
University of California Transportation Center
UCTC-FR-2012-05

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Lessons from Southern California**

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April 2012

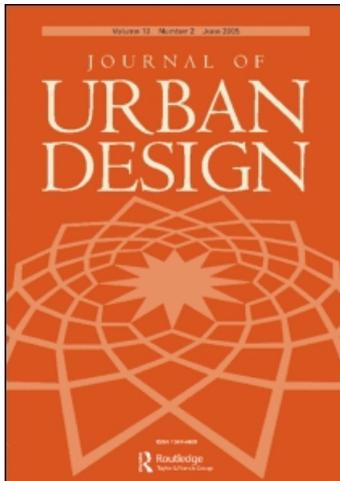
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Publisher Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Journal of Urban Design

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713436528>

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Online publication date: 18 January 2010

To cite this Article Loukaitou-Sideris, Anastasia(2010) 'A New-found Popularity for Transit-oriented Developments? Lessons from Southern California', Journal of Urban Design, 15: 1, 49 – 68

To link to this Article: DOI: 10.1080/13574800903429399

URL: <http://dx.doi.org/10.1080/13574800903429399>

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A New-found Popularity for Transit-oriented Developments? Lessons from Southern California

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ABSTRACT *In the late 1980s and early 1990s a number of academics and planners enthusiastically espoused the concept of transit-oriented development (TOD), but actual construction and implementation of TOD projects was slow to follow. Empirical studies of the time showed that new transit lines had a rather timid effect in triggering new development along their corridors. This seems to have changed in recent years, and many more TOD projects have started appearing along new railway corridors. The study uses two light rail lines in Los Angeles County to explain the new-found popularity of TODs. Drawing from interviews with architects, planners and developers, the study outlines the new opportunities but also challenges faced by transit-oriented development today.*

Introduction

When the idea of transit oriented development (TOD) entered the lexicon of planning in the late 1980s, it was enthusiastically endorsed by some planners and academics who viewed TODs as a way of mitigating the ubiquity of sprawl and as a strategy for smart growth (Calthorpe, 1993; Cervero, 1994; Bernick, 1996; Bernick & Cervero, 1997). Actual implementation of TOD projects, however, was slow to follow as developers and funding institutions were hesitant about the level of public acceptance and marketability of such projects especially in regions that seemed to be married to the private automobile (Boarnet & Crane, 1998; Loukaitou-Sideris & Banerjee, 2000).

Twenty years later, however, the concept of TOD is no longer 'academic'. Many housing and mixed-use projects have appeared in close proximity to stations and more are on the drawing boards or at various stages of the approval and development process (Dittmar & Ohland, 2004). Municipalities, Metropolitan Planning Organizations and many developers are enthusiastic about building near transit. Why has development around transit become popular? Which are the motivations and incentives but also the constraints and problems of building adjacent to stations? Why have two light rail lines in the same region had different impacts on the urban form of their adjacent neighbourhoods? Finally, what are the necessary antecedents and appropriate strategies for attracting development around stations and along transit corridors?

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To address these questions we will first give a brief overview of the literature of the effects of light rail on urban form. We will then turn to our empirical studies and draw from the experiences of two transit lines which represent the first and last built segments of Los Angeles County's metro rail system: The Blue Line and the Gold Line.

The Effect of Rail Transit on Urban Form: A Brief Literature Review

From the mid-19th till the early 20th century the effect of rail transit on the urban form of the American city has been undisputed and catalytic. Mass transit in the form of streetcars and electric elevated railways expanded the metropolitan landscape opening up outlying areas for settlement and spurring urban growth along its routes (Chudacoff & Smith, 2005). In fact, the sprawling urban form of Los Angeles, which many attribute to the building of the freeway network, was moulded in the wake of the 20th century by Henry Huntington's railroad lines.

In these early days, the passing of a railway line through an area was enough to trigger development. Not so with more recent railway lines. A number of empirical studies conducted in the 1980s and 1990s have shown that the presumption of transit-induced development did not materialize along many transit corridors. Indeed, researchers found that the land use effects of several US urban rail systems constructed in the 1980s and 1990s were quite weak (Webber, 1976; Knight & Trygg, 1977; Gomez-Ibanez, 1985; Dunphy, 1995; Landis *et al.*, 1995; Landis & Zhang, 1995; Cervero & Landis, 1997; Loukaitou-Sideris & Banerjee, 2000; Cervero & Duncan, 2002). The inability of rail investments to stimulate development and revitalization was attributed to the secondary role played by rail transit in the transportation system of contemporary US cities (Giuliano, 1995), the high cost and difficulty of assembling urban land for infill TOD development (Luscher, 1995), neighbourhood opposition to densification (Parsons Brinckenhoff Quade & Douglass, 1996; Project for Public Spaces, 1997), the difficulty of land assemblage from multiple land owners and parcels (Cervero *et al.*, 1994), and the difficulty of overlaying transit on pedestrian- and transit-unfriendly environments, configured for automobiles (Cervero & Kockelman, 1997; Project for Public Spaces, 1997). Researchers also outlined additional economic obstacles, such as the difficulty of ensuring financing for TOD projects, which in the 1990s were still perceived as having questionable market viability (Cervero *et al.*, 1994). Despite these obstacles some researchers argued that rail transit could promote development along its routes if certain pre-conditions existed. These included an expanding local economy and buoyant local real estate market, supportive local policies and zoning, the availability of developable land around stations, and transit system maturation and connectivity (Knight & Trygg, 1977; Cervero, 1984; Gomez-Ibanez, 1985; Cervero *et al.*, 2004).

In the wake of the 21st century many US cities have witnessed significant rates of TOD development. Some cities have even witnessed the construction of TODs in designated station areas, even prior to the actual building of a transit line. According to a recent comprehensive study of TOD development in the USA:

Most of the evidence suggests that being near transit enhances property values and rents. ... Residential properties within an easy walk of light-rail stops are once again hot commodities. Many are fully leased and quite a few command top-dollars (Cervero *et al.*, 2004, p. 161)

In general, experiences show that mixed-use projects in walking-friendly settings served intensively by transit produce healthy real estate results. ... When combined with higher-than-typical densities, consumer retail and services, and pedestrian amenities, proximity to transit can confer land-value benefits that are well above those of competitive markets. (Cervero *et al.*, 2004, pp. 164–165).

What has changed in the course of the last decade and why this new-found popularity of TODs? To better understand the change we will use the examples of two light rail lines in Los Angeles County. The Blue Line opened in 1990 as the first 22-mile increment of a long-awaited light rail system, connecting downtown Los Angeles to downtown Long Beach. The line used existing, but largely unused tracks of an earlier system. While the line has been operating for 19 years it has not been able to realize its development potential of creating vibrant transit station neighbourhoods (Livable Places, 2002). With the exception of a few TODs, especially near the Long Beach stations, there has been little development along the Blue Line corridor. In contrast, the Gold Line, which opened in July 2003 linking downtown Los Angeles to Pasadena, has generated considerable development activity around many of its stations, although it has not yet reached its projected capacity in terms of transit trips. Why is there this difference in the development activity along these two lines? For an answer, we conducted in-depth interviews with planners of the Blue Line and 12 developers, six architects and seven planners involved in TOD projects along the Gold Line.

The 'Blue Line Blues'

The Blue Line opened with considerable fanfare on 14 July 1990. When the Blue Line was still at a conceptual stage of development, rail advocates emphasized the various benefits, in addition to mobility, that the line could bring to the depressed inner city neighbourhoods it was passing through, but when we studied the line, 10 years after its inauguration, we found empty fields and classical inner city decay in the vicinity of many stations. We argued that the line was suffering from the 'Blue Line blues', which was a combination of four types of problems and a number of missing antecedents for economic development, whose combined presence was halting development and positive change around its stations (Loukaitou-Sideris & Banerjee, 2000).

Development along the line was hindered by *planning problems*, which included a general lack of planning by municipalities and jurisdictions in anticipation of the line, and a lack of coordination among the different public-sector agencies to instigate joint development opportunities. *Environmental problems* that plagued development in the vicinity of Blue Line stations included an abundance of contaminated sites and incompatible land uses. Much of the land along the corridor was simply not fit for new housing or neighbourhood development or it was zoned for uses not compatible with TODs. The *social and structural problems* and obstacles that beset many inner city communities—poverty, unemployment, crime and gang violence—defined a negative image for investment in many of the Blue Line's station neighbourhoods. Being populated mostly by minority and immigrant residents these neighbourhoods were also lacking the political clout and ability to voice their opinions in public hearings or demand housing, commercial and mixed use projects. Finally, *economic problems* such as the high cost

of land near stations combined with a general lack of development incentives frustrated development along the line (Loukaitou-Sideris & Banerjee, 2000).

The Blue Line corridor represented a clear case of 'missing antecedents' or lacking preconditions for TODs (Loukaitou-Sideris & Banerjee, 2000, p. 114). These included: (1) the back door location of many stations, which are located in the industrial backlot of metropolitan Los Angeles, away from the centre of communities; (2) an absence of a critical mass of density near station areas; (3) a lack of a good interface with other transportation modes that led to the poor accessibility of many stations; (4) pedestrian unfriendly stations lacking good pedestrian connections to the surrounding neighbourhoods; (5) a lack of an overall urban design framework or vision for station area development; (6) a landscape of deprivation in the immediate station neighbourhoods and a general lack of desirable neighbourhood amenities; (7) regulatory barriers such as antiquated zoning and a lengthy permitting process; (8) lack of institutional commitment and missed opportunities for land acquisition and joint development from the part of municipalities and transportation agency; and (9) a lack of community involvement and participation in the planning process (Loukaitou-Sideris & Banerjee, 2000).

As we will detail in the next sections, many of these antecedents were present, when the Gold Line started operation. As a result, this line's impact on adjacent development has been substantial.

The Gold Line's Golden Opportunities

The Gold Line is so far the last installment of Los Angeles' light rail network. Inaugurated on 6 July 2003, the line covers 13.7 miles connecting the cities of Pasadena and South Pasadena and the northeastern portion of Los Angeles to the Union Station transit hub on the northern edge of downtown Los Angeles. The line traverses a broad cross-section of neighbourhoods as it passes through Chinatown, the diverse communities along the historic Arroyo Seco and 110 Freeway corridor, the affluent residential neighbourhoods of South Pasadena and Old Town Pasadena, and extends eastward along the 210 Freeway right-of-way to the end of the line at the Sierra Madre Villa station (Figure 1).

More than 70 000 people crowded into the Gold Line cars on the inauguration day, nearly overwhelming a system designed to regularly carry less than half that amount. After the excitement died down, however, ridership has not yet come close to the levels predicted by transportation planners. Projections were for 38 000 weekday boardings by the end of 2005, but the line has on average 22 390 passenger weekday boardings, substantially fewer than the Blue Line, which has an average of 72 010 average passenger weekday boardings (Los Angeles County Metropolitan Transportation Authority, 2009).

The communities along the Gold Line vary by demographic and socio-economic characteristics. The station areas with the highest population density include the Heritage Square/Arroyo and Highland Park stations in northeastern Los Angeles (over 17 000 persons per square mile), while the lower residential densities near stations in South Pasadena and Pasadena are consistent with the more suburban character of these communities. Los Angeles station areas tend to have a higher percentage of foreign-born residents and households that are linguistically isolated. The Chinatown station area has the highest composition of seniors over 65 years of age (30%) and Asian/Pacific Islander residents (83%),

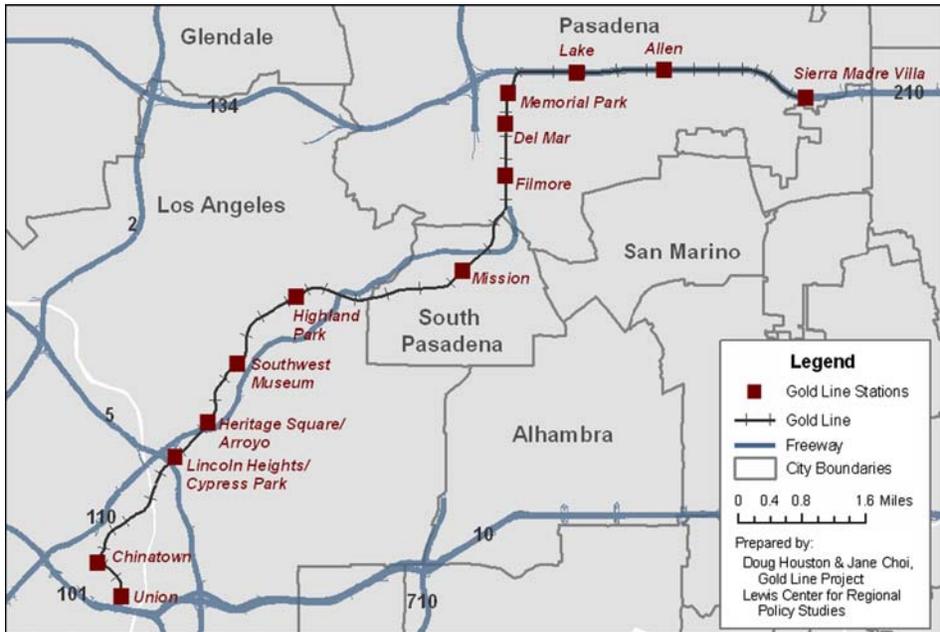


Figure 1. Gold Line alignment

while the other Los Angeles stations tend to be comprised of more children, more family households and more Hispanic residents (Figure 2). With the exception of the Southwest Museum station area, communities in northeastern Los Angeles tend to have higher poverty rates (over 20%), more households receiving public assistance (over 10%), and a lower level of educational achievement than the station areas in South Pasadena and Pasadena (Figures 2–3).

The distribution of existing land uses along the Gold Line varies substantially across stations (Figure 4). The predominant land uses of the corridor are residential and commercial. Unlike the rest of the stations, the Union station area had no residential uses in 2005, and was dominated by government offices and bus terminals, correctional institutions and transportation facilities. The Chinatown station area had a relatively small proportion of residential uses and sizeable commercial land uses, while Lincoln Heights had a small percentage of residential uses with sizeable industrial uses. Station areas along the central portion of the line from Heritage Square/Arroyo north to the Mission station area were predominantly residential (over 50%), as were the Lake and Allen station areas on the eastern end of the line. The Fillmore, Del Mar and Sierra Madre Villa stations had the highest mix of residential and commercial uses, and the Memorial Park had a low level of residential uses and the highest percentage of commercial uses (over 50%).

The anticipation of and eventual construction of the Gold Line triggered some significant development activity of TOD projects (Figures 5 and 6). Station areas as a whole averaged a 3% change in existing land use type from 2000 to 2005.¹ About 4% of the area near Union station was under residential construction. The Chinatown had the highest percentage of land use change from 2000 to 2005 (just over 9%). Over 4% of the Lincoln Heights/Cypress Park station area was under construction, with a number of new residential projects (apartments and condos).

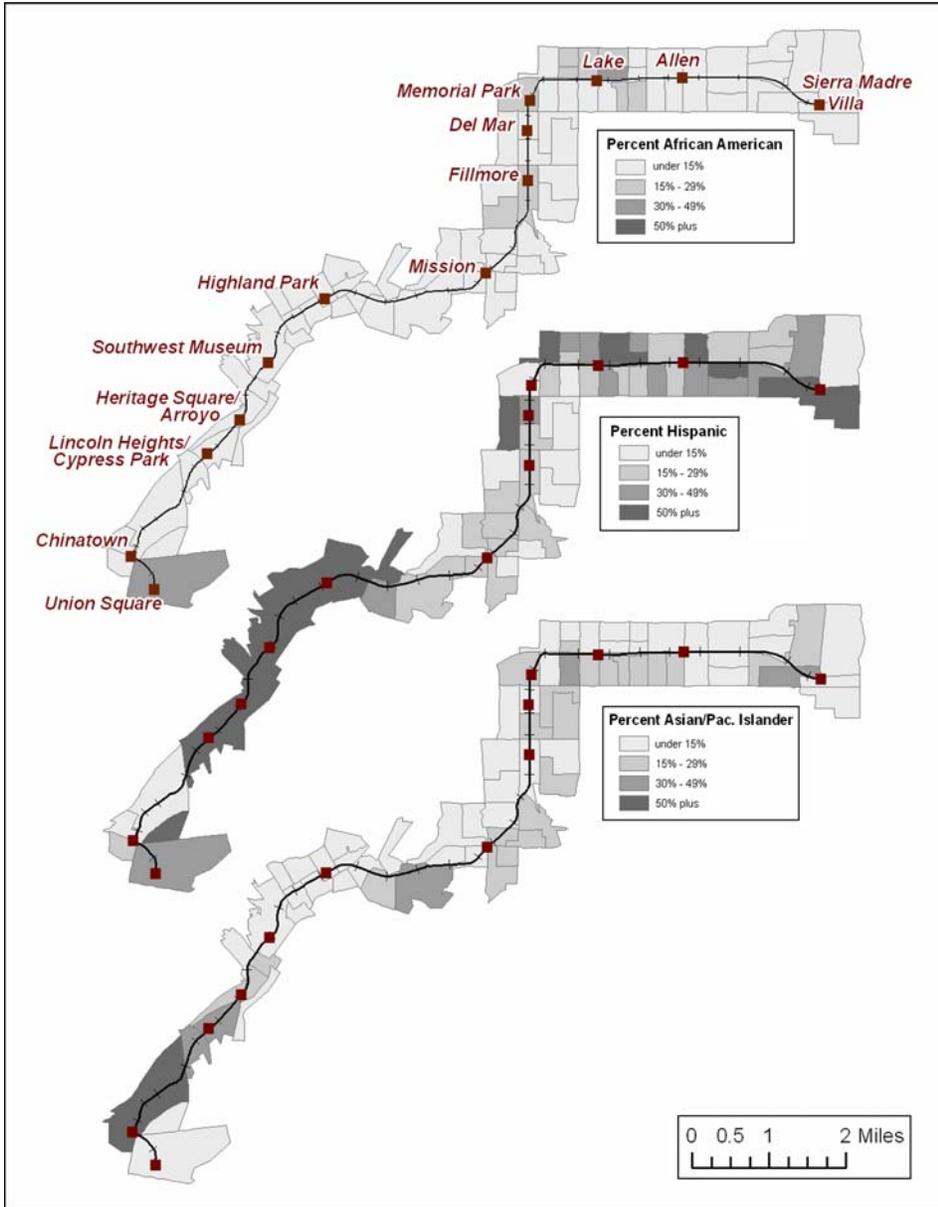


Figure 2. Gold Line corridor race/ethnic composition. Source: 2000 Census Summary File 3 blockgroup data.

Land use changes near the Heritage Square/Arroyo and Highland Park stations also occurred in the area immediately adjacent to the station. The 4% land use changes near the Fillmore station included conversions to commercial and residential uses and the expansion of an existing hospital. About 1.8% of the Del Mar station area immediately adjacent to the station was under construction for a mixed-use development, while another 1% of the station area acreage was converted to residential use in the period 2000–2005. The Memorial Park station area, which is predominantly commercial, had about 1.4% of its acreage converted to commercial uses, and just under 1% converted to a government facility.

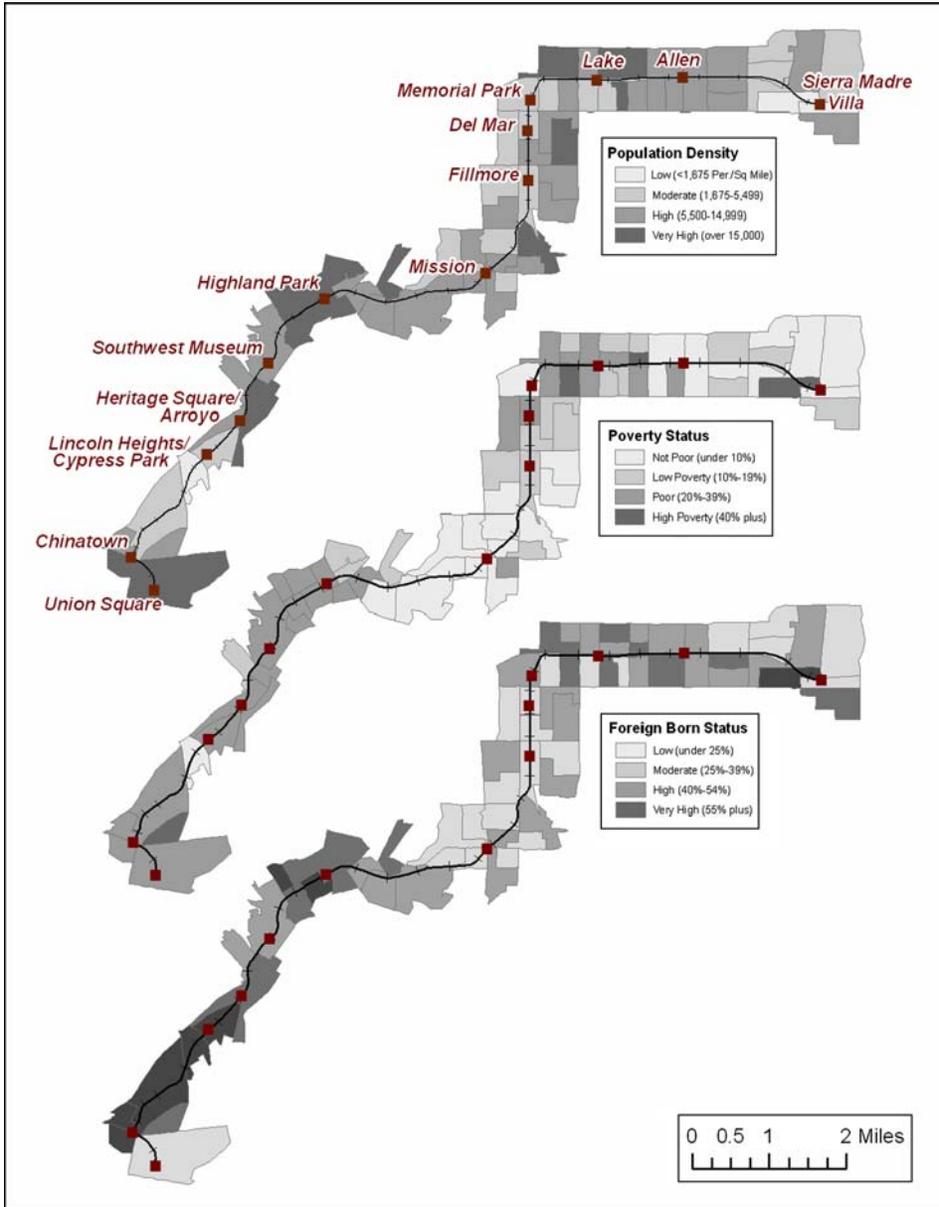


Figure 3. Gold Line corridor socioeconomic characteristics. Source: 2000 Census Summary File 3 blockgroup data.

Over 4% of the Sierra Madre station area was under construction by 2005, with residential and parking structure development just north of the station, and a commercial project east of the station.

All station areas experienced an average increase of 23% in parcel sale rates from 1996 to 2000, in anticipation of the line. They experienced an even higher increase (28%) from 2000 to 2004.² The Lincoln Heights, Highland Park, Fillmore, and Memorial Park and Allen stations all had over 30% sales of their properties in the period 2000–2004.

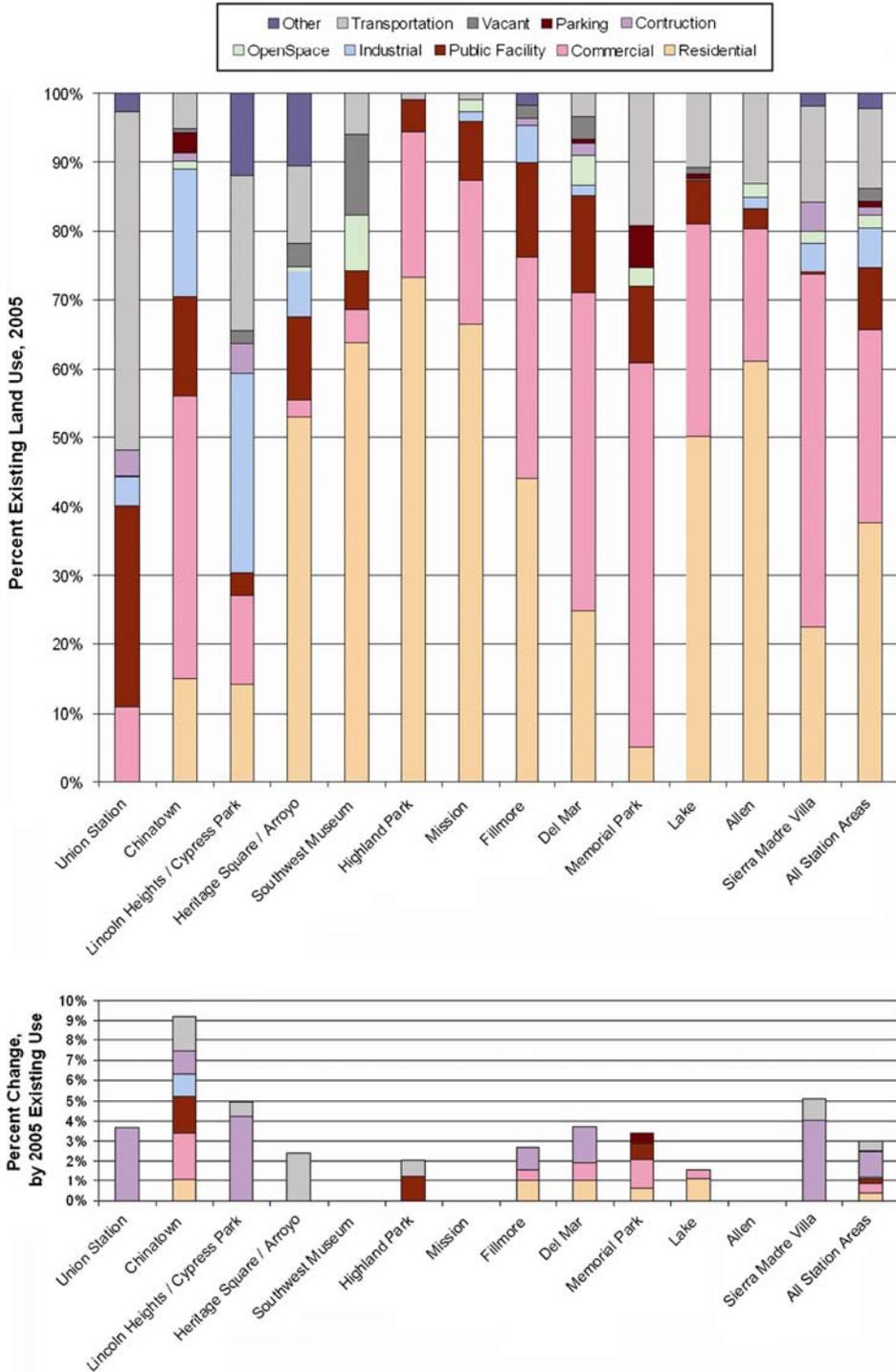


Figure 4. Existing land use (2005) and changes in land use 2000–2005, by station area. Source: Derived from Southern California Association of Governments existing land use data, 2000 and 2005.

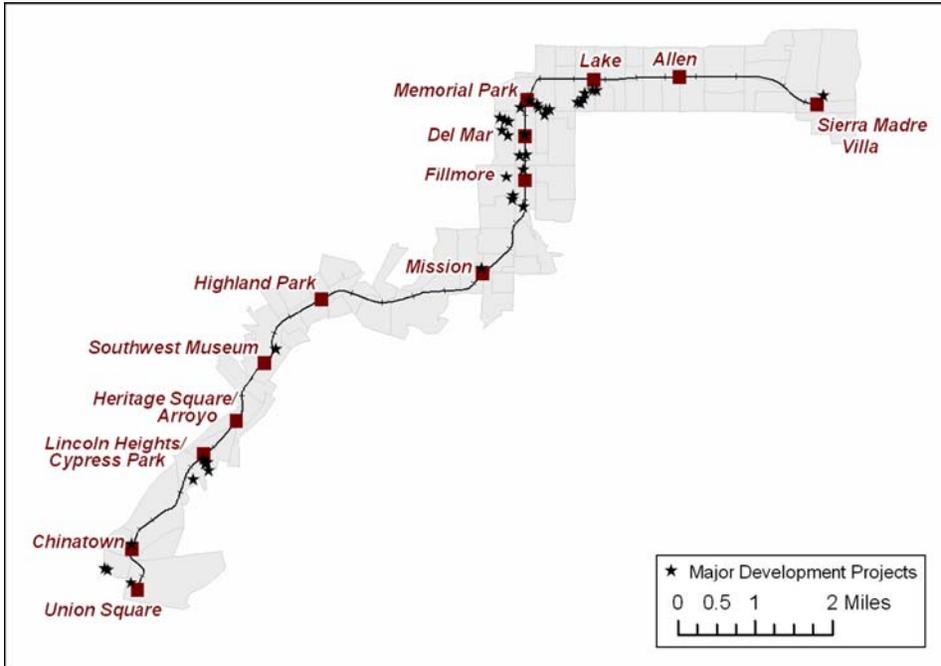


Figure 5. Gold Line major development projects. *Source:* Based on an inventory compiled from municipal, developer and public information.



Figure 6. Aerial of Lincoln Heights station area (looking south) showing TODs. *Source:* AMCAL (http://www.ngc.org/pdf/event_ca_pvaz_042706.pdf).

Building permits provide another perspective of the development activity in station areas. Trends in approved permits from 2000 to 2004 for stations in the cities of Los Angeles and Pasadena show that the total number of permits in station areas increased from just over 200 in 2000 to about 400 in 2001 and 2002, reaching about 440 permits in 2003 and 2004 (Figure 7). Permits for mixed-use

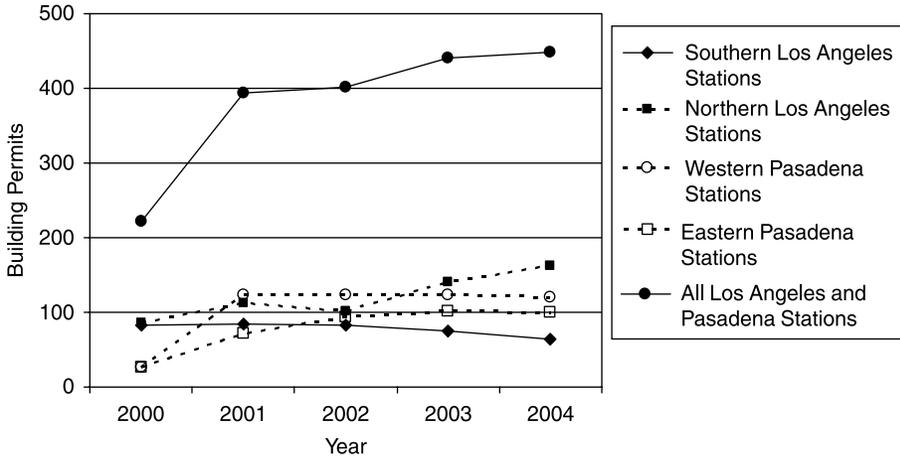


Figure 7. Total residential and commercial permits 2000–2004, Los Angeles and Pasadena stations. *Note:* Excludes mixed use permits from the City of Pasadena data. *Source:* City of Pasadena Department of Planning & Development Department and the City of Los Angeles Housing Department.

projects also rose (Figure 8). The total value of residential and commercial permits increased from about US\$200 000 in 2000 to over \$1 000 000 in 2003, then back down to about \$800 000 in 2004 (Figure 9). As Figures 8 and 10 show, there were no permits issued for mixed-use projects in Pasadena in 2000, but this changed in the subsequent years

Unlike the Blue Line, the Gold Line has had a significant effect on development along its corridor. What were the opportunities that led to these very different outcomes? The following summarizes what we learned from our interviews.

Pressing Issues, Pressing Trends

Pressing issues and trends in the Southern California region have forced many municipalities to start considering ways of accommodating urban growth and its associated effects. During the 13 years that separated the inauguration of the two light rail lines, drastic demographic, economic and environmental transformations took place in the region, which made the visioning of an alternative urban

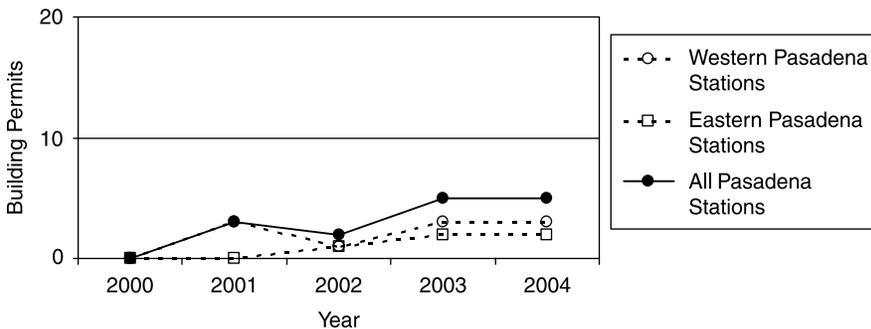


Figure 8. Mixed use permits 2000–2004, Pasadena stations. *Source:* City of Pasadena Department of Planning & Development Department.

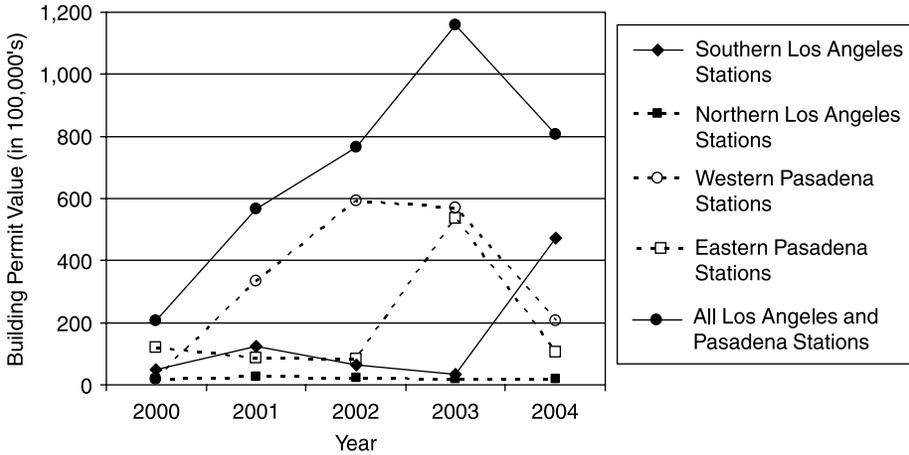


Figure 9. Total residential and commercial permit values 2000–2004, Los Angeles and Pasadena stations. *Note:* Adjusted to 2005 US dollars. Excludes mixed use permits from the City of Pasadena data. *Source:* City of Pasadena Department of Planning & Development Department and the City of Los Angeles Housing Department.

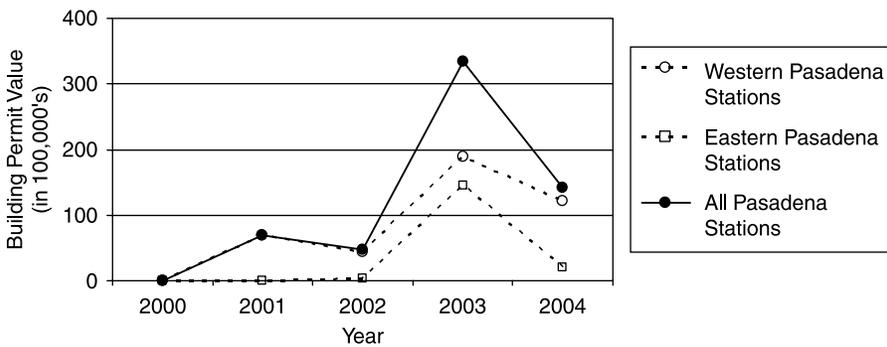


Figure 10. Mixed use permit values 2000–2004, Pasadena stations. *Note:* Adjusted to 2005 dollars. *Source:* City of Pasadena Department of Planning & Development Department.

form necessary and urgent. For one, population size has reached 9.5 million in Los Angeles County alone, and according to the projections of the Southern California Association of Governments (SCAG), it is expected to grow by 30% by 2025 (SCAG, 2007). If cities are to continue to accommodate residents into the single-family homes that are dotting the region’s landscape, they would have to keep pushing the urban boundaries ever outwards, leapfrogging into farmland and extending the urban sprawl.

Second, the supply of housing in the region fell far short from meeting consumer demand, while housing prices skyrocketed. Median home prices generally doubled over the span of four years, from 2001 to 2005, and housing affordability reached a record low in 2005 (SCAG, 2007). An increasing share of households could no longer afford the single-family home of the American dream. According to the planners and developers interviewed, this created a market demand for different and more affordable housing options that included duplexes, town homes, apartments and condominiums. Recently and after the

completion of this study, the housing sector has experienced a serious blow nationwide. Housing prices have dropped from their record high numbers in early 2008, but the worsening economy also means that the purchasing power of households has dwindled. Indeed, the need for affordable housing in Southern California is today as great as ever.

Third, the region reached the dubious record of the worst traffic congestion in the nation (SCAG, 2007). Traffic gridlocks are now a daily occurrence on Southern California freeways and surface streets. It comes as no surprise that transportation emerged as the top concern of residents in the 2006 Southern California Public Opinion survey (Hasselhoff & Ong, 2006). Urban housing in close proximity to jobs and retail opportunities has become a desirable option for urbanites wishing to avoid long commutes and the accompanying exposure to traffic congestion. A reflection of this is that in Los Angeles County more than half of the residential building permits issued since 2005 have been for multi-family housing (SCAG, 2007).

Fourth, solo driving has also become much more expensive in the last 10 years because the cost of gasoline has increased. Having more transportation options, including walking and riding the bus or the train, is becoming quite appealing for a number of households. While the private car still remains the undisputed travel mode of choice for most households in the region, transit has increased its share, reaching a peak in the summer of 2008, when gasoline prices reached a record of US\$4.60 per gallon (AAA, 2009).³

Finally, concerns about the region's air quality and the effects of global climate change are worrisome for Southern Californians who placed the environment as their third most important concern in the 2006 Southern California Opinion Poll (Hasselhoff & Ong, 2006). The region's excessive reliance on the automobile means that residents use more energy for transportation than for other activities. The burning of fossil fuels from automobile emissions, therefore, contributes greatly to its air quality woes. Indeed, the South Coast Air Basin has some of the worst air quality in the nation.

According to those interviewed, the aforementioned economic realities, trends and concerns have expanded the market for TODs and have encouraged or forced a larger segment of the public to seek alternative ways of living beyond the single-family house.

Learning from Past Mistakes: An Enabling Policy Environment

In the years that separated the construction of the two lines many municipalities realized what scholars have argued for many years: that growth and development around station areas does not simply happen by the mere presence of the transportation network (Knight & Trygg, 1977; Gomez-Ibanez, 1985). Therefore, the Gold Line corridor has benefitted from a changing mindset from the part of city planners and municipal and state officials, who have provided an enabling policy environment for TODs.

When the Blue Line was built, municipalities seemed unprepared or unconcerned with planning for development in adjacent sites. This stymied opportunities for development around the line's stations. Since that time, however, municipalities have learned from past mistakes and have become increasingly eager to make TODs happen by specifically planning for them and offering development and financial incentives. Some municipalities have not only

embraced transit-oriented development but also set forth the concept of transit-ready development (TRD), initiating pre-planning processes and incentives for TODs prior to the construction of the transit line. In anticipation of the Gold Line, for example, the city of South Pasadena created a master plan for not just the station site but for the whole Mission District, awarding additional density entitlements if the developers allowed for a mixture of uses and provided public parking near the station. The city also raised a total of US\$5 million funds from different sources to subsidize the Mission Meridian project (Figure 11). As explained by the Assistant City Manager of South Pasadena: “The Mission Street Specific Plan really put all the pieces together, all the regulation necessary to have a mixed use project actually being constructed, before we were approached by a developer” (Castagnola, City of South Pasadena, interview).

Seeking to maximize development opportunities by increasing allowable densities around its station areas, the city of Pasadena also prepared plans in anticipation of the Gold Line, and reduced parking requirements for developers building near stations. Such incentives proved to be attractive for developers (Figure 12). As explained by a developer with the Sares-Regis Group, which built the Westgate TOD in Pasadena: “City ordinances played a large role in the selection of our site. We understood that zoning would allow for the level of density necessary for the development” (Bunker, Sares Regis Group, interview).

Additionally, new state and regional initiatives have favoured TOD development. In 2006, California voters approved Proposition 1C, a US\$2.8 billion bond for affordable housing that includes US\$300 million for a TOD implementation programme. This proposition provides grants for municipalities and transit agencies to build the necessary infrastructure that can make TODs feasible. An additional provision of Prop 1C is the availability of loans for mixed-use, housing, and commercial developments within one quarter mile of a transit station.

In Southern California, the regional transportation agency SCAG has also initiated the Compass Blueprint 2% strategy that envisions the direction of future development in strategic opportunity areas that do not exceed 2% of the region’s land resources. A significant part of this development is anticipated to happen around transit hubs, railway stations, major bus stations and along transit corridors. More importantly, the large scale visioning process initiated by Compass educates sub-regional and local stakeholders about the necessity of



Figure 11. Mission Meridian Transit Village in South Pasadena.



Figure 12. TOD in Memorial Park, Pasadena station. Built in anticipation of the Gold Line.

alternative types of development that are more compact and sustainable. The combined effect of these actions at the state, regional and municipal levels creates an enabling policy environment which was absent a decade ago. It comes as no surprise that developers have responded more enthusiastically to the Gold Line than any of its predecessors.

A Changing Mindset of Developers

Indeed, today some of the initial fears that developers and lending institutions had for TODs have been appeased and a significantly higher number of development projects are being planned and built around transit stations and along transit corridors than in the late 1980s and 1990s. For quite long, developers were reluctant to build TODs because they perceived them as only attractive to a narrow market segment: singles, young professionals, and 'empty nesters'. For one, this market segment is by no means small, as national trends have indicated. Specifically along the Gold Line corridor, 38% of the households are composed of only one person, according to the 2000 Census. Talking to developers who built along the Gold Line corridor, we found that they now target a significantly larger market segment that also includes different age groups of families, seniors, two-income households and single-income earners. Developers attributed this widening of the market to a rising demand for an alternative way of living generated by the aforementioned pressures. Additionally, developers seem to appreciate the enabling policy environment that includes development incentives such as increased floor-area ratios (FARs), reduced parking ratios, relaxed open space requirements and sometimes public sector subsidies. Importantly, these developers and their architects now see a good potential for TODs, acknowledging the demand for more affordable homes, schools and offices in the metropolitan core instead of the exurban periphery. According to architect Stefanos Polyzoides, who designed the Mission Meridian and Archstone TOD projects in South Pasadena and Pasadena respectively: "We got people in their 20s, 30s, 40s, 50s, 60s, and 70s. There are six families with kids there. . . . I think because the buildings are so complex and diverse they end up attracting multiple markets, which is both a marketing advantage and a social advantage" (Polyzoides, Moule & Polyzoides, interview).

Tensions and Challenges

While the aforementioned motivations give incentives to municipalities and developers to pursue more compact and higher density development around transit stations and along transit corridors, a number of tensions and contradictions still remain. According to our interviewees, a first concern has to do with the difficulty of changing long-standing public perceptions regarding the 'ideal' residential neighbourhoods, composed of low-density structures and single-family uses. This creates a design challenge of how to make higher density look less dense, as well as a broader challenge of 'bringing the public along' to share the TOD concept.

Stefanos Polyzoides stressed the importance of urban design in meeting these challenges: "Density is a remarkably ugly world all around Southern California because developers just took boxes clad in whatever they wanted in the 1960s, 1970s, and 1980s and just airdropped them into tender neighborhoods. . . . In both

the Mission Meridian and Del Mar TODs the concept we utilized was that of blended densities We created building types, some of them much higher than the average density and some of them much lower. We arranged these pieces on our sites in a manner that allowed them to better relate to their neighbors” (Polyzoides, interview) (Figures 13 and 14). If good urban design helps ease neighbourhood opposition, good project design has been listed as the top reason given by tenants for selecting to live in a TOD (Arrington & Cervero, 2008).

Another tension exists because of the desire for developing pedestrian-friendly land uses which, however, cannot be always sustained by market realities. In some cases the commercial uses that cities or developers are interested in attracting cannot afford the high rents in these districts. In other cases, municipal aspirations for increased tax revenues may encourage certain uses that are not optimal for creating a pedestrian-oriented and transit friendly environment. As argued by a TOD developer: “The problem is that the types of commercial tenants we can bring are not always what the city wants. Although we would love coffee shops and pedestrian-oriented retail, we are dependent on the market and financial partners, who often prefer corporate clients” (Freeman, JSM Construction, interview).

For residential units, high rents and sale prices in some TOD areas mean that units are more likely to be occupied by more affluent households with multiple cars and not by those who are transit dependent (Arrington & Cervero, 2008). According to our interviewees, this creates an ongoing tension for transit agencies, planners and city council members who want TODs to provide a resource for those who need it, to boost transit ridership and lessen automobile use. At the same time, the introduction of high density development in a neighbourhood without a simultaneous modal change from driving to walking, biking or riding transit is likely to increase traffic congestion in the immediate area, a concern raised by many critics of high-density projects.

Another important tension emerges around parking requirements for TODs. Building parking spaces is expensive and takes up valuable land that could be turned into more residential or commercial uses (Shoup, 2005). Developers interviewed seemed to be divided between those who felt that “it is an unfortunate waste of transit resources to be using money at transit sites for parking” (Hrovat—Urban Partners, interview); and those who argued that “a



Figure 13. Rendering of the Del Mar TOD showing the concept of graduate densities (Moule & Polyzoides Architects and Urbanists).



Figure 14. Del Mar station and TOD.

disadvantage for TODs in certain cities is that they have parking maximums, meaning that if the developer wanted to provide additional parking, he would not be allowed to" (Chang—Studio 111, interview). Finding the right parking ratios in TOD areas poses a number of difficult dilemmas for planners and cities. Too much free parking may prompt people to drive when they could just as easily ride the train, whereas too little parking may frustrate residential and commercial tenants, not to mention developers.

According to the planners interviewed, this is not the only dilemma they are facing in TOD development. The decision of whether to provide development incentives or to impose development fees and other requirements was also described as a delicate balance with market forces in a given station area. Finding the right balance between 'carrots' and 'sticks' is important for cities. Incentives such as density bonuses, higher FARs and building heights, as well as reduction of parking requirements allow developers to improve the profitability of their developments. Certain development fees as well as requirements for affordable housing or open space can give cities important amenities but may also serve as disincentives for development.

These tensions manifest themselves as different kinds of concrete challenges falling within four categories. Developers and their architects working on TOD projects along the Gold Line talked about:

1. *Procedural challenges* that impede the process of development causing, tension, delays, and money. These include the difficulties of coordination among the multiple parties involved in TOD development (such as development companies, lending institutions, planning departments, transportation agencies, community redevelopment agencies and neighbourhood groups) and the complexity of building joint development and infill TOD projects.
2. *Economic challenges* include the rising cost of land in anticipation of the coming of a new transit line, as well as the typically higher cost of construction of mixed-use projects.
3. *Cultural/Perceptual challenges* relate to the negative attitudes held by various communities towards higher densities.
4. *Physical/Environmental challenges* include the noise from the trains and the technical difficulties of building very close to a transit line.

Addressing the Challenges of TODs

At this time a number of factors seem to work in favour of development around transit, even in the automobile-oriented US cities of the West Coast: a willingness on the part of municipalities to encourage TODs; an anti-sprawl concern that strives to focus development around strategic points of the urban core; an enabling policy environment that favours and funds TODs; a changing mindset on the part of developers who discover an increasing market for TOD projects; and pressing environmental and transportation concerns that are prompting some households to desire alternative living conditions. Still certain challenges and tensions remain, and the juxtaposed examples of the Blue and Gold Lines help us form some suggestions:

Plan stations near people and activities. Good planning for TODs begins with the planning of the transportation line. Choosing a good station location is crucial to

attracting new development around it. For developers, location is the most important attractor to and motivation for building at a particular site. The success of the Gold Line to attract new TODs was partly a result of the central location of its stations, in close proximity to the 'front door' of neighbourhoods, near other urban amenities and existing nodes and hubs of activity, such as schools, parks and retail. In contrast, the failure of the Blue Line to stimulate development was partly due to the fact that the vicinity of its stations was mostly devoid of people and activities (Loukaitou-Sideris & Banerjee, 1996).

Pre-plan for TODs. The Gold Line example shows that municipalities that preplan for TODs in anticipation of a transit line are in a better position to attract developers and projects in their jurisdiction. The development of transit overlay zones that extend a half-mile around transit stations and have defined guidelines and incentives for TODs can be extremely helpful to (1) ensure that a city's vision and goals will be followed; (2) minimize uncertainty for developers, letting them know beforehand what to expect from the city and what the city expects from them; and (3) streamline the development process thus reducing time costs.

Educate and involve the public. Extensive education of the public about the potential benefits of TODs is especially important. While community meetings are important venues for developers to learn about and respond to community concerns, it is necessary to begin the public conversation early. Ideally, a shared community vision can be formulated prior to the designation of a transit-oriented district as part of proactive public sector planning in anticipation of a rail line.

Offer good urban design configurations. Good urban design is a key factor in making high-density projects more acceptable in neighborhoods. Municipalities should compile an inventory of 'best practices' as good examples of high-density developments that make a smooth transition to the existing urban fabric. Good architectural design of TOD projects available is also very important. Well-designed and centrally located TOD projects with smaller but more affordable units (condos, apartments and lofts) may offer a variety of housing options, which are appealing to those who cannot afford single-family housing.

Develop strong public/private partnerships. TODs provide opportunities for joint development agreements and cost-sharing projects (such as parking structures, public plazas, etc.). The development of strong partnerships between municipalities, transportation agencies and Metropolitan Planning Organizations on the one hand, and the private sector on the other, can help reduce the cost of TOD projects and also ensure desirable amenities. The cost for developers can be reduced if cities streamline the development processes of TODs allowing developers to build 'by right' if they comply with all requirements of a transit overlay zone. Cities may also underwrite the cost of environmental mitigation of contaminated sites, identify empty or underutilized sites and help convert them to developable lots.

Achieve better coordination among different public entities. Frequently the involvement of different public agencies and actors with different requirements, goals, expectations and levels of authority, frustrates TOD projects and stymies opportunities for regional thinking. For this reason the establishment of a

Corridor Coordinating Council as a Joint Powers Authority consisting of high-level representatives from all different public sector agencies involved in corridor development can help establish a corridor-level TOD vision and set goals that promote successful projects.

Find the right balance between 'carrots' and 'sticks'. Development fees and other requirements can bring desirable amenities to a jurisdiction (e.g. open space), but if they prove too burdensome they may scare developers away. It is very important that cities constantly monitor the balance between incentives and requirements (the carrots and sticks of development) weighing the condition of the economy and other market forces, the development potential and desirability of the site for developers, as well as whether a developer owns the land or only has an option to it.

Actively recruit pedestrian-oriented, transit-friendly uses. The ideal of a transit village with pedestrian-oriented and transit-friendly uses, neighbourhood retail, galleries, drug stores, bakeries and coffee shops generating foot traffic cannot be realized if such commercial tenants do not have the financial means to rent space in new developments. Developers, who are always interested in maximizing profit, are likely to opt for larger commercial tenants (banks, furniture stores, warehouses, etc.). Therefore, the public sector should play a crucial role in identifying and attracting desirable commercial tenants. In certain cases, cities may consider offering tax incentives or even rent subsidies (for the first few years) to help create a critical mass of desirable pedestrian-oriented tenants.

Find a solution to the parking dilemma. Cities can follow a number of approaches to address the parking dilemma for TOD projects that would include (1) decoupling parking from residential development and giving residents the option of purchasing a unit with or without parking; (2) developing maximum parking standards for TODs; (3) exploring the potential for shared parking; and (4) allowing developers to satisfy parking requirements by leasing parking spaces in adjacent structures.

Make transit more appealing. The last recommendation is also the most important. Part of the appeal of TODs for cities is the expectation that they will help switch many motorists to transit riders. This, however, will not take place if transit is inconvenient. Buses and trains should be reliable, safe, affordable and convenient in linking points of origin to destinations. Good multimodal linkages should connect transit stops to the neighbouring areas. To incentivize ridership, cities and developers may consider offering free weekend rail passes and monthly passes at reduced cost as well as free shuttle rides connecting stations to neighbourhoods.

Afterword

In September 2008, California passed landmark legislation SB 375, the first-in-the-nation law seeking to reduce greenhouse gas emissions by curbing sprawl, connecting transportation and land use policy and providing incentives for development and transportation investments that potentially reduce vehicle miles travelled. By concentrating development near transportation corridors, expanding the supply of housing and offering convenient transit as a modal choice, TODs

can contribute to the reduction of traffic congestion and greenhouse gas emissions. While TODs are certainly not a panacea for the region's environmental, economic and housing problems they are, nevertheless, a component of an overall strategy to accommodate growth in ways that preserve its long-term sustainability.

Acknowledgements

This study was funded by the California Department of Transportation and the Southern California Association of Governments. I would like to thank my graduate research assistants Doug Houston, Ava Bromberg, Christine Aure, Jane Choi, Michelle Coulter, John Kenyon, Lilly Song and Paul Travis whose able assistance enhanced all stages of the project.

Notes

1. Note that the analysis of land use change does not include development activity on smaller parcels or development that does not change the overall land use type.
2. Note that properties which were sold multiple times during the study periods were considered as one sale in the analysis.
3. Since the study was conducted gasoline prices have dropped from their record-high numbers. It remains to be seen if the gains made by transit in attracting a larger share of riders would hold.

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