	US$	
Park-and-ride investments	US$	
Bus integration investments	US$	
Description		
Biking		
Bike lanes	# of lanes	
Bicycle racks	# of racks	
Bicycle storage	# bicycles (capacity)	
Bike share station	# bicycles (capacity)	
Walking		

Sidewalk Improvements	# sidewalks	
Signalization changes	# changes	
Crosswalks	# new or improved crosswalks	
Park-and-ride		
Park-and-ride facilities	Number of parking spots	
Occupancy rate	%	
Bus interface with station area	# new or improved interfaces	

6. Could you please share with us any policy document or technical studies that could shed light on transit supportive policies applicable for **Anaheim St.** station area?

THANK YOU FOR YOUR SUPPORT

Appendix 3: Semi-Directed Interview Guide

To be filled out by research team

a) **Meeting Date:**

b) **Meeting Location:**

c) **Participants:**

Name	Organization	Position

d) **Highlight city and station(s) to be focused on during meeting:**

City	Station	Year	Line	Classification
Culver City	Culver City	2012	Expo	Central Place
Long Beach	Anaheim St.	1990	Blue	Central Place
Pasadena	Del Mar	2003	Gold	Central Place
Los Angeles	Hollywood/Vine	1999	Red	Central Place
	7th St./ Metro Center	1991	Purple, Red, Blue, Expo	High Density Downtown
	Little Tokyo/ Arts District	2009	Gold	High Density Downtown
	Civic Center	1993	Red, Purple	High Density Downtown
	Expo/Crenshaw	2012	Expo	Neighborhood Center
	Highland Park	2003	Gold	Neighborhood Center
	North Hollywood	2000	Red	Neighborhood Center
	Crenshaw	1995	Green	Neighborhood Center
	Vermont/ Beverly	1999	Red	Single Family Home Area
	Lincoln Cypress	2003	Gold	Single Family Home Area
	Vernon	1990	Blue	Industrial/ Employment Center
S. Pasadena	South Pasadena	2003	Gold	Single Family Home Area
Compton	Artesia	1990	Blue	Industrial/ Employment Center

Other city/station (if not included in table of selected stations):

Appendix 4: TOD Policy by City

	Compton	*Inglewood*	*Long Beach*
General plan update	Current effort.	no - TOD zones can exceed the max. presented in the general plan	yes - allowed City to invest in more multi-modal options and to improve existing conditions
Zoning change	none	embracing mixed-use zoning; no inclusionary zoning to not slow development	yes - inclusionary zoning to get more affordable units
Overlay zone	none	none	none - specific plans
Specific plan	Developing now for 2 stations with Metro grants	yes - downtown and Fairview Heights TOD plans (2/3 stations)	yes - allows opportunities to outline specific zones for TOD policies, assess env'tl impact, and develop vision (Long Beach Blvd)
Design guidelines	none	yes - TOD can give concessions for providing certain building amenities that change design; also maintaing city character thru streetscape	yes - street design in Downtown Specific Plan but not yet built
Application of TDR	n/a	none	FAR rules did not need to be changed
Capital improvements	planning these through TOD specific plans, notably ped access to Artesia station	none - no transit stations builts yet	yes - TOD/ped master plan, City has identified most disadvantaged areas to focus improvements
Joint development agreements with transit authority	n/a	yes - County owns building in Fairview Heights that City is collaborating with Metro to develop site	none with Metro; one joint development project made possible by Midtown Specific Plan
Density bonus	none	yes - currently 10 projects underway with density bonuses	none
Reduced parking req'ts	none - still has parking minimums city-wide	yes - reduced req'ts for aff. housing in TOD zone; some reductions near transit for residential	yes - a lot of public opposition but have unbundled in some areas and lowered parking supply in downtown
Fee waivers	n/a	n/a	n/a
Facilitate parcel assembly	depends on TOD specific plans; general plan is too outdated	some - one mega project proposed that would combine 3 lots	n/a
Location Efficient Mortgages	n/a	n/a	n/a
MTA planning grant	yes - 2 for station-area specific plans	yes - TOD plan; provided main communication line with Metro and	received MTA grants but not sure what for

	Compton	*Inglewood*	*Long Beach*
		benchmark of what other cities have done with TOD	
Special zoning provisions	n/a	none	none
Coordination with private sector	consultants are doing their analysis to determine basis of specific plans	consultants give City ideas of best practices	minimal - City interacts with developers and knows they are not receiving same attention as LA, SM, or Pasadena
Inter-agency/department collaboration	close ties to Metro through grant assistance; communication with other cities; minimal relationship with SCAG	Metro through grant assistance	more collaboration and communication with surrounding cities, particularly Compton; signficant coordination within City to replicate TOD vision across departments
Coordination of TOD resources/integration	city badly needs market-rate housing and new development that can change city's reputation; hope in TOD plans	development is coming in big wave to Inglewood and city is maximizing it by implementing TOD policies around new rail lines	no specific planning help but City of LB acts as a resource for TOD/ped projects in region

TOD Policy by City Continued

	Los Angeles	*Monrovia*	*Pasadena*	*Santa Monica*
General plan update	yes - general plan in 1996 set TOD precedent but there are updates as needed	in 2008 - City made specific station plans with particular vision	in 2015 - reinforced original general plan with TOD elements and addressed concerns of over-development	not since receiving transit; last general plan in 2010 and guided station area planning
Zoning change	yes - Bundy Triangle and other "hybrid zones" that fit local context	planned development zoning is basically flexible zoning	minimal - City sticks to 2004 zoning update and doesn't make exceptions; people are waiting on zoning change in South Fair Oaks to build more housing	none; inclusionary housing req'ts are fundamental to any project in SM and not changed for TOD
Overlay zone	yes - moving to this through specific plans; some have been adopted in community plans	none	sometimes - all of central district is TOD zone; stations near protected neighborhoods are not	parking overlay zone within 1/4 mile of Expo stations
Specific plan	yes	no - didn't want anything that would go against the market at any given point	yes - sets level of density with caps; updating all 8 currently	yes - Downtown; Bergamont Plan is one that was adopted but not implemented due to community's shift
Design guidelines	yes - minimum street wall heights (for density)	very general - gives City flexibility and leverage; allowed	yes - SCAG helped to develop their design guidelines; just	not really - specific plans lay out design to match area; must

	Los Angeles	*Monrovia*	*Pasadena*	*Santa Monica*
		for developer to make southern connection to Gold Line stop	finished Complete Streets guidelines	be "human scale" in urban design approach
Application of TDR	n/a	some within PD areas have FAR of 2.5; rare	may increase FAR as way of developer building public amenities	FAR interacts with LUCE and requires things like setbacks if used
Capital improvements	n/a	new bike plan in the works	yes - sidewalks, bike lanes, parks, amenities that are all part of TOD's success and livability	increased bikeways that has inspired greater multi-modality; attributable to high Expo ridership too
Joint development agreements with transit authority	kind of - Metro spearheaded funding mechanisms (measure m/r)	n/a	not with Metro - initial joint development to prove Pasadena's potential for development; no need to demonstrate this anymore	n/a
Density bonus	sort of - bonus development rights to developers for building affordable housing	no density cap, so it's hard to apply density bonus; just starting to apply them to very high-density projects	yes - usually only up to 1 extra floor	n/a
Reduced parking req'ts	working on lowering parking minimum and have worked around parking req'ts around transit	none	yes - prior to 2004	a lot of resistance to changing parking; started changing parking and lieu fees in 1980s
Fee waivers	n/a	n/a	n/a	n/
Facilitate parcel assembly	none	n/a	n/a	n/a
Location Efficient Mortgages	n/a	n/a	n/a	n/a
MTA planning grant	yes	none - chose not to because wanted to maintain very flexible guidelines	none	none
Special zoning provisions	none - each big project has to do their own EIRs but City is moving away from this	none	none - City sticks to their codes	n/a
Coordination with private sector	n/a	very pro-market approach and working with developers for case-by-case basis	Memorial Park station was PPP and got a lot of recognition as successful mixed-use project	minimal PPPs because city owns very little re/developable land;

	Los Angeles	*Monrovia*	*Pasadena*	*Santa Monica*
Inter-agency/department collaboration	often collaborates with Metro and SCAG as land use authority; Metro runs bike share; Metro gets input from cities for alignment	n/a	SCAG thru sustainability grant; initial collaboration with other cities (JPA) to get Gold Line built; inter-dept collaboration to focus on density	received Metro funds for station area funds, meant to remove barriers to TOD
Coordination of TOD resources/integration	holistic approach that evaluates projects at district-level and to distribute growth evenly across city	SGV cities work well together	n/a	looked to other cities for TOD policies and practices

To be asked during meeting, not necessarily in this order.
Ask for permission to record the interview.

I. Overview

1. Could you please give us an overview of the station area's history, before and after opening?
2. What are the main features of the station area today?
3. Did you get a chance to fill out the preliminary questionnaire we shared with you prior to the meeting? If yes, can we see it?

II. Focus on TOD Policies

4. Have there been any specific institutional arrangements put in place in your locality to promote transit-oriented development (TOD)?
5. What has been the role of the role of the agency(ies) you represent relative to TOD in your locality?
6. Let's review the checklist of transit supportive policies (PART A – Table p. 4). For each policy:
    a. When was it adopted?
    b. What were the motivations?
    c. Did it face any political opposition?
    d. What is the scope of application?
7. Have any of the policies been adopted in response to:
    a. SCAG's Compass Plan?
    b. RHNA goals?
8. Has there been any community outreach to promote TOD policies? If yes, what kind?
9. What has been the community response
    a. To transit development in general?
    b. To TOD policies?
10. Do you consider TOD a policy goal for your city?

III. Focus on Transportation Planning

11. Could you please give us an overview of the process that led to the selection of the station's current location? Why this location?
12. How proactive was the city in the location selection process?
13. What role did your organization play in this process?
14. What has been the parking policy for the station area?
15. What percentage of the land in the station area is publicly owned? By whom?

IV. TOD Outcomes

16. Can part of the ridership increase be attributed to transit-supportive planning policies? If yes, what policy(ies) in particular?
17. How would you qualify real estate market responses to transit development in the station area (in terms of pace, timing, volume, for example)?
18. How have these developments compared with local expectations?
19. How integrated is the transit station with other transportation modes, considering the parking situation, park-and-ride facilities, walking conditions, biking facilities, bus connections, in the station area?
20. How does your locality address the first/last mile issue?
21. Have the demographics of the station area changed since the station opening?
22. Has employment density increased?
23. Has the nature of retail and services changed in the station area?
24. Is part of the station area used as public space? If yes, how so?
25. Have there been any significant effort to develop public space in the station area? If yes, please explain.
26. Would you say that transit development has transformed the sense of place in the area? If yes, how so?
27. Do you think transit development has contributed to gentrification in your locality?

References

Babsin, M. (1997). *Real estate trends and transit oriented development: A compendium for 21 metro regions.* (). Berkeley, CA: UC Berkeley, Institute of Urban and Regional Development.

Badland, H., White, M., Macaulay, G., Eagleson, S., Mavoa, S., Pettit, C., & Giles-Corti, B. (2013). Using simple agent-based modeling to inform and enhance neighborhood walkability. *International Journal of Health Geographics, 12*(1), 58. doi:10.1186/1476-072X-12-58

Baker, D. M., & Lee, B. (2017). How does light rail transit (LRT) impact gentrification? evidence from fourteen US urbanized areas. *Journal of Planning Education and Research,* , 739456. doi:10.1177/0739456X17713619

Banai, R. (1998). The new urbanism: An assessment of the core commercial areas, with perspectives from (retail) location and land-use theories, and the conventional wisdom. *Environment and Planning B: Planning and Design, 25*(2), 169-185. doi:10.1068/b250169

Banerjee, T., & Baer, W. C. (2013). *Beyond the neighborhood unit: Residential environments and public policy* Springer Science & Business Media.

Bartholomew, K., & Ewing, R. (2011). Hedonic price effects of pedestrian- and transit-oriented development. *Journal of Planning Literature, 26*(1), 18-34. doi:10.1177/0885412210386540

Belzer, D., Srivastava, S., Wood, J., & Greenberg, E. (2011). *Transit-oriented development (TOD) and employment.* (). Washington, DC: Reconnecting America: Center for Transit-Oriented Development. Retrieved from http://reconnectingamerica.org/assets/Uploads/TODandEmploymentFINALMay2011.pdf

Bernick, M. S., & Freilich, A. E. (1998). Transit villages and transit-based development: The rules are becoming more Flexible—How government can work with the private sector to make it happen. *The Urban Lawyer, 30*(1), 1-31. Retrieved from https://www.jstor.org/stable/27895100

Bernick, M., & Cervero, R. (1997). *Transit villages in the 21st century*. New York, NY: McGraw-Hill.

Bernick, M., & Robert Cervero. (1997). *Transit villages in the 21st century*

Boarnet, M. G., Bostic, R. W., Eisenlohr, A., Rodnyansky, S., Santiago-Bartolomei, R., & Jamme, H. W. (2018). The joint effects of income, vehicle technology, and rail transit access on greenhouse gas emissions. *Transportation Research Record,* , 0361198118787087.

Boarnet, M. G., & Compin, N. S. (1999). Transit-oriented development in san diego county: the incremental implementation of a planning idea. *Journal of the American Planning Association, 65*(1), 80. doi:10.1080/01944369908976035

Boarnet, M. G., & Crane, R. (1998). Public finance and transit-oriented planning: New evidence from southern california. *Journal of Planning Education and Research, 17*(3), 206-219. doi:10.1177/0739456X9801700302

Bostic, R., Boarnet, M., Rodnyansky, S., Santiago-Bartolomei, R., & Leslie, C. (2016). *Developing affordable housing guidelines near rail transit in los angeles.* (). Los Angeles, CA: METRANS Transportation Center. Retrieved from https://www.metrans.org/sites/default/files/research-project/15-13%20Final%20Report_Bostic.pdf

Bragado, N. (1999). Transit joint development in san diego: Policies and practices. *Transportation Research Record: Journal of the Transportation Research Board, 1669*, 22-29. doi:10.3141/1669-03

California Housing Partnership Corporation. (2013). *Building and preserving affordable homes near transit: Affordable TOD as a greenhouse gas reduction and equity strategy.* (). San Francisco, CA: California Housing Partnership Corporation. Retrieved from https://ahcd.assembly.ca.gov/sites/ahcd.assembly.ca.gov/files/hearings/CA%20Housing%20Partnership%20Corporation%20Paper.pdf

Calthorpe, P. (1993). *The next american metropolis: Ecology community, and the american dream* Princeton architectural press.

Cao, X. (., & Lou, S. (2017). When and how much did the green line LRT increase single-family housing values in st. paul, minnesota? *Journal of Planning Education and Research,* doi:10.1177/0739456X17707811

Cervero, R., & Kockelman, K. (1997). Travel demand and the 3Ds: Density, diversity, and design. *Transportation Research Part D: Transport and Environment, 2*(3), 199-219.

Cervero, R. (1994, Transit villages: From idea to implementation. *ACCESS Magazine, 1*

Cervero, R. (1998). *The transit metropolis: A global inquiry*. Washington, DC: Island Press. Retrieved from http://catalog.hathitrust.org/Record/004006216

Cervero, R. (2004). *Transit-oriented development in the united states: Experiences, challenges, and prospects.* (No. 102). Washington, DC: Transit Cooperative Research Program (TCRP).

Cervero, R., & Dai, D. (2014). BRT TOD: Leveraging transit oriented development with bus rapid transit investments. *Transport Policy, 36*, 127-138.

Cervero, R., & Duncan, M. (2002a). Benefits of proximity to rail on housing markets: Experiences in santa clara county. *Journal of Public Transportation, 5*(1)

Cervero, R., & Duncan, M. (2002b). Transit's value-added effects: Light and commuter rail services and commercial land values. *Transportation Research Record: Journal of the Transportation Research Board, 1805*, 8-15. doi:10.3141/1805-02

Cervero, R., Ferrell, C., & Murphy, S. (2002a). Transit-oriented development and joint development in the united states: A literature review. *TCRP Research Results Digest,* (52)

Cervero, R., Ferrell, C., & Murphy, S. (2002b). *Transit-oriented development and joint development in the united states: A literature review.* (). Washington, DC: Transit Cooperative Research Program (TCRP).

Chapple, K., Loukaitou-Sideris, A., Waddell, P., Chatman, D., & Ong, P. (2017). *Developing a new methodology for analyzing potential displacement.* (). Berkeley, CA: California Air Resources Board.

Clagett, M. T. (2014). If it's not mixed-income, it won't be transit-oriented: Ensuring our future developments are equitable & promote transit. *Transportation Law Journal, 41*, 1.

Dittmar, H., & Ohland, G. (2012). *The new transit town: Best practices in transit-oriented development* Island Press.

Dong, H. (2017). Rail-transit-induced gentrification and the affordability paradox of TOD. *Journal of Transport Geography, 63*, 1-10. doi:10.1016/j.jtrangeo.2017.07.001

Duncan, M. (2011a). The impact of transit-oriented development on housing prices in san diego, CA. *Urban Studies, 48*(1), 101-127. doi:10.1177/0042098009359958

Duncan, M. (2011b). The synergistic influence of light rail stations and zoning on home prices. *Environment and Planning A, 43*(9), 2125-2142. doi:10.1068/a43406

Dunphy, R. T., Cervero, R., Dock, F. C., McAvery, M., Porter, D. R., & Swenson, C. J. (2004). *Developing around transit: Strategies and solutions that work*

Dunphy, R. T., & Porter, D. R. (2006). Manifestations of development goals in transit-oriented projects. *Transportation Research Record: Journal of the Transportation Research Board, 1977*(1), 172-178. doi:10.1177/0361198106197700120

Fan, Y., & Guthrie, A. (2013). *Achieving system-level, transit-oriented jobs-housing balance: Perspectives of twin cities developers and business leaders.* (). Washington, DC: U.S. Department of Housing and Urban Development (HUD). Retrieved from https://conservancy.umn.edu/bitstream/handle/11299/190065/CTS%2013-24.pdf?sequence=1&isAllowed=y

FTA Department of Housing and Urban Development, & Office of Policy Development and Research. (2008). *Better coordination of transportation and housing programs to promote affordable housing near transit.* (). Washington, DC: Federal Transit Administration. Retrieved from https://www.huduser.gov/publications/pdf/better_coordination.pdf

Gard, J. (2007). Innovative intermodal solutions for urban transportation paper award: Quantifying transit-oriented development's ability to change travel behavior. *Institute of Transportation Engineers. ITE Journal, 77*(11), 42. Retrieved from https://search.proquest.com/docview/224891749

Golub, A., Guhathakurta, S., & Sollapuram, B. (2012). Spatial and temporal capitalization effects of light rail in phoenix. *Journal of Planning Education and Research, 32*(4), 415-429. doi:10.1177/0739456X12455523

Great Communities Collaborative. (2007). *Transit-oriented for all: The case for mixed income transit oriented communities in the bay area.* (). Berkeley, CA: Center for Community Innovation. Retrieved from https://communityinnovation.berkeley.edu/sites/default/files/gccframingpaper_final.pdf?width=1200&height=800&iframe=true

Guadagnoli, E., & Velicer, W. F. (1988). Relation of sample size to the stability of component patterns. *Psychological bulletin*, *103*(2), 265.

Guthrie, A., & Fan, Y. (2013). Streetcars and recovery: an analysis of post-katrina building permits around new orleans streetcar lines. *Journal of Planning Education and Research, 33*(4), 381-394. doi:10.1177/0739456X13504300

Guthrie, A., & Fan, Y. (2016). Developers' perspectives on transit-oriented development. *Transport Policy, 51*, 103-114. doi:10.1016/j.tranpol.2016.04.002

Hess, D., & Lombardi, P. (2004a). Policy support for and barriers to transit-oriented development in the inner city: Literature review. *Transportation Research Record: Journal of the Transportation Research Board,* (1887), 26-33.

Hess, D., & Lombardi, P. (2004b). Policy support for and barriers to transit-oriented development in the inner city: Literature review. *Transportation Research Record: Journal of the Transportation Research Board, 1887*, 26-33. doi:10.3141/1887-04

Higgins, C. D., & Kanaroglou, P. S. (2016). A latent class method for classifying and evaluating the performance of station area transit-oriented development in the toronto region. *Journal of Transport Geography, 52*, 61-72. doi:10.1016/j.jtrangeo.2016.02.012

Huang, R., Moudon, A. V., Zhou, C., Stewart, O. T., & Saelens, B. E. (2017). Light rail leads to more walking around station areas. *Journal of Transport & Health,*

Kim, D., Park, J., & Hong, A. (2018). The role of destination's built environment on nonmotorized travel behavior: A case of long beach, california. *Journal of Planning Education and Research, 38*(2), 152-166. doi:10.1177/0739456X16688765

Knaap, G. J., Ding, C., & Hopkins, L. D. (2001). Do plans matter? the effects of light rail plans on land values in station areas. *Journal of Planning Education and Research, 21*(1), 32-39. doi:10.1177/0739456X0102100103

Laham, M. L., & Noland, R. B. (2017). Nonwork trips associated with transit-oriented development. *Transportation Research Record, 2606*(1), 46-53. doi:10.3141/2606-06

Landis, J., Cervero, R., & Hall, P. (1991). Transit joint development in the USA: An inventory and policy assessment. *Environment and Planning C: Government and Policy, 9*(4), 431-452.

Loukaitou-Sideris, A. (2001). Transit-oriented development in the inner city: A delphi survey. *Journal of Public Transportation, 3*(2), 75-98. doi:10.5038/2375-0901.3.2.5

Loukaitou-Sideris, A., & Banerjee, T. (1996, There's no there there: Or why neighborhoods don't readily develop near light-rail transit stations. *ACCESS Magazine, 1* Retrieved from http://www.accessmagazine.org/wp-content/uploads/sites/7/2016/07/access09-01-theres-no-there-there.pdf

Loukaitou-Sideris, A., & Banerjee, T. (2000). 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), 101-125. doi:10.1080/713683964

Loukaitou-Sideris, A., Higgins, H., Cuff, D., & Oprea, D. (2013). Up in the air: Urban design for light rail transit stations in highway medians. *Journal of Urban Design, 18*(3), 313. Retrieved from https://search.proquest.com/docview/1371920732

Manville, M., Taylor, B., & Blumenberg, E. (January, 2018). Falling transit ridership: California and Southern California. Retrieved from https://www.scag.ca.gov/Documents/ITS_SCAG_Transit_Ridership.pdf

Marx, P. L., Stallsmith, E., & Zimmerman, M. (2006). Developing transit: Transit-oriented development, joint development and housing. *Mass Transit, 5*

Mathur, S., & Ferrell, C. (2009). *Effect of suburban transit oriented developments on residential property values.* (). San Jose, CA: Mineta Transportation Institute, San José State University. Retrieved from http://www.reconnectingamerica.org/assets/Uploads/effectssuburbantransit2009.pdf

Nasri, A., & Lei Zhang.The analysis of transit-oriented development (TOD) in washington DC and baltimore metropolitan areas. *{Transport} Policy 32,*

Nelson, D., & John Niles. (1999). *Essentials for transit-oriented development planning: Analysis of non-work activity patterns and a method for predicting success* In Proceeding of the Seventh National Conference of the Transportation Research on the Application of Transportation Planning Methods, Boston.

Noland, R. B., & DiPetrillo, S. (2015). Transit-oriented development and the frequency of modal use. *Journal of Transport and Land Use, 8*(2), 21-44. doi:10.5198/jtlu.2015.517

Noland, R. B., Ozbay, K., DiPetrillo, S., & Iyer, S. (2014). *Measuring benefits of transit oriented development.* (). San Jose, CA: Mineta National Transit Research Consortium. Retrieved from http://transweb.sjsu.edu/sites/default/files/1142-measuring-TOD-benefits.pdf

Palm, M., & Niemeier, D. (2016). *The effect that state and federal housing policies have on vehicle miles of travel.* (). Davis, CA: National Center for Sustainable Transportation, UC Davis Institute of Transportation Studies (ITS). Retrieved from https://ncst.ucdavis.edu/wp-content/uploads/2015/09/11-10-2016-FINAL-The-Effect-that-State-and-Federal-Housing-Policies-Have-on-Vehicle-Miles-of-Travel.pdf

Park, Y., Huang, S., & Newman, G. D. (2016). A statistical meta-analysis of the design components of new urbanism on housing prices. *Journal of Planning Literature, 31*(4), 435-451. doi:10.1177/0885412216667898

Parker, T. (2001a). *Statewide transit-oriented development study: Factors for success in california. * (). Sacramento, CA: California Department of Transportation. Retrieved from http://www.dot.ca.gov/hq/MassTrans/Docs-Pdfs/TOD-Study-Final-Rpt.pdf

Parker, T. (2001b). *Transit oriented development: A strategy for making transit work better.* (No. 3). Sacramento, CA: California Department of Transportation.

Parker, T. (2002a). *Statewide transit-oriented development study: Factors for success in california*

Parker, T. (2002b). *Statewide transit-oriented development study: Factors for success in california: Final report.* (). Sacramento, CA: California Department of Transportation.

Perry, C. A. (1929). City planning for neighborhood life. *Social Forces, 8*(1), 98-100.

Reconnecting America. (2004). *Hidden in plain sight: Capturing the demand for housing near transit.* (). Washington, DC: Reconnecting America: Center for Transit-Oriented Development. Retrieved from http://www.reconnectingamerica.org/assets/Uploads/2004Ctodreport.pdf

Reconnecting America. (2007). *Proactive strategies for mixed-income housing near transit.* (). Washington, DC: Reconnecting America.

Renne, J. L. (2016). *Transit oriented development: Making it happen* Routledge.

Renne, J. L., Hamidi, S., & Ewing, R. (2016). Transit commuting, the network accessibility effect, and the built environment in station areas across the united states. *Research in Transportation Economics, 60*, 35-43. doi:10.1016/j.retrec.2017.02.003

Renne, J., & Newman, P. (2002). Ideas in motion: Facilitating the financing and development of "smart growth". *Transportation Quarterly, 56*(2)

Rohe, W. M. (2009). From local to global: One hundred years of neighborhood planning. *Journal of the American Planning Association, 75*(2), 209-230. doi:10.1080/01944360902751077

Sandoval, G. F. (2016). *Making transit-oriented development work in low-income latino neighborhoods: A comparative case study of boyle heights los angeles and logan heights.* (). Portland, OR: National Institute for Transportation and Communities. Retrieved from https://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?article=1122&context=trec_reports

Sandoval, G. F., & Herrera, R. (2015). *Transit-oriented development and equity in latino neighborhoods: A comparative case study of MacArthur park (los angeles) and fruitvale (oakland).* (). Portland, OR: National Institute for Transportation and Communities.

Saunders, B., & Smith, K. (2014). *Quality of life, (e)quality of place: Growing local economies through equitable transit-oriented development.* (). Chicago, IL: Open Communities and the Center for Neighborhood Technology (CNT). Retrieved from https://www.cnt.org/sites/default/files/publications/CNT_OpenCommunities_QualityOfLifeEqualityOfPlace.pdf

Schlossberg, M., & Brown, N. (2004). Comparing transit-oriented development sites by walkability indicators. *Transportation Research Record: Journal of the Transportation Research Board,* (1887), 34-42.

Schuetz, J., Genevieve Giuliano, & Eun Jin Shin. (2016). *Is los angeles becoming transit oriented?*

Schuetz, J., Giuliano, G., & Shin, E. J. (2016). *Is los angeles becoming transit oriented?* (). Washington, DC: The Federal Reserve Board. Retrieved from Social Science Premium Collection Retrieved from https://search.proquest.com/docview/1820844211

Schuetz, J., Giuliano, G., & Shin, E. J. (2018). Does zoning help or hinder transit-oriented (re)development? *Urban Studies, 55*(8), 1672-1689. doi:10.1177/0042098017700575

Suzuki, H., Murakami, J., Hong, Y., & Tamayose, B. (2015). *Financing transit-oriented development with land values: Adapting land value capture in developing countries* World Bank Publications.

Talen, E., & Knaap, G. (2003). Legalizing smart growth: An empirical study of land use regulation in illinois. *Journal of Planning Education and Research, 22*(4), 345-359. doi:10.1177/0739456X03022004002

Tumlin, J., Millard-Ball, A., Zucker, C., & Siegman, P. (2003, May 1,). How to make transit-oriented development work. *Planning, 69*, 14. Retrieved from https://search.proquest.com/docview/206716759

Vale, D. S. (2015). Transit-oriented development, integration of land use and transport, and pedestrian accessibility: Combining node-place model with pedestrian shed ratio to evaluate and classify station areas in lisbon. *Journal of Transport Geography, 45*, 70-80. doi:10.1016/j.jtrangeo.2015.04.009

Van Schuur, W. H. (2011). *Ordinal item response theory: Mokken scale analysis* (Vol. 169). Chapter 3: The imperfect cumulative scale. Sage Publications: Thousand Oaks, CA.

Weinstein Agrawal, A., Schlossberg, M., & Irvin, K. (2008). How far, by which route and why? A spatial analysis of pedestrian preference. *Journal of Urban Design, 13*(1), 81-98. doi:10.1080/13574800701804074

White, W., Freilich Attorney, & Leitner, C. (1999). *The zoning and real estate implication of transit-oriented development, legal research digest.* (). Washington, DC: TCRP Transit Cooperative Research Program. Retrieved from http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_lrd_12.pdf

Zhang, W., Wang, F., Barchers, C., & Lee, Y. (2018). The impact of transit-oriented development on housing value resilience: Evidence from the city of atlanta. *Journal of Planning Education and Research, *, 739456. doi:10.1177/0739456X18787011

Zuo, T., Wei, H., & Rohne, A. (2018). Determining transit service coverage by non-motorized accessibility to transit: Case study of applying GPS data in cincinnati metropolitan area. *Journal of Transport Geography, 67*, 1-11. doi:10.1016/j.jtrangeo.2018.01.002