Statewide Transit-Oriented Development Study

Factors for Success in California

FINAL REPORT

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BUSINESS, TRANSPORTATION and HOUSING AGENCY

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Caltrans

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Abstract

This study provides a state-of-the-practice review of transit-oriented development (TOD) with an emphasis on recent experience in California. The main objective of this study is to define strategies that the State of California could undertake to encourage the broader implementation of TOD near major transit stations: bus, rail, and ferry. An executive summary and Technical Appendix are also available. These documents can be accessed via the California Department of Transportation's Division of Mass Transportation website, at: http://www.dot.ca.gov/hq/MassTrans/tod.htm

First, the report offers a definition of TOD, and an overview of the components of successful TODs. It then summarizes a literature review of the benefits of TOD, as well as its potential effects on travel and transit use. In the second section, the report provides an overview of the current status of implementation of TOD both in the United States and more specifically within California, including region-by-region reviews. Twelve "profiles" of TODs within the state are also provided.

Based on a review of the status of TOD implementation in America and California, the report: summarizes major barriers to TOD implementation; offers "lessons learned"; discusses key issues; and identifies strategies that could help overcome barriers. Recent market trends and the development feasibility of TOD in California are assessed, based in part on panel discussions held with TOD developers in northern and southern California. An overview of challenges in financing TOD, as well as various public and private funding sources that are potentially available to finance and fund TODs is also provided.

Finally, the report concludes with recommendations for fourteen strategies that the State of California could undertake to facilitate the broader implementation of TOD at local and regional levels. A number of possible State strategies to overcome TOD barriers are presented and described in four major categories: State policies and practices; planning and zoning; finance and implementation; and information dissemination and research.

There is also a separate volume of Technical Appendices, which provides more detailed information than is available in the Report volume, including: TOD case studies in the U.S. and within California; the results of two panel discussions with TOD developers; descriptions of potential funding sources for TOD; terms and definitions used in this report; a bibliography and list of related website; and other relevant information.

In addition to the Report and Appendix, the project team has also produced a stand-alone report assessing parking issues in relation to TOD entitled: "Parking and TOD: Challenges and Opportunities." This report can be obtained by contacting the California Department of Transportation's Division of Mass Transportation, or via the website above.

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Introduction

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The Challenges

Over the next 20 years, California is expected to add 11-16 million new residents and four to six million additional households.[I] This unprecedented growth is more than the State experienced during the 1950s, 1960s, and 1970s combined.[1] The number of on-road vehicle miles traveled (VMT) per year in California is projected to increase from approximately 306 billion miles in 2000, to 475 billion miles by 2020 - a 55 percent increase. The number of on-road vehicles is projected to reach almost 35 million, up from about 23 million in 2000." [2] California's success at managing this growth will impact its future prosperity, the quality of its environment, and the overall quality of life.

A strategy that can help manage this growth and improve quality of life is "transit-oriented development" (TOD). TOD is one of several "livable communities" strategies that have emerged during the past decade as ways to address California's ongoing growth challenges, and to enhance community and quality of life. TOD focuses compact growth around transit stops, thereby capitalizing on transit investments by providing improved access to transit facilities and increasing ridership. TOD can also produce a variety of other local and regional benefits by encouraging more "walkable" compact and infill development.

Parsons Brinckerhoff

TOD can be an effective strategy to help manage growth and improve quality of life

TOD seeks to align transit with a community's vision for how it wants to grow by creating mixed-use, denser, walkable 'transit villages'. By implementing TOD on a broader scale, California can better coordinate transportation and land uses. In addition, it can significantly increase the effectiveness and efficiency of the State's large investment in mass transportation.

[I] Please note: Sources of information cited in this report are listed in the "Endnotes: Sources" section. Also, comments and definitions are provided throughout at the bottom of pages, indicated by Roman Numerals (e.g., XI). New terms are defined in the report the first time they are used; and there is also a list of terms and definitions in the separate Technical Appendix volume.

Overview of the Study

This study has taken a comprehensive look at the 'state-of-the-practice' with TOD both within California and across the United States (U.S.). The major objectives of this study are to: define transit-oriented development and its successful components; describe the benefits of TOD; examine the status of implementation of TOD throughout the U.S. and in California; identify the major barriers and impediments to the wider implementation of TOD; identify what is working well, as well as the need for additional resources to overcome barriers; and, finally, develop a set of strategies and activities that the State of California may implement to help facilitate the broader implementation of TOD in this state.

Through a 14-month process, this study has been closely guided by two advisory committees that include broad representation from: State, regional, and local government agencies; transit providers; private developers; financial institutions; environmental groups; and other interested "stakeholders". This process also included in-depth focus group discussions with private TOD developers in northern and southern California. In addition, interviews were conducted with staff of numerous local jurisdictions, transit agencies, and other organizations.

The process described above has resulted in this final report that offers up-to-date and practical information on TOD implementation. This report includes chapters that provide: an overview of the definition and criteria of successful TOD; its benefits; examples of TODs in the U.S. and California; an assessment of the challenges and barriers to implementing TOD; important insights into specific hurdles faced by prospective developers of TOD in California; information on government funding and private financial resources; and, finally, strategies that State and regional agencies and local governments could take to help overcome barriers to implementing TOD in California.

In addition to this report, there is also a second Technical Appendix volume that contains: an overview of trends in the U.S.; detailed profiles of twelve TODs in California; detailed information on potential funding sources for TOD; definitions of terms; a bibliography of sources; a list of TOD-related web sites; and other important resources. Also, an additional separate report provides detailed information on parking issues and strategies in relation to TOD. These documents are on the Internet at: http://www.dot.ca.gov/hq/MassTrans/tod.htm

What is Transit-Oriented Development (TOD)?

TOD is a transportation-related land use strategy that can be used in large urban and small communities in coordination with bus, rail, and/or ferry transit systems. It provides California communities with an alternative to the predominant pattern of low-density sprawl that results in dependency on automobile travel. The first chapter of this report offers a definition of TOD that was developed specially for this study.

Ingredients of Successful TOD
The report (and appendix volumes) list and describe the major characteristics of successful TOD implementation, such as: optimal transit system design; community partnerships; understanding local real estate markets; planning for TOD; coordination among local, regional, and State organizations; and providing the right mix of planning and financial incentives. A "checklist" of typical TOD characteristics is also provided.

" Transit-oriented Development (TOD) is moderate to higher-density development, located within an easy walk of a major transit stop, generally with a mix of residential, employment and shopping opportunities designed for pedestrians without excluding the auto. TOD can be new construction or redevelopment of one or more buildings whose design and orientation facilitate transit use."

Statewide TOD Study Technical Advisory Committee

Trends and Demand for TOD

Several broad demographic trends prevalent in California are expected to continue to favorably influence market demand for TOD. These trends include ongoing population and household growth, as well as a shortfall of new housing units. There is also a significant need for housing that is affordable to low and moderate-income households in California. Recent employment trends include increased numbers and concentrations of jobs, particularly in the state's major metropolitan areas.

These trends, along with a growing desire for urban housing that offers reduced commute times and urban amenities, point to ongoing market demand for TOD projects, especially in California's congested metropolitan areas.

Need for Mobility Options
Accompanying significant population and employment growth is concern over lengthening commutes and increasing traffic congestion. From 1990 to 2000, as California's population grew by 13.6 percent,[3] the average time people spent commuting increased by nearly 4 percent on average (up from 56 minutes per day to 58 minutes).[4] That trend is expected to increase into the future due to more cars on the road.

Alternatives to Congestion
It is estimated that between 1990-2000, approximately 14 billion dollars was invested on mass transportation programs and projects in California.[5] This significant investment, along with increasing congestion on California's roads and freeways, has helped reverse a long trend of decline in transit ridership.

In the same decade, 10 percent more workers used transit in California to commute to work than previously. Significantly, two of California's transit systems have experienced the highest ridership one-year growth rates in the entire nation: in 1999, ridership on the San Diego Trolley increased by 18 percent; and on San Francisco's Bay Area Rapid Transit District (BART), ridership increased by 13 percent.[6]

However, despite California's impressive investment in transit and increasing rates of transit use, the majority of future land use growth in California is likely to continue in typical "sprawl" development patterns. The predictable results would be increasing costs of local infrastructure and services, continued loss of farmland, and increased dependence on cars.

Federal Transit Agency Rail Funding Criteria

In 1997, the Federal Transit Administration (FTA) introduced a new criterion – "transit-supportive land use" for proposed major transit investments – as a significant factor in determining which proposed rail projects would receive Federal transit funding.[7]

Although the FTA, the State of California, and transit agencies do *not* have authority over local land use decisions, FTA's criteria gives an incentive in the form of Federal transit funding, which is a highly-competitive national process.

Funding for TOD
One of the major obstacles to TOD implementation is project funding and financing. This issue is discussed in Chapter 6. This chapter also provides extensive information about a number of local, regional, State, and Federal funding sources that might be used for TOD. More detailed information about each of these sources is available in the Technical Appendix volume.

Positive step: Transit Villages Act
California has taken positive steps in planning for TOD. One of the most notable of these was the passage of the State 'Transit Villages Act' in 1994.[8] This law enables local jurisdictions to prepare 'transit village plans' near major transit stations. Unfortunately, it did not provide funding to prepare these plans or to address other important implementation issues and needs.

What is the status of TOD in California?

This study has found that there is more activity with TOD planning and implementation in California now than at any time during the last century. At every major transit agency in the state, there are at least one or more new TOD projects currently underway. For some transit systems, these are the first TODs that the transit property has been directly involved with, even after more than a decade of providing service.

In addition, numerous local jurisdictions have recently undertaken TOD planning and implementation efforts in areas around major transit stations. Also, a number of redevelopment agencies have facilitated the implementation of TODs as part of downtown renewal programs. Some of the local barriers that once made TOD difficult to implement have been removed. Expertise and enthusiasm about TOD is growing among more private developers. Major conferences, such as the Urban Land Institute, Local Government Commission, and Rail~Volution conferences focus on "livable community" efforts, including TOD.

Yet, while interest in TOD is significant, the reality in California is that TOD is the 'exception and not the rule' at most major transit stations. The dominant land uses around the majority of the state's major bus, rail, and ferry stations are low-density, automobile-oriented development that does not take advantage of proximity to high-quality transit service or provide good access to transit stations (in fact, it often creates a barrier).

In this study's survey of the status of TOD implementation in California, a variety of project types, experiences, challenges and successes were identified. These are described in twelve "TOD Profiles" in Chapter 5 (as well as in more detailed "case study" profiles in the Technical Appendix volume).

What are the Benefits of TOD?

The results of this study indicate that implementing TOD can have significant benefits to individuals, communities, regions, and California as a whole. (The extent that these benefits occur depends on the design and location of TODs, as well as on the type and quality of transit service available.)

Ten major areas of benefits from TOD are listed below. (Chapters 2 and 3 of this report provide more detailed information on each.)

- **TOD can provide mobility choices.** By creating "activity nodes" linked by transit, TOD provides important mobility options, very much needed in the state's most congested metropolitan areas. This allows young people, the elderly, people who prefer not to drive, and those who don't own cars the ability to get around.

- **TOD can increase public safety.** By creating places that are active through the day and evening and providing "eyes on the street", TOD helps increase safety for pedestrians, transit-users, and many others.

- **TOD can increase transit ridership.** TOD improves the efficiency and effectiveness of our transit service investments by increasing the use of transit near stations by 20 to 40 percent.

- **TOD can reduce the rate of increase in vehicle miles traveled (VMT).** Vehicle travel in California has increased faster than the State's population for many years. TOD can lower annual household rates of driving by 20 to 40 percent for those living, working, and/or shopping near major transit stations.

- **TOD can increase households' disposable income.** Housing and transportation are the first and second largest household expenses, respectively. TOD can free up households' income by reducing the amount of driving required for daily trips, which can save households up to $3-4,000 per year (that can be spent for housing and other uses).

- **TOD reduces air pollution and energy consumption rates.** By providing safe and easy access to transit, TOD allows households to significantly reduce their rates of air pollution and energy consumption.

- **TOD can help conserve resource lands and open space.** Because TOD consumes less land than low-density, auto-oriented growth, it reduces the need to convert farmland and open spaces to development.

- **TOD can play a role in economic development.** TOD is increasingly used as a tool to revitalize aging downtowns and declining urban neighborhoods, and to enhance tax revenues for local jurisdictions.

- **TOD can contribute to more affordable housing.** TOD can add to the supply of affordable housing by providing sites for lower-cost and accessible housing, and by reducing household transportation expenditures. It has been estimated that costs for land and housing structures can be significantly reduced through more compact growth patterns.[9]

- **TOD can decrease local infrastructure costs.** Depending on local circumstances, compact development such as TOD, can help reduce infrastructure costs for expanding water, sewage, and roads to local governments and property owners by up to 25 percent through more compact and infill development patterns.[10]

Challenges for Implementing TOD

Although the community and transportation benefits of TOD can be significant, there are still many major implementation barriers that limit the broader implementation of TOD in California. Based on this study's review of TOD, Chapter 8 summarizes major barriers to TOD implementation, which include:

- **Transit system location and design.** The location and design of transit systems can be a major barrier to successful TOD. Unfortunately, stations often have poor pedestrian access and are not well integrated with the surrounding local community. For example, broad expanses of surface-level

parking often separate stations from the surrounding community; and stations and transit corridors are often located in areas with little or no development potential, which significantly reduces transit's ability to link activity centers.

- **Local community concerns.** For local neighborhoods, proposals for TOD projects often are associated with concerns about changing the character of a community. Even with quality design and appropriate density, and despite local government support, community concerns about proposed TOD projects often become substantial hurdles to implementation.
- **Local zoning not transit-friendly**. In most major transit station sites in the State, local zoning has not been changed to reflect the presence of transit. Local development codes around major stations often tend to favor low-density, auto-oriented uses. Creating and implementing transit-friendly zoning becomes an additional hurdle.
- **Higher developer risk and cost.** Mixed-use and/or higher-density projects (such as in TOD) present a higher level of risk for developers and financiers as compared to typical 'sprawl'. Due to innovative and often high-quality design, TOD can be more costly to build. It is often subjected to more stringent regulations as well as to more complex local approval processes than conventional "auto-oriented" projects, which also contributes to higher development costs.
- **Financing difficult to obtain.** Obtaining private financing for TODs is often also a significant barrier to implementation. Many lenders have concerns about or lack experience with financing mixed-use projects or those with lower parking ratios, such as are typical in TOD. Public financing for implementing TOD is limited and difficult to obtain in California, and often is only available within redevelopment agency areas.

What Could the State Do to Encourage TOD Implementation?

An important objective of this study is the identification of strategies that the State of California could pursue in order to facilitate the broader implementation of TODs in the state. Recommendations regarding potential State-level strategies to encourage broader implementation of TOD emerged from an extensive process that included: a 'state-of-the-practice' review; interviews with developers, local officials, transit operators, and special-interest groups; input from staff and consultants; as well as numerous meetings of the two statewide advisory committees that were convened for this study.

Based on the results of this process, members of the study's Policy Steering Committee have reached consensus regarding fourteen recommended state-level strategies to assist in overcoming TOD implementation barriers. These strategies can be grouped into two broad areas, as follows:

Strategy Area #1: State Policies and Practices

Strategies in this category include:

- Encouraging improved coordination of land use and transportation planning at local and regional levels.
- Facilitating the use and sale of State-owned land near major transit stations for TOD.
- Examining State environmental review requirements in relation to TOD to determine whether changes may be indicated to reduce barriers.
- Contributing to improved data on travel and economic impacts of TOD, and incorporating data into improved analysis and decision-making tools; and
- Providing information and technical assistance on TOD implementation.

TOD proponents often face significant delays and difficulties when trying to secure local land use approvals for TOD projects, even in areas where State and local policies are supportive of this type of development. The State can encourage local agencies to more closely link land use practices that promote a transit-friendly urban form by providing information, funding for planning, and encouraging cooperation.

In addition, the State can provide direct assistance for TOD implementation by reducing existing barriers to leasing or purchasing State-owned "excess" and/or underutilized land located near major transit stations. There is also an important role for the State in developing and disseminating data and information about the effects and benefits of TOD regarding travel, economic, and social benefits and impacts. This information is necessary in order to improve the accuracy of analysis prepared for proposed TOD projects, and also could help expedite local land use approval processes.

Strategy Area #2: State Funding for Planning and Implementation

The Policy Steering Committee for this study recommends that the State of California could help overcome barriers to funding and financing TOD implementation by:

- Providing funding to local jurisdictions to prepare plans and adopt ordinances that facilitate transit-oriented development.
- Providing financial incentives to enable local agencies and private organizations to implement TOD.
- Offering funding for specific types of TOD demonstration projects.
- Changing existing law to allow local agencies to provide 'tax-increment financing' around major transit stations, even if they are located outside redevelopment areas.

- Allowing greater flexibility in the use of State transportation funds for TOD; and
- Helping to make private TOD mortgage instruments (such as the “Location Efficient Mortgage” (LEM) program more widely available.

Even though market demand for TOD-style projects is high in the state’s major metropolitan areas, it is often difficult for developers of transit-supportive projects to obtain public funding and private financing. Public incentives for TOD implementation in California are very limited, outside established local redevelopment areas. And, the mixed-use aspect of good TOD design can make it difficult for developers to obtain loans from private financial institutions who are not accustomed to funding these types of projects.

To complicate the situation, local jurisdictions often lack the resources necessary to prepare TOD ‘specific plans’ or to change development ordinances to encourage TOD. In addition, local agencies typically lack the ability to provide adequate financial incentives or assistance to encourage quality TOD design and implementation, unless a project is located within an established redevelopment area where tax-increment financing is available.

SECTION 1: DEFINITION AND BENEFITS OF TRANSIT-ORIENTED DEVELOPMENT

In this section, the report offers a definition of TOD and provides an overview of the components of successful TODs. It then summarizes a literature review of the major benefits of TOD, as well as its potential effects on travel and transit use.

CHAPTER 1: What Is Transit-Oriented Development?
CHAPTER 2: What are the Benefits of TOD?
CHAPTER 3: How Does TOD Affect Travel and Transit Use?

California Department of Transportation

Sacramento Regional Transit Light Rail station on the K Street Mall is part of a central city TOD that includes restaurants, offices, theatres, specialty stores, and a convention center.

CHAPTER 1: What Is Transit-Oriented Development?

Principal Authors of Chapter: GB Arrington and Topaz Faulkner

I. Introduction

This chapter summarizes the results of a literature search of definitions of transit-oriented development (TOD).[II] It also offers a new definition developed specifically for this study. And, it lists several of the recommended components for a successful TOD.

Exploring the universe of TOD definitions and the components of a successful development involved an extensive review of more than two dozen contemporary and historical sources. University research, studies, guidelines, and handbooks from across the United States and Canada were augmented by searches of the Internet. A bibliography of the sources and Internet sites is included in a separate Appendix.

Evolution of the Concept of TOD

Over the past 20+ years Transit-Oriented Development (TOD) has gone through a significant evolution. TOD made its first appearance in the late 1980s as a bold conceptual alternative to conventional sprawl. From here it evolved to architectural drawings and a handful of built examples. TOD then grew into a more specialized real estate product that now has started to come of age as it gradually enters the mainstream of development.

In many ways, "transit-oriented development" describes a return to the streetcar-oriented commercial areas of the last century and the villages that grew around the rail stops. Before the proliferation of the automobile, it seemed natural to cluster commercial and residential uses within easy walking distance of each other and transit.

Lennertz and Coyle Associates / Seth Harry

Concept image for Pleasant Hill TOD

Following World War II, freeways facilitated the exodus to suburban subdivisions that were not designed with transit service in mind. Zoning regulations, originally designed to protect residents from noxious industries, further segregated businesses from residences. Metropolitan regions throughout the country are experiencing the consequences of low-density sprawl and automobile-dependent land use patterns. A growing interest in reversing land use and transportation policies that have fostered traffic congestion, long commutes, air pollution, and inner city decay has led to land use strategies that focus on alternatives to the auto. TOD has been one component of this effort; however, its application shifts depending upon circumstances.

[II] In this report, the terms transit-oriented development, transit-supportive development, and transit villages are all used interchangeably.

In the early 1990s, transit agencies and local jurisdictions in some regions began to embrace TOD as a growth strategy to preserve regional mobility and quality of life. TOD was seen as "an alternative development model." TOD offered transit agencies two important benefits:

- A broader base of community and political support for transit. Transit was no longer seen as just an alternative to the automobile — transit could be a component of "livable communities" strategies; and
- The long-term prospect of higher transit ridership by gradually reversing automobile-dependent development patterns to a pattern of development that was "transit-friendly."

By the end of the 1990s, some groups felt that TOD had "morphed" into a specific type of development product. The magazine Building Design & Construction referred to TOD much more narrowly as "transit-based housing at rail stops".[11]

II. Definitions of TOD

TOD has been defined at a number of levels and a variety of scales. Not surprisingly, there is no consensus in the literature on just what constitutes TOD. TOD is seen as an alternative to sprawl, as a mixed-use transit-friendly community, and as a specific development type. There are constituencies for each of these categories of definitions.

The Technical Advisory Committee to this study developed the following definition of TOD based on other available definitions, as well as their direct experience implementing TODs:

> ***" Transit-oriented Development (TOD) is moderate to higher-density development, located within an easy walk of a major transit stop, generally with a mix of residential, employment and shopping opportunities designed for pedestrians without excluding the auto. TOD can be new construction or redevelopment of one or more buildings whose design and orientation facilitate transit use."***
>
> ***- Statewide TOD Study Technical Advisory Committee***

At the local level, TOD generally implies a mix of higher-density land uses and activities designed and located to create a safe and convenient environment that encourages transit ridership as well as bicycling and walking.

During the early 1990s, architect and planner Peter Calthorpe added more specifics to the definition of TOD:

"A Transit-Oriented Development (TOD) is a mixed-use community within an average one-fourth-mile walking distance of a transit stop and core commercial area. The design, configuration, and mix of uses emphasize a pedestrian-oriented

environment and reinforce the use of public transportation. TODs mix residential, retail, office, open space, and public uses within comfortable walking distance, making it convenient for residents and employees to travel by transit, bicycle or foot, as well as by car."[12]

'Ohlone-Chynoweth' TOD in San Jose. The project includes a mix of commercial and residential uses designed in a manner that is very transit friendly.

Calthorpe further distinguishes various types of TODs based upon the level of transit serving them:

"Urban TODs are located on the Trunk Line Network of the regional transit system, at light rail stops or at transfer stations, and may be developed at high commercial intensities and residential densities."

"Neighborhood TODs are located on the Feeder Bus Line Network within 10 minutes transit travel time from a light rail stop or transfer stations and should place an emphasis on residential uses and local-serving shopping."[13]

In a similar manner, TODs may be assessed on the basis of whether they are serving a neighborhood within a community, or an entire region. In the case of neighborhood TODs, the emphasis is on residential use with locally-oriented shopping in facilities that are sized to serve the population living in close proximity. Although some of the businesses may be sufficiently unique to draw customers from a larger area, most of the shops and services will be similar to those found in other neighborhoods.

Alternatively, a regional TOD will include uses that attract consumers from a broad metropolitan area. Examples would include: a large shopping mall; a TOD that is adjacent to a university; or a major employment center or downtown.

During the 1990s, a group of innovative architects and planners started an initiative entitled "The New Urbanism." Its magazine, The New Urban News, stated: "TOD is, in its most basic form, a New Urbanist neighborhood – often called a Traditional Neighborhood Development – centered on a mass transit station."[14]

"New Urbanism" proposes a return to more pedestrian-oriented communities, based on the patterns that existed before World War II. The goal is to reintegrate housing, shopping, work, and public places into mixed-use developments. At the same time, New Urbanism acknowledges that the automobile and "big box" retail stores are here to stay. This community design

concept seeks to "tame" these elements rather than eliminate them.

The principles of New Urbanism include:[15]

- An emphasis on compact, walkable neighborhoods that are typically no more than a quarter mile from center to edge. These neighborhoods are the basic building block of the regional structure and join together to form towns and cities.
- An interconnected network of streets to encourage pedestrians and bicycles while not precluding automobiles. A complete hierarchy of streets and a connected system allows pedestrians and cars to function and interact efficiently.[III]
- A complex mix of uses (residential, working, shopping and recreating) should occur within close proximity. A range of housing options allows a variety of ages and incomes within a single neighborhood;
- The neighborhood has public space at the center to provide the focus of the public life. The edges should be defined by man-made elements that may include larger retail stores forming a main street that serves multiple neighborhoods;
- Public spaces are given priority, with civic buildings in prominent locations. Open space is in the form of squares, parks, and plazas. Streets form a majority of our public spaces and the buildings that frame them are essential in creating active and safer spaces.

At the State level, in 1994 California enacted the "Transit Village Development Planning Act" (Section 65460 of the Government Code). This act authorizes local governments to develop land use plans around major transit stations and to provide "density bonuses" within them to allow the construction of higher-density development than would otherwise be allowed by local zoning codes. The Transit Village Act of 1994 defines TOD as: "a neighborhood centered around a transit station that is planned and designed so that residents, workers, shoppers, and others find it convenient and attractive to patronize transit. " It contains "a mix of housing types, including multiple dwelling units, within not more than a quarter mile of an existing or planned rail station."

[III] The importance of interconnected street networks is underscored in a study entitled "Neighborhood Site Design and Pedestrian Travel."[III] The research was based on a study of 12 neighborhoods similar in terms of their population densities, land use mix, and income levels. Half of the neighborhoods had extensive pedestrian facilities, and the remainder had very limited facilities. The findings suggest that neighborhood site design plays a determining role in supporting walking as an alternative to driving. The volume of pedestrian trips was three times higher in urban sites with small street blocks and continuous sidewalks than in suburban sites with large blocks and discontinuous sidewalks.

At the Federal level, during the later 1990s, the Federal Transit Administration (FTA) became a strong advocate for TOD as part of its "Livable Communities Initiative." FTA's "Building Livable Communities with Transit"[16] booklet defines TOD in two ways – as an alternative to sprawl and as a specific development type:

- "Transit-oriented communities are characterized by design and development patterns that are conducive to the use of transit, bicycling, and walking to access opportunities – shopping, business centers, services, housing, and others." (FTA)

- "Transit-oriented development and community-sensitive transit can help reverse these trends" of "sprawl development patterns (leading) to increasingly longer trips, poor pedestrian access, traffic congestion, and adverse environmental impacts."

According to FTA, these types of development are either planned after a decision has been made to construct new major transit investment, or they are built adjacent to existing or planned high-quality transit service.

III. Components of Successful Transit-Oriented Development

There are certain types of design components that can effectively encourage people to take transit. These are summarized briefly in the following section.

TOD Design Components
The following list from "Planning for Transit-Friendly Land Use: A Handbook for New Jersey Communities"[17] provides an overview of components of successful TOD:

- A transit station or stop that is a visible point of identity for the neighborhood, district, or community it serves;

- Access to the transit station or stop that is along clear, direct, and convenient routes;

- Continuous and safe sidewalks and pathways that make pedestrian access easy;

- Bike paths and storage locations that encourage bicycle access;

- Safe and comfortable places to wait and to meet others;

- Major points of origin or destination for transit riders that are in easy and interesting walking distance of the transit station or stop;

- A mix of land uses, including retail, housing, and/or offices and other employment centers and perhaps also such special uses as governmental offices, schools and health care facilities, or tourist or recreation locations;

- Essential services and conveniences that are located in, or in close proximity to, the transit station, such as: a day care center or dry cleaning shop, facilitating "trip-linking" and thus eliminating the need to make additional stops during the trip;

- Safe, well-lit, attractive areas for all-day parking, drop-off and pick-up, and direct transfer between modes of transit; and

- An overall environment that is active, human scaled, and visually diverse and interesting, where people are encouraged to walk.

TOD or TAD: Transit-Oriented or Transit-Adjacent Development?

Within the 'family' of TOD you might say there are two "brothers" – TAD and TOD. Transit-Adjacent Development (TAD) can be defined broadly as development in close proximity to transit, generally within one-quarter mile, which comprises the majority of the current TOD examples.

The uses can be transit-friendly; however, the specific design of these projects has not been directly influenced by transit. The same development product would occur, whether transit was there or not. [IV]

The Cisco Systems campus adjacent to the Champion Station along the Tasman West light rail line in San Jose is a classic example of "transit adjacent development" -- it is close to transit, but not oriented to transit.

Santa Clara VTA

Parsons Brinckerhoff

Cisco Systems campus in San Jose is an example of 'transit-adjacent development'

There are numerous Cisco buildings in the area, but they are low-density, scattered, and separated from transit stations by large expanses of surface parking lots.

Comparatively, in the case of TOD, the projects are also located within a quarter mile of the station but the development has been, through public policy or private initiative, partially molded by transit. The reshaping in relationship to transit might include one or all of the following:

- A compact site design, oriented for the pedestrian;
- Higher-density and intensity of uses, in relation to the norm for the community;

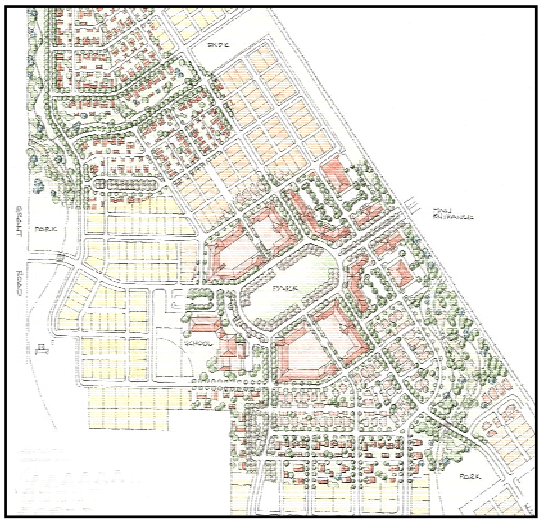
[IV] This projects consultant, GB Arrington, developed the classification of TOD and TAD in response to an on-going debate within the transit industry on what constituted TOD. Some transit agencies were concerned that the "TOD" term was being used to describe any type of development next to transit, whether or not it was transit-supportive.

- Buildings oriented to transit, doors located convenient to a transit stop;
- Limited parking, the parking supply has been "pinched" or placed in multi-level parking structures;
- Pedestrian access and high-quality, safe facilities.

IV. TOD: Policy Description or Development Model?

In describing TOD, some observers view TOD more as a policy description than a development model. This perspective is based on a growing body of experience that while the number of TOD plans has increased rapidly, there are few development companies specializing in the construction of TODs as a market niche. In part, this can be attributed to the fact that transit on its own does not have sufficient volume of patrons to support new development. Under that view, there is no pure TOD real estate market *per se*.

There is, however, a considerable market for "development products" that work well for TODs, given their higher-density and a mix of uses at a pedestrian scale. (See Chapter 6 for a broader discussion). Those development products include office, multiple-family and local retail uses. The presence of transit can add value to this complementary slice of the market.



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TODs can include master planned bus TODs (like Twin Creeks in Southern Oregon) as well as urban infill projects on rail lines.

V. Performance Criteria for TOD

Local governments typically regulate conventional developments by what are termed "prescriptive" standards that specify exactly how a facility is to be built and where. Such a uniform approach provides authorities and developers very clear guidelines. However, such prescriptive standards tend to discourage innovative solutions and do not always result in quality projects.

Conversely, "performance" standards describe the objectives that a facility is supposed to meet, thus allowing greater flexibility for creative solutions. The use of a combination of prescriptive standards for routinely-encountered situations and performance standards for specific types of sites can result in alternative standards that meet local circumstances in a more cost-effective and creative manner.

At a minimum, the following performance standards/criteria apply to TOD:

- Moderate and higher-density development within fairly easy walking distance of major transit;
- Mix of residential, employment, and shopping opportunities; and
- Pedestrian-oriented design without excluding the automobile.

In his 1990 Transit-Oriented Development Design Guidelines, Peter Calthorpe[18] suggests a series of specific location and site criteria (which are included in the appendix volume to this report). He states that the TOD concept may be applied at various locations, including: infill sites, those with potential for redevelopment, and as new developments in urban growth areas.

Regardless of the location or the number of property owners, it is very useful to have a comprehensive TOD Development Plan or Specific Plan. Peter Calthorpe also emphasizes that property owners need to work together and with the local jurisdiction to formulate successful development plans and implementation mechanisms.

VI. Federal Rail Transit Funding Criteria

In 1997, the Federal Transit Administration (FTA) started implementing an evaluation criteria regarding transit-supportive land use in determining which projects would be awarded Federal 'New Starts' funding for rail transit projects.[19] Through this policy, the Federal government recognizes that capturing the land use and economic development opportunities provided by major transit investments requires transit-friendly planning for areas around transit stations.

Although the FTA (like any Federal or State agency) cannot mandate any specific land uses, the agency provides a significant incentive for TOD by basing priority for Federal funding on transit-supportive land use. The Federal 'New Starts' funding process is highly competitive at a national level. To be able to successfully compete with transit proposals from other states for this important funding, California's transportation and land use agencies must demonstrate that land uses along proposed new rail projects will be transit-supportive.

The framework that the Federal Transit Administration uses to evaluate rail transit projects considers three main levels:

1. Containment of sprawl at a regional scale;
2. Focus of development growth on the transit corridor; and
3. Transit-friendly zoning with a mix of uses, pedestrian scale, increased density, and parking limits in station areas.

In evaluating the potential for funding of a rail transit project, FTA applies eight specific transit-supportive land use measurement factors on a sliding scale.[20] These are:

1. *Existing Land Use*
Existing station area population and employment levels. The presence of high trip generators in the mix of land uses. The character of the station area and presence of pedestrian-friendly development. The existing parking supply and regional parking policies.

2. *Containment of Sprawl*
Enforceable urban containment and growth management policies. Existing and planned densities and market trends for development within the corridor and region.

3. *Transit-Supportive Corridor Policies*
Public plans and policies and private/institutional initiatives that support transit-oriented land use patterns within transit corridors and station areas. Plans and policies to increase station-area development; plans and policies to enhance the transit-friendly character of development; and parking policies.

4. *Supportive Zoning Near Transit Stations*
Zoning ordinances that support increased densities in transit station areas, enhance the transit-oriented character of the station area, and allow for reduced parking.

5. *Tools to Implement Land Use Policies*
Endorsement and participation of public agencies, organizations, and the private sector in the development and planning process. Tools and actions are in place to promote transit-oriented development. Involvement of the development community in supporting the station-area plans and joint development efforts. Public involvement in corridor and station area planning.

6. *Track Record of Performance*
Demonstrated cases of development affected by transit-oriented policies. Corridor development targets and station area development proposals and status.

7. *Performance of Land Use Policies*
Demonstrated cases of development affected by transit-oriented policies. Corridor development targets and station area development proposals and status.

8. *Existing and planned pedestrian facilities, including access for persons with disabilities.*
What emphasis has been placed on pedestrian facilities and systems as part of land use planning? What is the status of existing and planned pedestrian facilities, including curb ramp transition plans in station areas?

VII. TOD Evaluation Checklist

A checklist of attributes of TOD is provided below for use by local jurisdictions and transit agencies, developers, and others in evaluating whether a project or plan conforms to criteria for TOD. (Please note: this list below is intended to be advisory only, and is provided as a helpful guideline.)

For development to be transit-oriented, generally it needs to be shaped by transit in terms of parking, density, and/or building orientation in comparison to more conventional development. It is not enough that it is just *adjacent* to transit. Local governments play a significant role in promoting TOD through plans, policies, zoning provisions, and incentives for supportive densities, designs, and mix of land uses. A successful TOD will reinforce the community and the transit system. This checklist is intended to guide communities in reviewing proposed projects and in assessing the transit-friendliness of current land use codes and ordinances.

Within an easy walk of a major transit stop (e.g., ¼ to ½ mile walk), consider the following:

LAND USE

- Are key sites designated for ”transit-friendly” uses and densities? (walkable, mixed-use, not dominated by activities with significant automobile use)
- Are “transit-friendly” land uses permitted outright, not requiring special approval?
- Are higher densities allowed near transit?
- Are multiple compatible uses permitted within buildings near transit?
- Is a mix of uses generating pedestrian traffic concentrated within walking distance of transit?
- Are auto-oriented uses discouraged or prohibited near transit?

SITE DESIGN

- Are buildings and primary entrances sited to be easily accessible from the street?
- Do the designs of areas and buildings allow direct pedestrian movements between transit, mixed land uses, and surrounding areas?
- Does the site’s design allow for the intensification of densities over time?
- Are the first floor uses “active” and pedestrian-oriented?

- Are amenities provided to help create a pedestrian environment along and between buildings?
- Are there sidewalks along the site frontage? Do they connect to sidewalks and streets on adjacent and nearby properties?
- Are there trees sheltering streets and sidewalks? Pedestrian-scale lighting?

STREET PATTERNS & PARKING

- Are parking requirements reduced in close proximity to transit, compared to the norm?
- Is structured parking encouraged rather than surface lots in higher-density areas?
- Is most of the parking located to the side or to the rear of the buildings?
- Are street patterns based on a grid/interconnected system that simplifies access?
- Are pedestrian routes buffered from fast-moving traffic and expanses of parking?
- Are there convenient crosswalks to other uses on-and off-site?
- Can residents and employees safely walk or bicycle to a store, post office, park, café or bank?
- Does the site's street pattern connect with streets in adjacent developments?

CHAPTER 2: What are the Major Benefits of TOD?

Primary Authors: John Boroski, GB Arrington, Sam Seskin, Terry Parker, and Daniel Mayer

I. Introduction

This chapter describes some of the more important social, economic, and environmental benefits that can result from the implementation of transit-oriented development (TOD). Land use planners, transit agencies, environmentalists, and policy-makers have begun to consider TOD as a part of an important alternative to the low-density sprawl and automobile-dependant land use patterns. More specifically, focusing growth around transit stations is a way to capitalize on transit investments. It can also contribute to a variety of local and regional benefits as part of a strategy for compact and infill development.

The potential benefits of TOD include:

- Enhanced quality of life for community residents,
- Increased options for mobility, especially in congested urban and suburban areas,
- Reduced rates of vehicle trip-making and fewer vehicle miles households travel by automobile,
- Improved air quality and reduced energy consumption,
- Preservation of prime farmland and other resource lands,
- Reduced infrastructure costs for government, developers, and property owners,
- Increased safety for pedestrian and bicyclists, and helping to reduce aggressive driving injuries and deaths.

The information presented on these and other benefits is based upon an extensive literature review of over three dozen documents. Sources that were reviewed include academic studies, trade journal articles, consultant reports, agency studies, and planning documents (available in hard copy or on the Internet).

Based on this available information, a solid case can be made that these expected benefits could be realized when TOD is implemented as part of a broader land use and transportation strategy.

Parsons Brinckerhoff and the California Department of Transportation

'Whisman Station; TOD in Mountain View, San Francisco Bay Area near a Santa Clara Valley Transit Authority light rail station.

The material presented in this chapter is intended to be a source of readily accessible information about the benefits and suitability of transit-oriented development in local communities. It is not meant to be an exhaustive account of all the benefits attributable to TOD; rather, this summary is a starting point upon which additional research can and should be added.

II. Benefits of Transit-Oriented Development: An Overview

Categories of the major benefits from TODs are listed below, and discussed in detail in the following sections.

Quality of Life
TOD can offer "24-hour" activity patterns that residents and businesses increasingly value. TOD also provides mobility options that are particularly valued by households with non-drivers (e.g., children and the elderly). These alternative modes (transit, walking, and biking) also promote more active lifestyles, with health benefits for everyone. By increasing pedestrian travel and emphasizing public space, TODs also improve the opportunities for personal interaction and community building.

Quality of life, or 'livability', is a term that is often used to represent a host of factors that collectively describe a good place to live. The definition of livability varies from person to person, but often includes concepts such as safe neighborhoods, access to jobs and recreation, a clean environment, a sense of community, good schools, attractive and affordable housing, and moderate cost of living. Although there is some disagreement regarding a complete list of factors, how these factors are defined, and how they should be ranked, the fact that quality of life concerns are increasingly mentioned in public discourse indicates a growing interest about the issues surrounding this term. This section describes how TOD can contribute to particular aspects of quality of life (other topics such as improved air quality, affordable housing, and public safety are described below).

Enhanced Mobility
Research indicates that because of their pedestrian orientation, mix of land uses, and access to transit TODs increase the number and percent of trips made by transit, walking and cycling. TOD provides important mobility options for all non-drivers, especially for children and the elderly. Table 2.1 (below) shows that in the Portland, Oregon metropolitan region, the share of walk, transit, and bike trips are higher in neighborhoods with TOD characteristics. (This can be seen in the first category under 'Land Use Type' in the category 'Good Transit & Mixed-use' in Table 2.1, on the following page.)

Land Use Type	Mode Share					VMT per Capita	Autos per Household
	% Auto	% Walk	% Transit	% Bike	% Other		
Good Transit & Mixed Use	**58.1%**	**27.0%**	**11.5%**	**1.9%**	**1.5%**	**9.80**	**0.93**
Good Transit Only	74.4%	15.2%	7.9%	1.4%	1.1%	13.28	1.50
Rest of Mulnomah Co.	81.5%	9.7%	3.5%	1.6%	3.7%	17.34	1.74
Rest of Region	87.3%	6.1%	1.2%	0.8%	4.6%	21.79	1.93

Source: Metro 1994 Travel Behavior Survey

Table 2.1: Metro Travel Behavior Survey Results for Portland, Mulnomah County, Oregon

Increasing the range of travel options available to the general public will become increasingly important in the coming years. This is especially true in California's major metropolitan areas where traffic congestion continues to worsen.

Statewide, annual vehicle miles of travel (VMT) are expected to increase from 306 billion miles in 2000, to roughly 475 billion miles by 2020, an increase of 55 percent.[21] This will worsen congestion throughout California, even if significant road investments are implemented.

Changing demographics indicate a need for more mobility options:

- The number of working families continues to increase (i.e., parents with more household demands and relatively less time to transport children).
- As the "baby boom" generation ages, this population will increasingly require alternate mobility options that do not require driving.
- The percentage of traditional nuclear families is declining, while at the same time the portions of single-parent families and other household types are increasing.

Working mothers in particular would benefit from increased transportation options, as mothers with school-aged children make 20 percent more trips on average than women in general do, and 21 percent more trips than men (nearly half of these trips are for chauffeuring and other errands).[22]

The percentage of people aged 65 years old and over in California, increased from 10.5 percent of population in 1990 to 11.1 percent in 1998.[23] This rate of growth exceeds the national average for this age group, and indicates a growing need for transit and other mobility options.

Health Benefits

By providing mobility options for drivers and non-drivers alike, TODs offer both direct and indirect health

benefits.[V] The direct benefits are the result of opportunities for a more active lifestyle that pedestrian and transit-friendly neighborhoods provide.

Decades of sprawling urban development are correlated with a dramatic increase in the number of overweight adults and children. Indeed, the number of obese adults and children has also dramatically grown during this time period. Furthermore, along with both of these trends has been an increase in health problems associated with inactivity.

As researchers ascertain the risks of leading a sedentary lifestyle, public health officials are beginning to advocate for different types of communities that provide viable mobility alternatives. Increasing evidence shows that the risks of a sedentary lifestyle are alarming. For example, excessive inactivity and the obesity that results from it, may be a primary contributing factor in the 200,000 annual deaths that are caused by heart disease, cancer, and diabetes. However, developments like TODs that emphasize mixed land uses, street connectivity, pedestrian and bicycle facilities, make walking, the use of the bicycle and mass transit viable transportation choices.

[V] Indirectly, TODs contribute to cleaner air and water by reducing rates of household pollution caused by auto use. (See the section on Air Quality (below) in this chapter for a more detailed discussion.)

These choices can then play an important role in the improvement of personal and public health.[24]

The Value of Choice

TODs expand the range of transportation options, and they also offer access to a mix of employment, retail, and leisure activities located in proximity to transit stations and to housing. This means that TOD residents have additional choices available to them regarding where they live, work, shop, and recreate which are not available to suburban sprawl communities. Furthermore, if TODs are implemented throughout a region to create a nodal pattern of transit-accessible activity centers, the accessibility advantages conferred to TOD residents and workers increase substantially.

In the end, many factors combine to affect where people will choose to live, work, shop, recreate, and how they access different activities. The fact that some TOD residents may not choose to work or shop in their local community, or even to use transit does not mean that they fail to value the availability of multiple transportation and land use options. On the contrary, economists are increasingly acknowledging that merely providing transportation and land use choices has inherent value (which can be quantified), and that this value can be substantial.

With respect to transit, for instance, transit availability provides value by acting as a hedge against events that limit a traveler's ability to use automobiles, such as:

- Increases in fuel prices or other costs that increase the cost of owning or operating a car;
- Vehicles being unavailable or broken down; or
- Loss of a person's ability to operate a vehicle.

In other words, people value a transportation "alternative", even if they do not plan to use it regularly, in order to preserve their option to use it.[25] Importantly, transit service is generally assumed to provide more "option value" than additional road capacity as it provides opportunities for travel without driving or owning an automobile, in inclement weather, etc.

Enhanced Sense of Community

Current research indicates that residents in suburban sprawl neighborhoods no longer have a strong 'Sense of Community'.[26] However, TOD provides for and emphasizes public space that affords residents with opportunities for face-to-face contact while they walk within the TOD. Because of this fact, TOD encourages personal identification with definable places, and therefore fosters stronger ties within the community. In his book Bowling Alone, social scholar Robert Putnam has documented the breakdown of civil society in America as people become more disconnected from their neighbors, communities, and families. Putnam contends that this fragmentation threatens our health, safety, and even our very democracy. He contends that the fragmentation is caused by several factors, one of which is urban sprawl, with its emphasis on private living space in fringe areas and travel that is conducted almost exclusively by personal automobile. Furthermore, this fragmentation occurs not only at the community level, but also within households. A body of research indicates that workers who live in sprawl-type neighborhoods have more travel stress,[27] absenteeism and turnover[28] than workers who live in denser, transit-supported neighborhoods. TOD, therefore, can strengthen family connections because workers are more rested after work due to a lower travel-related stress load[29].

In his work, Putnam describes the basic, but important, principle that, as people associate with one another in various capacities, whether it be on the sidewalk, at the grocery store, or at the transit stop, they form relationships that can be relied upon to provide for personal needs (e.g., walking the dog, babysitting) and to address broader community problems, thereby sustaining a higher quality of life for everyone. Additionally, according to Putnam, each relationship is an asset, and the accumulation of these assets forms each person's or communities "social capital." TODs can therefore, promote community building and the development of social capital.[VI]

[VI] Other factors such as personal values, residential turnover, and other demographic variables will also affect social cohesion and community building.

"24-Hour" Places

Across the country, residents and workers are increasingly seeking to live and work in places that offer a range of activities for more hours of the day, a trend that has not gone unnoticed in real estate development circles. According to the *"Emerging Trends in Real Estate 1999"* report, traditional 24-hour cities continue to dominate the list of favored buying markets for the second year in a row. Furthermore, "current and future investors are advised to seek places that have strong residential fundamentals and multifaceted environments", which includes mass transportation as an alternative to automobile use.[30] More specifically, younger people are migrating back to urban cores for the excitement they offer, while baby boomers are relocating to urban cores for the convenience and amenities that they offer.

The report continues to say that, "Single-family homes are more trouble to maintain than apartments, and suburban traffic congestion has become more aggravating, not to mention time consuming. Who needs the hassle? People want to live closer to where they work and play. Hectic lifestyles demand convenience…. Whatever the orientation, commercial real estate markets will thrive if they have attractive adjacent residential districts."

III. Reduced infrastructure capital and operating costs

TODs can help reduce infrastructure costs for local governments by up to 25 percent through compact and infill development.

Capital and operating costs for infrastructure refers to construction costs for roads, water and sewer facilities, and public buildings, along with the annual expenditures required to maintain them. This topic has received significant attention from researchers documenting the costs and benefits of alternative development patterns. A review of the literature indicates that contiguous, compact development is generally associated with infrastructure costs that are 75-95 percent of those for dispersed development patterns (e.g., 5-25 percent lower).[31] The largest cost savings (25 percent on average) typically result from the reduced need for multi-lane roads in denser areas.[VII] These studies also estimate the costs of providing water and sewer to be 20 percent lower for compact growth, and schools to be 5 percent less expensive, compared to conventional "sprawl" patterns. Infrastructure costs for compact development overall tend to be less

[VII] While many compact areas have more roads than dispersed areas, these roads are typically narrower (2 lanes) compared to roads in less dense suburban areas (4 or more lanes), with the result that net cost savings are realized.

than for dispersed low-density development patterns because of reduced infrastructure needs (e.g., for roads, water mains, sewage lines, etc.). In addition, the segregation of land uses associated with low-density development further increases these costs because parallel infrastructure systems often have to be provided to individual 'scattered' locations. Finally, the fragmented governance which often accompanies dispersed development leads to duplicative city halls, police stations, water/sewer treatment facilities, etc.

Operating costs for linear-based infrastructure are directly related to the amount of infrastructure services that are provided. Thus, operating costs begin to increase substantially as additional infrastructure is required to serve new dispersed 'sprawl' development. In other words, a given amount of infrastructure can serve a greater number of people, if those people live, work and recreate in a compact development. However, for other types of infrastructure and services (e.g., schools, police, fire, etc.), research has found that operating costs are highest in high and low-density areas, and lowest in the middle range of densities.[VIII]

In addition, cost savings can frequently also be realized in inner city residential neighborhoods and older commercial areas, which often have significant amounts of underutilized and substantial vacant space available. These areas can sometimes absorb small infill developments with little to no public capital expenditure because they may be able to take full advantage of existing infrastructure. Thus, limited infill and redevelopment near transit may be able to take advantage of existing local sewer, water, and road networks by using capacity that would otherwise be idle. Conversely, urban infill developments sometimes need to upgrade aging or inadequate water, sewage, or utility systems for individual projects, which can add significant costs to implementing such projects.

Corroborating these findings is a recently *Costs of Sprawl - Revisited* Study,[32] which is a comprehensive and current research on various relationships between urban form and numerous variables related to resource consumption, travel behavior, and public service costs.[IX] More specifically, this study used national data on 23 million households and 50 million jobs, in order to compare the impacts of different development patterns for every county in the United States over a 25-year period.

[VIII] Complicating this analysis is the fact that most high and low-density areas are comprised of different types of residents (e.g., cities have more households with lower incomes, which may require additional services). , There are also problems comparing the quality of the services that are received, which may take different forms.

[IX] The study also carefully controls for a wide range of socio-demographic variables.

To briefly summarize the study, 'uncontrolled' growth was first measured using projected demographic and economic data and 'sprawling' counties were identified throughout the U.S..[X] To estimate the potential benefits of more compact ('controlled') development, a scenario was created in which sprawl-type growth was redistributed within regional 'economic areas' (EAs) as defined by the U.S. Census Bureau. For this study, the researchers assumed an objective of reducing national sprawl by 25 percent. (Please refer to Chapter 3 for more information about this study.)

According to this study, about 40 percent of all statewide household growth through 2025 is likely to follow sprawl-type development patterns under the 'uncontrolled growth' scenario. At the county level, six of the top 30 counties in the U.S with higher rates of sprawl are located in California.[XI]

However, California also ranks highly with respect to its ability to potentially redirect its future growth by implementing TOD and other 'smart growth' policies. This study estimates that California could redirect over 800,000 future households to more centrally located and/or compact areas that are better suited to accommodate growth. This figure represents 66 percent of all growth projected to occur under the 'uncontrolled scenario', ranking California second only to Hawaii based on its potential for sprawl reduction. At the county level, two of the top 20 counties nationwide most able to redirect future growth are in California.[XII]

By redirecting some of its future growth, California could reduce the number and size of water and sewer pipes[XIII] by over 840,000, or roughly 16 percent. This translates to 25-year cost savings of $746 million for water infrastructure and over $1.3 billion for sewers. Most significantly, California could reduce its local road infrastructure by almost 35,000 lane miles, saving over $29 billion.

IV. Social Benefits

TOD can contribute to the supply of affordable housing by offering lower-cost housing products and by reducing household transportation expenditures. In addition, by bringing jobs and housing closer together, TOD can help address the growing 'jobs/housing balance' problem, which forces many

[X] "Sprawl" refers to low-density, dispersed development not easily accessed by transit and not conducive to walking. Generally speaking, significant sprawl was assumed to occur when developing suburban, rural, and undeveloped counties experience relatively rapid housing and/or employment growth, acknowledging that low-density, sprawl type development is probably occurring in many urban areas as well.

[XI] These are: Riverside (4), San Bernadino (6), Solano (18), Ventura (23), Placer (27), and Sonoma (28).

[XII] These are Stanislaus County (2) and San Joaquin County (4) (measured as a percentage reduction)

[XIII] Water and sewer interceptors, or mains, are connected to residential and non-residential units by laterals.

workers to commute to distant job centers and reduces employment opportunities for transit-dependent workers. Finally, TOD can promote urban renewal and provide reverse commute opportunities from cities to the suburbs.

Affordable Housing

TOD can include a wide range of housing types as a way to increase residential density in the vicinity of transit stations, and also as a method to appeal to a wide range of residents who may either require or favor alternative modes of transportation. This broad range of housing options (e.g., homes on smaller lots, condominiums, town homes, and apartments) is also more suited to accommodate a range of income levels than conventional single family, large lot housing developments. Indeed, this is particularly important in light of California's current housing affordability crisis[XIV] that places home ownership beyond the reach of many low and middle-income homebuyers and even threatens to stifle economic growth in some areas.

According to the California Building Industry Association [33] and the National Association of Homebuilders:

- "California is currently home to the nation's six most expensive housing markets,[XV] and a family earning the statewide median income falls more than $38,000 short of affording the median-priced home."
- High technology employs almost one million Californians, with high tech products representing 54 percent of California's exports. The average high-tech wage in California, Colorado, and Texas is roughly equivalent ($60,000 - $66,000). However, median home prices in California are much higher than in those states.
- Furthermore, the annual salary for a kindergarten teacher in Central Los Angeles falls more than $64,000 short of qualifying to buy a median-priced home. A police detective in Palo Alto requires another $150,000 in annual salary to qualify for a median-priced home.

The effect of this trend is that lower and middle-income employees in California increasingly are acquiring housing at the fringe of the metropolitan areas in which they work. This requires these workers to spend large amounts of time and resources commuting to work and for other purposes. Alternatively, many of these people may choose more

[XIV] "The three most serious impediments to California's continued economic growth are housing, housing, and housing." (Ted Gibson, Chief Economist, Calif. Department of Finance)

[XV] Eight of the top ten, and 14 of the top 20, after controlling for median family income levels. (Housing Opportunity Index, 2nd Quarter 2000)

centrally-located housing if it were available in order to avoid long, congested commutes.

Many factors affect housing affordability, and TOD by itself is not a panacea to this complex problem. TOD can, however, reduce the costs of homeownership and renting in the following ways:

- Real estate prices in California are steadily on the rise. TOD can provide a range of housing products that consume less land than conventional development, and therefore have the potential to lower housing costs. The aforementioned *Costs of Sprawl – Revisited Study*, for instance, estimated that California could reduce housing costs for land and structures by $19,000 per single-family detached home and by $886 per multifamily unit by adopting more compact growth patterns, especially in central locations.[34]

- More compact development also reduces public and private infrastructure costs (e.g., sewer, power, water) per housing unit. These savings can potentially translate into reduced housing costs, increased housing supply, and lower infrastructure costs overall for local jurisdictions.[XVI]

- By making alternative modes of travel (i.e. transit, walking, biking) feasible and convenient, TOD residents are able to reduce their levels of auto usage and ownership, freeing $3,000 to $4,000 of income for housing and other purposes.[XVII] Currently, the average Californian spends approximately one of every five dollars on the ownership and maintenance of an automobile.[35]

Evidence from a variety of sources indicates that people living in areas with a mix of land uses, a high-quality pedestrian network and good transit service, have lower car ownership and driving rates (please refer to Chapter 3 for more information on this topic).

Promoting Jobs/Housing Balance

A healthy jobs/housing relationship is generally considered to be two new homes added for every three jobs created. However, in many areas of California, the jobs/housing ratio is acutely out of balance. For example, in San Jose and Orange County, there is approximately only one housing unit available for every six jobs.[36]

Easing the jobs/housing balance problem is of critical importance in the California's large metropolitan areas. By bringing jobs, housing, and services closer together, and linking them with transit, TOD-style

[XVI] However, if infrastructure in older central areas is not adequate, costs could be higher to improve or expand sewer, water, or utility lines for individual infill projects.

[XVII] See Section VII of this chapter, 'Reduced Energy Consumption', for cost savings estimate methodology.

development can help mitigate the so-called 'spatial mismatch' problem. A spatial mismatch occurs when jobs are concentrated in distant locations from housing. Often, these locations are inaccessible to a high percentage of lower-skilled, lower-income workers who live in more central areas.[XVIII] Linking accessible housing, employment and other activities with transit provides increased mobility options.

Lower-income people, in particular, may be dependent upon transit to access work, shopping, leisure, and other opportunities. However, many of the newer suburban jobs and services are not accessible by transit. Over time, this mismatch aggravates preexistent problems that are related to concentrated unemployment in urban neighborhoods. Furthermore, spatial mismatch can exacerbate labor shortages in suburban locations by effectively 'shutting out' a large portion of the entry-level workforce. When TOD is implemented comprehensively throughout a region, the employment prospects of residents in declining urban areas improve, as a higher percentage of all regional jobs are located around easily accessible transit stations. In addition, TODs may include other services that facilitate participation in the job market (e.g., daycare, job-training, educational facilities). The end result is that job opportunities for lower and middle income workers increase as TODs simultaneously bring jobs and enhanced transit service to existing urban neighborhoods. TODs also distribute a higher percentage of the region's jobs around transit stations in more peripheral locations -- making the 'reverse commute' a more feasible option.[XIX]

While a complex mix of factors may contribute to under-employment (e.g., educational attainment, discrimination and other circumstances), without the ability to travel to jobs, many underemployed residents who desire to improve their financial condition cannot do so.

Reducing Urban Decline

TOD is more frequently being used as an economic development tool to help reshape and revitalize existing urban areas. It can also contribute to the reversal of regional patterns of central city decline and cyclic fiscal distress.[XX]

[XVIII] In 1979, 74 percent of all U.S. office space was found in central cities and only 26 percent was in suburbs. By 1999, the central city share of office space declined to 58 percent, while the suburban share grew to 42 percent. for example, while Los Angeles has annexed many miles of suburbs, it now only has 33 percent of the region's office space. (The Brookings Institution. Center on Urban and Metropolitan Policy. "Office Sprawl: The Evolving Geography of Business." October, 2000.)

[XIX] Chapter 6 of this report summarizes how TOD can increase local residential and commercial property values. To keep TODs affordable for lower income residents, many developments also include subsidized housing components.

[XX] TOD has been an important component of strategies to revitalize areas in downtown Portland, OR (1972 Downtown Plan), Sacramento (K Street Mall), San Francisco (Embarcadero), & Washington D.C. (MCI Arena).

Importantly, downtown-oriented transit investments make central business districts more attractive to businesses and to workers by increasing transportation accessibility to more distant locations. TOD then magnifies the value of these investments by locating more potential riders in close proximity to the transit network. TODs also improves the attractiveness of urban areas by increasing local and regional employment opportunities. TODs also increase the physical attractiveness and the feeling of 'well being' experienced by its residents, by creating active public places that enhance the actual, or even the perceived level of public safety (some of these benefits are described in other sections of this report). Therefore, TOD may help to decrease the societal costs of urban decline, which are magnified by the concentration of problems in older parts of the region.

V. Economic Development

TOD can be a focus of economic investments, so that scarce funds are used efficiently and effectively. By offering viable transportation alternatives for workers, TODs can help to reduce the amount of time that some workers spend in traffic, and also help to reduce congestion-related business costs. Furthermore, TOD can increase business opportunities, and can be used as a tool to create distinctive, marketable communities with higher property values and tax revenues.

TOD as a Part of a Regional Development Framework

In addition to generating value for local residents and producing cost savings for business, TODs offer an opportunity to redefine where economic activity will occur within the region and to implement other regional goals. TOD typically requires high-profile transit investments that cross multiple jurisdictional boundaries.

In Portland, Oregon, for instance, light rail transit and TOD are being used to define and serve compact, easily accessible commercial centers, which can become the focus of additional local and regional economic and development investment.[XXI] In Portland's case, TOD is also being used to meet other planning objectives, such as reducing regional sprawl and increasing the supply of affordable housing. Similarly, TOD can be targeted towards underutilized or under-performing areas when the goal is to create job access for inner city residents, or to increase property values.

Other places that include TOD as part of regional development strategies include:

- Washington D.C. (Corridor and Wedges Plan)
- Vancouver, British Columbia (Regional Strategy)
- Charlotte, North Carolina (2025 Plan)
- Toronto, Ontario

[XXI] Portland's Region 2040 Plan locates 60 percent of job growth and 40 percent of household growth into centers and corridors with high quality transit service. In addition to encouraging transit use, this strategy also preserves existing neighborhoods.

Importantly, because TOD can simultaneously address the needs of multiple constituent groups, it is uniquely positioned to attract investment from a broad array of sources, such as redevelopment boards, transit agencies, housing groups, local and regional governments, and business associations. Furthermore, with careful and coordinated planning, investment from different sources can be combined to create higher levels of benefits than would otherwise develop.

Reduced Congestion-Related Business Costs

From 1980 to 1997 the number of licensed drivers in California increased by 31 percent, while the number of highway lane miles increased by only 5 percent. The result of this situation has been an increase of per lane traffic of about 66 percent.[37] In addition, from 1987 to 1998, the California Department of Transportation estimated that the amount of time vehicles are delayed more than doubled on urban freeways.[38]

Because of the increase in congestion, businesses incur additional labor costs in order to attract and retain workers. These costs (some of which are more easily quantified than others) may include: higher wages and benefits, shorter workdays, increased absenteeism, and transportation assistance.

- The California Department of Transportation estimated that in 1990, more than 197,000 hours per day were being lost due to traffic congestion, costing California businesses more than $2 million per day.

- The San Francisco Bay Area Economic Forum estimates that local businesses there lose $2 billion per year while employees sit in traffic congestion.[39]

- The Texas Transportation Institute estimates that commuters in the Los Angeles region experienced approximately 740 million hours of delay due to traffic congestion in 1997 alone.[40] Combining this assessment with a reasonable estimate for the value of lost time would result in cost savings "approaching or exceeding $10 billion per year".[41]

In congested metropolitan areas, travel costs for workers can be very large, and include:

- General aggravation and stress, reducing work productivity and increasing absenteeism and health-care costs.[42]

- The inability of some workers to work a traditional 8 or 9-to-5 schedule. While some workers may prefer to work non-traditional hours, many would prefer normal working hours so their schedules could align with those of family and friends (And many employers require traditional work hours).

- Tardiness and work rescheduling.

- For workers traveling on the job, increased difficulty completing tasks within schedule.

By offering opportunities for non-automobile travel, however, TOD can reduce the amount of time that workers spend battling traffic congestion and increase time for work, leisure and other activities. Surveys of business location decision-makers increasingly list travel mobility, among other quality of life issues, on the list of critical factors that are needed in order to attract firms.[43]

The Market Value of 'Walkability' and Transit Accessibility
Pedestrian-oriented development and easy transit access are increasingly part of distinct, easily-recognizable, and marketable places that generate tax revenues. Several studies have documented the market value of community 'walkability' and transit access (more detailed information is available in the Technical Appendix, pages 164-172). These findings include:[44]

- In New York, homes within 1,000 feet of a transit station were found to have property values $12,300 higher than similar properties a block away.

- In Washington D.C., commercial properties in close proximity to transit stations charged $2 to $4 per square foot more than similar properties located further from transit.

- Properties in residential communities that have access to San Francisco Bay Area's BART heavy rail service increase $1.96 to $2.26 per square foot, on average, for every three feet of proximity to a rail station.

- In Portland, Oregon, properties within walking distance of a light rail station enjoyed rent premiums of 10.6 percent.

- In Los Angeles, from 1980 to 1990, commercial space within a half-mile of a rail corridor sold for $31 per square foot more, on average, than comparable space outside the rail corridor.[45]

- In San Diego, home sale prices increased by $272 for every decrease of 300 feet from a light rail station.[46]

- In San Jose, home sale prices increased by $197 for every decrease of 100 meters to a light rail station.

- In Santa Clara County, office space within a quarter-mile of a transit station sold for $4.87 per square foot more, on average, than comparable space more than three-quarters of a mile from a station.[47]

- A study of four new communities, which were designed to promote transit and pedestrian access, found that buyers of single-family

homes were willing to pay $20,000 more compared to similar units in nearby areas.[48]

According to the Real Estate Research Corporation, real estate values over the next 25 years will rise fastest in 'smart communities'. A smart community, by their definition, is one that incorporates traditional characteristics of successful cities by including a mix of residential and commercial uses combined in a pedestrian-friendly configuration.[49]

The market attractiveness of TOD is particularly important for California, where the high-technology sector plays a primary role in state employment. According to a 1998 report,[50] workers in the new knowledge-driven, service-oriented economy are particularly attracted to places that have walkable downtowns and a mix of restaurants, offices and housing. These places promote interaction, which is a key to an economy that thrives on accessibility, networking, and creativity. Although technology now allows firms to locate just about anywhere, businesses continue to highly value proximity to other firms, suppliers, services, labor, and amenities, along with the aggregate benefits that result.[XXII]

Entrepreneurship
At the community level, foot traffic, just like car traffic, has a tendency to increase business opportunities. Many of the resultant opportunities can be locally owned. TOD typically creates business opportunities for cafes, food vending, day care centers, bakeries, florists, dry-cleaning shops, photocopy services, and other community-oriented services.

These types of employment opportunities are increasingly thought to produce long lasting benefits. Various researchers, for instance, have noted that even short-term employment opportunities for lower skilled workers positively affect their employment prospects for at least eight years.[XXIII]

VI. Enhanced Safety

TOD can promote public safety by creating places that are busy throughout the day and evening. By including more and higher quality facilities for pedestrians and bicyclists, TOD increases safety for these modes of travel. Furthermore, by offering pleasant and viable alternative modes of travel, TOD can help to reduce rates of driving injuries and deaths.

[XXII] Agglomeration economies are cost reductions that occur because economic activity is carried out at one place. Examples include shared infrastructure (e.g. parking), specialized labor, and specialized/ expensive equipment (e.g. medical).

[XXIII] This is sometimes called the "hysteresis" effect. (Bartik, "Who Benefits from State and Local Economic Development Policies?" *W.E. Upjohn Institute*. 1991)

Public Safety

There is a common misconception that high-density and crime are somehow intrinsically linked. However, research does not support this claim. In fact, crime has been shown to be more of a consequence of adverse socioeconomic conditions (i.e. urban decline) than the result of density.[51] (For more information on this topic, please see the section in this chapter titled "Reducing Urban Decline" below.)

The density, pedestrian friendliness and 24-hour activities found in many TODs can help to increase public safety by creating environments with 'more eyes on the street' for longer periods of time. Safety is as much related to perception as it is to actual conditions. When public spaces (e.g., sidewalks, plazas) are underutilized, residents and visitors increasingly retreat into private indoor places. This, in turn, tends to further reinforce negative perceptions of security and diminishes the perceived attractiveness of a community.

TOD increases both the perceived and actual security of a community in several ways:

- A diverse mix of local land uses enlivens the public realm for more hours each day than single-use districts. The reason: local and regional residents are better able to conveniently access jobs, shops, restaurants, entertainment (e.g., cinemas), and services (e.g., daycare and exercise facilities). In short, activities and amenities that attract people create busier, safer places.
- TODs make this rich mixture of land uses more accessible to pedestrians, bicyclists, and transit users, through careful attention to design. A higher percentage of local residents are likely to walk, bike, or use transit and more regional residents can access a particular TOD by transit. Therefore, these aspects of TOD further enhance safety (by placing more 'eyes on the street').
- Properly implemented TODs create a sense of place, foster a feeling of community and form an impression of connectivity among its residents. Moreover, these residents can therefore be more likely to come to the aid of a person in physical distress and also more inclined to form 'Neighborhood Watch' committees -- whose very presence deters crime in the first place.

Public safety is closely connected with other social issues addressed by TOD. Thus, while good urban design is an important aspect of creating safe environments, other benefits of TOD (described in other sections) – such as local job creation, access to regional jobs, and community renewal – can also contribute to mitigate some of the fundamental causes of crime and improve community security.

Safer Pedestrian & Bicycle Travel

In addition to improving general security for all residents and users of TOD, good urban design can also produce direct benefits for pedestrian and bicycle travelers. To increase

bicycle mode share, TODs often focus significant design attention to improving the local pedestrian and bicycling infrastructure.[XXIV] Unfortunately, since the advent of the automobile, public policies in the U.S. have historically done little to promote walking and cycling.

Our transportation and land use policies have made walking and cycling less feasible, less convenient, and more dangerous than it has been in the past. These non-motorized modes cause no air pollution, virtually no noise and the only energy they require is provided directly by the traveler. Moreover, walking and cycling do not require much space and are very economical with respect to direct user and public infrastructure costs.

According to a recent report released by the Surface Transportation Policy Project (STPP), pedestrians in California are in serious danger as they try to navigate streets and intersections that are increasingly designed for high traffic volumes moving at high speed. According to the report, *Dangerous by Design: Pedestrian Safety in California*,[52] the problem is most noticeable in counties such as Sacramento, Contra Costa, Los Angeles, Santa Clara, and San Mateo, which are characterized by rapid low-density growth, wide streets, and fast-moving traffic. The report estimates that accidents involving pedestrians cost California $4 billion in lost productivity and medical expenses in 1999. The lack of safe streets and sidewalks negatively impacts some populations more than others. Especially at risk from pedestrian-vehicle collisions are Latinos, the elderly, African Americans, and children, according to State hospitalization records, and a disproportionate share of all accident victims have low incomes.

Walking and bicycling can be safe when pedestrian and cyclist needs are carefully considered, as they are in Germany and The Netherlands. In these countries, for example, pedestrian fatality rates are less than a tenth as high as in the U.S., and bicyclist fatalities are only a quarter as high.[53] These countries have long appreciated the need to promote pedestrian and bicycle safety. The primary way that they accomplish this is through the application of urban design and land use plans that are sensitive to the needs of non-motorists. Specifically, they design a large number of high-quality facilities for pedestrians and cyclists along with traffic calming measures in business districts, residential neighborhoods and other areas. In addition to these measures, these countries have implemented on a wide array of the following features:

- Residential developments typically include a mixture of land uses such as cultural centers, shopping and service establishments, which can easily be reached by foot or by bicycle via an interconnected network of local streets and sidewalks. This allows for shorter trip-times on safer roads.

[XXIV] TODs frequently include design guidelines addressing building orientation, parking lot placement, sidewalk continuity, crosswalk provision, and bicycle paths and storage facilities, for example.

- Parking lots and structures are placed next to or behind buildings, allowing easier access for pedestrians and cyclists.

- Obstacles such as highways, railroads, and rivers are more easily traversed through the use of safe and attractive pedestrian and cyclist crossings.

By implementing these and other measures (e.g., driver education, more strict enforcement of traffic regulations), pedestrian death rates have fallen by 72 percent in The Netherlands and by 79 percent in Germany over the last two decades. Similarly, bicycle fatalities have fallen by 57 percent in The Netherlands and by 66 percent in Germany.

For California, various groups have recommended that communities be designed so that people can walk and bike more safely. A report by the Surface Transportation Policy Project (STPP) [54] calls for sidewalks, lighted crosswalks, bike paths, walking trails, and traffic calming techniques to be implemented in all aspects of community development.

Reduced Aggressive Driving
By promoting non-motorized modes of travel, TOD can also help to reduce driving injuries and deaths resulting from high-speed aggressive driving. Recent research by STPP[55] indicates that places with low aggressive driving death rates are more likely to have higher transit use, higher rates of walking and biking to work, and fewer miles of highway per resident. Areas with these characteristics tend to be more compact communities with connecting neighborhood streets, local businesses that are easily served by transit, and lower automobile travel speeds. Conversely, places with high rates of aggressive driving have lower transit use, and less walking and biking.[XXV] In these places, more people are exposed to aggressive driving due to the greater reliance on the car to meet life's daily transportation needs.

VII. Environmental Benefits

TOD can help to reduce the number of vehicle trips and vehicle miles that households travel by automobile, thereby reducing the rate of increase in regional air pollution levels, conserving energy and reducing the amount of greenhouse gases emitted into the atmosphere.

Air Quality
California has accomplished a great deal in the last 30 years in order to improve air quality. In fact, California leads the world in the use of renewable sources of energy that do not cause air pollution.[56] In addition, California now has a higher percentage of motorists who drive with at least one passenger in their vehicle than 45 other states.[57, XXVI]

[XXV] Among large metropolitan areas, Riverside-San Bernardino, California had the highest rate of fatal aggressive driving crashes, based on 1996 data.
[XXVI] This is largely due to (or at least correlates with) the use of gas tax dollars to support transit. For example: Alabama does not allocate any gas-tax dollars to transit and 85 percent of its vehicles are single

Overshadowing, and in large part negating these figures, however, is the rapid growth in the number of vehicles, their size, and the number of miles that they travel each year in this state. Air pollution is the most visible and publicized environmental impact of transportation.[XXVII] Unfortunately, our air quality and consequently our health have suffered from the fact that "90 percent of Californians live in areas where the air is periodically unhealthy to breathe." [58]

In California, which has some of the worst air quality in the country, mobile sources of pollution (e.g., cars, trucks, and buses) account for over 50 percent of all smog precursors and over 90 percent of carbon monoxide in urban areas.[59] Tailpipe exhaust, gas vapors, dust and chemicals lifted from road surfaces all reduce air quality. These pollutants affect the natural environment and negatively impact human health by contributing to the formation of ground-level ozone, particulates, haze, and acid rain. Ground-level ozone, for instance, causes acute respiratory impairment, aggravates asthma, inflames lung tissue, and reduces breathing capacity in healthy adults.[60] Particulate matter is another widespread public risk, with prolonged exposure linked to respiratory disease, chronic bronchitis, acute respiratory impairment, and cancer.

Public health care costs attributable to air pollution are significant and increasing. In 1996, the University of California at Davis estimated that motor vehicle pollution costs the country up to $450 billion per year in additional health care, and causes 40,000 premature deaths annually. Another study by the Harvard University School of Public Health estimated that approximately 15,000 annual hospital admissions and 50,000 emergency room visits for respiratory problems in 13 cities were related to vehicle-related pollutants.[61] Additionally, within the South Coast Air Basin of California, the American Lung Association has estimated the costs attributable to unhealthy air to be between $9.4 billion and $14.3 billion a year.[62]

Significant reductions in emissions from cars and trucks have been achieved by implementing pollution-reducing technology. However, low-density dispersed development patterns contribute to ongoing increases in driving which diminish the effects of cleaner vehicles.[XXVIII] By creating communities that offer alternatives to the automobile, California can help ensure that people have mobility with less vehicle pollution.

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occupancy vehicles (SOV). The State of Washington, however, allocates the most money to transit, and has the correspondingly lowest rate of SOV (40 percent) usage in the country.

[XXVII] Six of seven regulated air pollutants derive from the combustion of fossil fuels, including carbon monoxide (CO), nitrogen oxide (NO_X), volatile organic compounds (VOCs), and particulate matter (PM).

[XXVIII] Between 1970 and 1995, annual VMT in California more than doubled, increasing from 103 billion to over 270 billion miles of travel. In comparison, population only grew by 60 percent during this period (California Air Resources Board).

Several examples point to the beneficial impacts that TODs can have on local air quality. A few of these are summarized below:

- "Uptown District," San Diego – Completed in 1989, this neighborhood redevelopment project includes higher-density residential development, a commercial center with retail shops, restaurants, a community center, and a major supermarket. In addition, a network of bicycle and pedestrian paths make it easy to travel about the community and to access transit. Based on available data, staff of the California EPA's Air Resources Board estimated that the location, design and density of this development could reduce driving and related emissions by 20 percent per household, compared to households in nearby developments. This means annual reductions of 2.75 tons of reactive organic gas (ROC) and NOx for this neighborhood alone.[63] (See TOD Profile for Uptown District in Chapter 5)

- "The Crossings", Mountain View (San Francisco Bay Area) – This 18-acre TOD includes 540 housing units, a supermarket, retail shops, and a daycare facility clustered near a CalTrain commuter rail station. Staff of the California Air Resources Board estimated that the design of this development reduce driving and related emissions by 10 percent to 30 percent per household, compared to nearby non-TOD neighborhoods. This translates to annual reductions of three tons of reactive organic gas (ROG) and NOx.[64]

These findings are consistent with research conducted by the California Air Resources Board, which found that TOD and other land use strategies can generally reduce emissions by at least 10-20 percent per household (on average) in suburban communities, and by at least 20-30 percent in central cities.[65]

Reduced Energy Consumption
Californians could expect to enjoy energy savings if a portion of future growth is redirected toward TOD linked with high-quality transit.

On an annual basis, California's 22 million automobiles travel more than 293 billion miles and consume more than 13 billion gallons of gasoline.[66] In fact, California is the third largest consumer of gasoline in the world. Only the United States as a whole and the former Soviet Union exceed this volume.[67] According to the California Energy Commission, transportation represents about 50 percent of the total energy use statewide.[68]

Land use and transportation policies that encourage automobile-oriented development tend to ensure a high level of "transportation energy demand for decades to come".[69] However, the integration of transit with land use strategies has the potential to reduce the amount of energy used for transportation. For example:

- In 1994, the San Diego Association of Governments (SANDAG) conducted a transportation energy analysis of the San Diego region. SANDAG found that "a shift in new development patterns from existing policies to pedestrian-oriented development (POD) and transit focus area-style development [TOD] would result, when fully mature, in a 10.5 percent reduction in annual transportation energy consumption for the entire SANDAG region". Furthermore, they estimated that the cost savings for energy of these new development patterns would be $207 million per year.[70]

In addition to energy savings overall in regions, there can also be significant energy savings for individual households. The California Environmental Protection Agency's Air Resources Board (ARB) sponsored a study that estimated the transportation benefits of TOD at the household level. The ARB study found that "significantly increasing walking and transit opportunities," along with strategically-located moderate to high-density development and transit, could achieve an annual reduction in VMT of between 20-30 percent per TOD household (as compared to typical sprawl-style development.) [XXIX, 71]

Using this information, it is possible to estimate the savings that a suburban household would potentially realize if it relocated to a TOD. These estimated savings are listed below:

- Such a household could consume 250 to 380 fewer gallons of gasoline each year, on average. [XXX]
- If the energy content of that gasoline were converted into electricity, it could power a home for 5-7 months per year on the energy saved.[XXXI]
- Furthermore, using AAA's "Total Cost of Ownership" data, a $3,000 to $4,000 annual savings on vehicle-related expenses is possible for each TOD household due to reduced driving costs.[XXXII]

These savings are long-term, since land use patterns are generally permanently established with regard to transportation infrastructure, housing, office and retail components.

Reduced 'Greenhouse Gas' Emission Rates

Land use development patterns during the last half-century have led to in high

[XXIX] For households that relocate from a transit poor suburban setting to a transit and pedestrian rich development.

[XXX] See Appendix for methodology, calculations and associated citations (Section I).

[XXXI] See the Appendix volume for methodology, calculations and associated citations (Section II).

[XXXII] Using AAA "Total Cost of Ownership (2001)" data times VMT savings. See Appendix (Section III) for description of methodology, calculations, and citations.

rates of driving. This results in increasing emissions of the heat-trapping gas, carbon dioxide (CO_2). The phenomenon which scientists theorize results from this is commonly referred to as 'global warming'. However, current climate models paint a far more complicated picture of the consequences of 'global warming'. Most climatologists therefore, now use the term 'global climate change' when they talk about the effects of having excess amounts of heat-trapping greenhouse gases in the atmosphere.

Although issues surrounding global climate change continue to be hotly debated topics, an extensive body of evidence indicates global climate change is a real phenomenon and has been caused, in large part, by the activities of human beings.[72, XXXIII] (The appendix volume provides more information regarding climate change.)

A major contributor to both current and projected concentrations of atmospheric CO_2 worldwide is the burning of gasoline. In 1998, the California Energy Commission estimated that the transportation sector "contributes the greatest amount of carbon dioxide (CO_2) produced in California", which they estimated to be 57 percent of the state's total CO_2 emissions.[73] (Californian vehicles produce over 130 million tons of CO_2 annually[XXXIV]). If households drive fewer miles per year, they will produce less CO_2. Using the previously-mentioned data from the Air Resources Board study[74] (cited in the preceding section) that estimated a 20 to 30 percent reduction in VMT for TOD households, it is possible to estimate that:

- The average TOD household could emit 2.5 to 3.7 tons less CO_2 yearly than its non-TOD counterpart.

No one technology, method of land use planning, or change in national policy will serve as a single solution to the daunting issue of global climate change. However, TOD has the potential to help reduce our dependence on automobiles for mobility and contribute to a broader solution to the problem of global climate change.

VIII. Conservation of Resource Lands

TOD consumes less land than conventional, low-density dispersed development, reduces pressure to convert prime farmland and other resource lands to urban uses, and allows agricultural land to be used more productively. Resource lands are particularly important to California for their economic, recreational, and scenic value.

Sprawl-type development uses 10 to 40 percent more land than more compact development.[75] Compact development removes less prime

[XXXIII] Current global warming has been shown to be primarily caused by CO_2 from fossil fuel combustion. (Kelling & Whorf, "Atmospheric CO2 Concentrations Derived From In Situ Air Samples Collected at Mauna Loa Observatory, Hawaii")
[XXXIV] See appendix for methodology, calculations and citations (Section IV).

agricultural land from farming than low-density and more dispersed development for three main reasons: First, by definition, low-density residential and commercial uses require more land; second, widely dispersed development far from already-developed areas renders intermediate and adjacent parcels less efficient for farming use, thereby increasing development pressure when adjacent communities protest farm practices. Conventional development consumes more water than compact development. Finally, encroaching development pressures and generally rising land values create incentives for speculators to assemble and sell large parcels of farmland for development which are contiguous and can be bought in bulk.

While some contend that loss of farmland poses no immediate threat to society (i.e., there is still plenty of it and there are crop surpluses), rapidly increasing population and rising standards of living around the world lead to increased demand for food. Because of this, and because agriculture offers a way for states to diversify their economies, several regions now include farmland preservation in their growth management plans.

Preservation of agriculture lands is of primary concern in California, with several statistics confirming the value of the agricultural sector to the State and entire country:[76]

- California ranks first in the nation in the value of its agricultural products, producing $24.6 billion worth of goods in 1998. The next closest state (Texas) produces only 54 percent of this value. About 89,000 farms (4.1 percent of all U.S. farms) produce 12.1 percent of national gross cash receipts for farming, reflecting the high efficiency and value of California farming.

- California's agriculture is considered one of the most diverse in the world, with no one crop dominating the state's farm economy. Over 350 crops are grown in California including seeds, fruits, flowers, and ornamentals. California produces over 99 percent of the nation's almonds, artichokes, dates, figs, kiwifruit, olives, Clingstone peaches, persimmons, pistachios, prunes, raisins, and walnuts.

- California is the nation's number one dairy state and leads the U.S. in the production of 77 crop and livestock commodities, accounting for over half of all national production of these goods.

Today, however, rapid population growth and continued low-density, dispersed development in California threaten to reduce agricultural production by eliminating some of the most productive farmland in the world.

- In 1997, the American Farmland Trust reported that rapid low-density development threatened the Sacramento and San Joaquin valleys more than any other farming regions in the

country.[77] Between 1994 and 1996, the San Joaquin Valley lost 8,140 acres of irrigated farmland to urban development. Also threatened are the Imperial Valley in Southern California, as well as a valley near San Luis Obispo, on the Central Coast.

- Between 1992 and 1997, California's agricultural lands declined by an average of 256,000 acres annually.[78]

- Unless development patterns change, demographers expect that the Central Valley will add another 4 million residents by 2025. By 2040, the Central Valley alone could lose up to one million acres of farmland.[79]

Besides taking prime agricultural land permanently out of production, rapidly spreading development can reduce farm productivity and increase other costs to residents and farmers: [80]

- Residents in newly developed areas are increasingly exposed to pesticides, dust, noise, and foul smells, increasing health care costs and/or litigation costs.

- For farmers, urban encroachment negatively impacts agricultural yields because of increased air pollution, livestock predation by pets, and crop diseases resulting from inadequate care of non-farm plants.

- Farming production costs increase due to water scarcity, theft and vandalism of farm equipment, crop pilferage, road congestion, and personal injury liabilities from trespassing onto agricultural areas.

TOD and compact development can also reduce the rate of loss of fragile and natural habitat lands. Local governments frequently misjudge the consequences of environmental degradation of developments on environmentally valuable resources, such as wetlands and endangered species habitat. Development on the urban fringe and in dispersed areas increases the costs of mitigating negative environmental impacts.

Finally, the loss of open space and deterioration of landscapes and valuable recreational areas may over time harm California's ability to retain and attract workers. Until recently, most of California's population growth was due to emigration from other parts of the United States, as workers were attracted to the state's strong economy, favorable climate, natural amenities, and recreational opportunities. Access to nature is still an important feature of our overall quality of life. Places that can preserve environmental amenities will remain at a competitive advantage.

CHAPTER 3: How Does TOD Affect Travel and Transit Use?

Principal Authors of Chapter: Katherine Gray Still, Sam Seskin, and Terry Parker

I. Introduction

This chapter summarizes available information on the influence of transit-oriented development (TOD) on people's travel behavior. The first part of this chapter presents data on the role that clustered land uses plays in the travel choices people make. In the second part of this chapter, the authors discuss how proximity to transit, the clustering of activities as well as design, can work together to attain significantly higher transit ridership. The chapter summarizes relevant studies that quantify these effects at the regional level, and then focuses on community and neighborhood level effects.

Challenges and Opportunities

California's urban areas have long experienced high congestion levels, as measured by the Texas Transportation Institute's (TTI) regular assessment of congestion levels. In TTI's most recent nationwide survey, Los Angeles and the San Francisco Bay area come in first and second, respectively, while San Diego comes in fifth among the country's most congested regions.[81]

The Surface Transportation Policy Project (STPP) used TTI's latest data to estimate how congestion affects individuals in different urban areas. In particular, STPP wanted to determine the effect that alternative modes of travel, particularly transit, play in easing the burden of congestion. To do so, they created a 'Congestion Burden Index', which takes into account both an area's level of congestion and the degree to which travelers attempt to avoid traffic congestion by not using an automobile.[82]

Tri-Met Transit Agency, Portland, Oregon

TOD has a positive effect on increasing transit use in downtown Portland, Oregon

The Congestion Burden Index analysis revealed that:
"Los Angeles maintains its number-one ranking as the place where congestion is the worst, and where residents have few options to avoid it. However, San Francisco, which has the second worst rush-hour congestion . . . also has almost 500,000 citizens who travel to work by means other than driving. It drops to 29th in the Congestion Burden Index."[83] Thus, although congestion will not disappear (indeed, a certain level of congestion is a hallmark of thriving metropolitan

areas worldwide), the accessibility advantages provided by good transit that is coordinated with transit-supportive land use, can significantly reduce the burden that congestion places on individuals.

Other transportation challenges include auto ownership and demographic changes. Automobile ownership is one of a household's largest expenses, second only to the cost of housing. According to the Bureau of Transportation Statistics, in 1998 the average household spent 33 percent of its income on housing and 19 percent on transportation (Of the 19 percent, 6 percent of transportation spending went toward travel by air, taxi, and public transportation).[84]

California's changing demographics are also important. The percentage of California's population aged 65 and older increased from 10.5 percent in 1990, to 11.1 percent in 1998.[85] This rate of growth exceeds the national average for this age group, and indicates a growing need for transit and other mobility options.

Over the past several decades the percentage of traditional "nuclear" families has been significantly declining, while the number of single-parent families and other household types are increasing. Working mothers, in particular, would benefit from increased transportation options, especially since mothers with school-aged children make 20 percent more trips than average women, and 21 percent more trips than men (nearly half of these trips are chauffeuring and other errands).[86]

TOD and good transit potentially provide a solution to these challenges because:

- The mixture of uses and higher densities found in TOD mean that many destinations can be reached by transit, walking or by using a bicycle, thereby enabling these methods of transportation to become more viable travel options.

- When trips do need to be made by automobile, destinations may be closer so that the number of miles driven is reduced.

II. Overview of Available Information

Several studies have investigated travel effects of TOD in already-existing areas. And, there have been several important attempts to forecast the *potential* benefits of TODs. A substantial body of research has been carried out on individual aspects of this form of development.

However, quantifying the specific transportation-related benefits of TOD is challenging. Although numerous studies have been conducted on neighborhoods that resemble TODs in California and elsewhere in the United States, few recent or conclusive studies have been conducted to date on the relationships between actual TODs and travel. One reason for this is that too few newly-built TODs have been in existence long enough for solid research to occur. And, there is very limited funding available for conducting data collection. Given the

recent increased policy emphasis on TOD, the relationship between TODs and travel is an area of study that needs additional work. [xxxv]

The sections below provide a brief overview of some of the available research into these important questions: What is the effect of TOD on travel behavior? And, how does this effect vary in TODs located in different places (e.g., urban versus suburban); with a variety of types and levels of transit service; and containing varying types and densities of land use and site design?

The next section begins by examining the overall relationship between density and travel behavior. This is followed by an examination of the regional effects of TOD. The section concludes with a summary of the effects of TOD at the neighborhood and community levels.

The Density Connection

Ongoing research into the relationship between urban form and travel behavior continues to confirm that density has an important relationship with travel behavior. [xxxvi] Density is the most reliably measured of all urban form characteristics.[xxxvii] Because it allows land uses to be located closer together, density is an important factor in helping to reduce average rates of automobile use.[xxxviii] Density is also a key component in the efficient provision of transit.

Numerous guidelines for transit provision have been derived which rely upon density measures. These are summarized below:

- Based on early studies in the U.S., Pushkarev and Zupan[87] recommend an average minimum of 15 dwelling units per residential acre for frequent bus service and a minimum of 9 dwelling units per residential acre along a 25 to 100 square-mile corridor for light rail service. This study also estimated minimum levels of employment and commercial activities necessary for the provision of efficient transit.

- The Institute of Transportation Engineers (ITE) combines residential and employment densities in its recommendations regarding land use. ITE suggests an average overall minimum density of 7 to 8 dwelling units per acre, and/or 5 to 8 million square feet of commercial/office space, to support the provision of an intermediate level of bus service. ITE recommends an overall

[xxxv] When forecasts and research on existing areas are compared, the expected results in forecasts are often confirmed by actual results in existing areas.

[xxxvi] Density can be measured as the number of: people per mile, households per acre, jobs per block, or combinations of these and other factors.

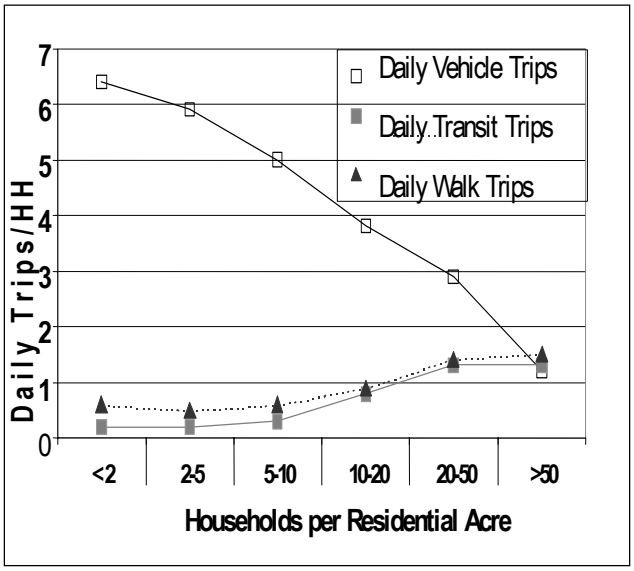
[xxxvii] Land use mix, another important component of TOD, is more difficult to measure. For example, an auto-oriented 'strip mall' with multi-family housing situated across a wide street could theoretically qualify as "mixed-use", but is not consistent with the pedestrian-orientation of TOD.

[xxxviii] Vehicle use is often measured in terms of annual vehicle trips and vehicle-miles traveled (VMT) per capita or household.

minimum of 9 dwelling units per residential acre, and/or 35 to 50 million square feet of commercial or office space, for light rail and feeder buses.[88]

In an analysis of travel data for communities in the San Francisco Bay Area,[89] Dr. John Holtzclaw identified key relationships between residential density and travel behavior, as shown in Figure 3.1 below.

Figure 3.1:
Density and Travel Behavior[XXXIX]



This chart indicates that transit use rates begin to increase at an average overall density of around 6 to 7 households per residential acre, and vehicle trips decline. At a density of around 50 households per acre, the number of trips taken daily by vehicles, transit, and walking become about the same. This is consistent with estimates in other analyses.

In 1996, Parsons Brinckerhoff, et al. conducted a study that examined the potential effect that increases in population and employment densities have on the number of people using transit in certain areas (referred to as 'transit boardings').[90, XL] The study found that a 10 percent increase in population density was associated with a five percent increase in station area transit boardings. It also found that a 10 percent increase in employment density was associated with a 2 percent increase in transit ridership in those areas.

Another study of train station area boarding rates also looked at the effects which changes in residential or employment density have on rates of transit ridership. In this study, national data for 11 light rail systems and six commuter rail systems from across the country were used.[91, XLI] For light rail systems, this analysis found that a 10 percent increase in population density was associated with a five percent increase in station-area boardings.[XLII] The analysis for commuter rail found that population density at station areas was not as important as it appeared to

[XXXIX] Source: John Holtzclaw, 1997, Metropolitan Transportation Commission, 1990 Household Travel Survey.

[XL] For this study, the consultants used 1990 data for San Francisco's Bay Area Rapid Transit (BART) rail system.

[XLI] Light rail is defined as lightweight rail cars operating on fixed rails that can be, but not necessarily separated from other traffic. Heavy rail is defined as long-distance rail passenger service operating between metropolitan and suburban areas.

[XLII] The light rail analysis did not measure employment density at the station but rather employment density in the Central Business District (CBD) multiplied by the number of jobs in the CBD. Thus, for a CBD with 200,000 jobs, a 10 percent increase in CBD density is associated with a four percent increase in station-area boardings.

be for light rail lines (with a 10 percent increase in population density leading to a two percent increase in boardings). However, commuter rail boardings are responsive to employment density in the station area, increasing by six percent for each 10 percent increase in density.

These studies indicate that increasing the density in areas around transit stations can lead to a corresponding increase in transit ridership. Increasing density has also been found to have the opposite effect on automobile usage (e.g., reducing the need for a car), as will be discussed below.

Increased densities have also been found to correspond with decreased levels of auto ownership. A nationwide analysis found that the rate of car ownership tends to decrease as population density increases.[92] Controlling for key socio-economic factors such as household size, number of workers, and income, the study found that on average, a 10 percent increase in overall population density could be associated with a one-half percent decrease in automobile ownership.

A recent nationwide analysis estimated reductions in 'vehicle miles of travel' (VMT) for each state in the U.S. that could be achieved by allocating future growth to more densely developed areas, compared to "sprawl".[93] It estimated that if, by the year 2025, California focused the location of over 800,000 of additional future households in more centrally located urban areas (instead of in outlying places), there could be a 7.5 percent reduction overall in VMT.[XLIII]

Other Factors

Numerous studies indicate that increases in rates of transit use and decreases in driving are associated with increases in density. However, density changes alone are not the only important components of TOD. Optimal TOD design includes a combination of factors that include:

- Increased densities of housing, employment, retail, and services – which are located in activity centers and corridors – that enhance the effectiveness and use of a transit system;
- A system of TODs that makes both the origin and destination of trips accessible by transit; and,
- A mixture of land uses that makes it easier to accomplish many trip purposes by transit (for example, one can stop by the cleaners, the market, and video store during a transit trip without requiring a car).

Thus, through better coordination of land use and transit facilities, transit becomes a more viable option for a variety of travel.

The following section examines the effect of TOD and transit at the regional level. Later, it will focus more narrowly at the neighborhood-scale and the community level.

[XLIII] This is compared to the amount of driving that would have otherwise resulted if the same number of households were to be located primarily in outlying suburban fringe areas.

III. The Regional Picture

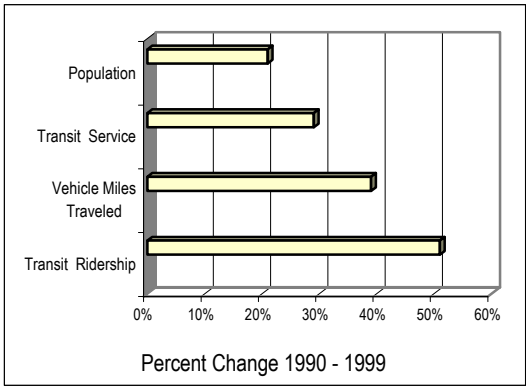
This section examines the possible effects that a coordinated network of TODs connected by high-quality transit could have at the regional level. It presents data from travel behavior surveys, transportation modeling analyses, and other available sources.

The amount of travel changes at the regional level from transportation and land use strategies depends on a number of factors, that include: the rate of growth in the region; its location; the amount and type of economic activity; the density and design; the provision and quality of transit service; and other related factors.

Portland as an example
A regional-scale analysis was conducted in the Portland, Oregon, area. It found that, despite recent significant population increases, the rate of increase in regional vehicle travel (measured in terms of annual VMT) may have been slowed down through improved transit service and clustering land uses. Portland's ability to improve transit service and cluster land uses has been significantly aided by the effects of the region's Urban Growth Boundary (UGB). The UGB helps direct population growth to already-developed areas by placing limits on development that may occur outside the boundary.

These trends are illustrated in Figure 3.2, below, which shows the relative changes in various key indicators, including population growth, increases in transit service by Portland's transit provider, "Tri-Met," growth in driving, and transit use rates.

Figure 3.2: Tri-Met Ridership Growth Outstrips Vehicle Miles Traveled[XLIV]



The benefits of a transit-oriented approach to growth can be seen in Portland in the graph above. Although increases in VMT (39 percent) over the nine-year period exceeded the increase in population (21 percent), transit ridership increased by a full 51 percent, or 143 percent faster than the growth in population.

Auto Ownership Rates
In 1994, the Portland Metropolitan regional government conducted a study of residents' travel behavior using a survey. This study classified land use types in the region into four general categories and then analyzed the number of cars owned per household in relation to those types of areas. It found that, for people living in the least dense areas, ownership rates approach two cars per household. By contrast, households in areas characterized by good transit service and mixed land uses had ownership rates that were, on average, less than one car per household.[94]

[XLIV] Source: Complied from Portland State University Center for Population Research, Metro, Tri-Met Annual Ridership, and Oregon Department of Transportation HPTMS data, May 2000

Another analysis using data from Toronto, Canada,[95] examined the relationship between urban form and auto ownership, controlled for socio-economic factors (e.g., the number of adults per household and household income). The study found that numerous components of TOD are significantly related to auto ownership. Bus frequencies and the presence of a rapid transit station within 2/3 of a mile of the household's location, as well as the proximity to shopping opportunities, were each associated with statistically significant reductions in the number of automobiles owned by a household. Furthermore, the study found that a 100 percent increase in bus frequencies could be associated with a five percent decrease in vehicles per household.

The Land Use, Transportation and Air Quality (LUTRAQ) Study

A landmark study carried out in 1996 modeled the travel effects of allocating future growth (for the year 2010) in typical suburban-style development versus allocating that growth according to TOD-based development.[96] Among other things, the LUTRAQ analysis [XLV] indicated that by reconfiguring the location of *future* growth, substantial travel savings could be realized. This study also indicated that the location of dense areas is important: "planned moderate and high-density residential development is shifted to locations that are better served by transit" (pg. 5).

The LUTRAQ analysis modeled the differences between five different potential development and transportation scenarios for the fastest-growing portion of the Portland metropolitan area, Washington County. The three scenarios relevant to this TOD study are summarized below:[XLVI]

The 'No Build' Alternative:
A base case that modeled current conditions and then programmed in transportation projects, which included a partial light rail line;

'Highways Only' Alternative:
A 'supply side' approach to dealing with congestion, which included the construction of a new four-lane limited access highway as well as several other road expansions; and,

'LUTRAQ' Alternative:
A 'rearrangement' of households and jobs, such that 65 percent of new households and 78 percent of new jobs are located in three types of TODs (larger mixed-use centers, urban TODs, and neighborhood TODs). This alternative also included a higher level of transit service than the other scenarios and $3/day parking charges.

Key findings from this study are summarized below:

LUTRAQ and Mode Split
The effect that the 'LUTRAQ alternative' had on automobile and transit shares is illustrated in Figure 3.3 that follows:

[XLV] LUTRAQ stands for Land Use, Transportation, and Air Quality.

[XLVI] The two other included pricing. We do not report those results here in order to keep the focus on TOD.

Figure 3.3: LUTRAQ Auto and Transit Use[XLVII]

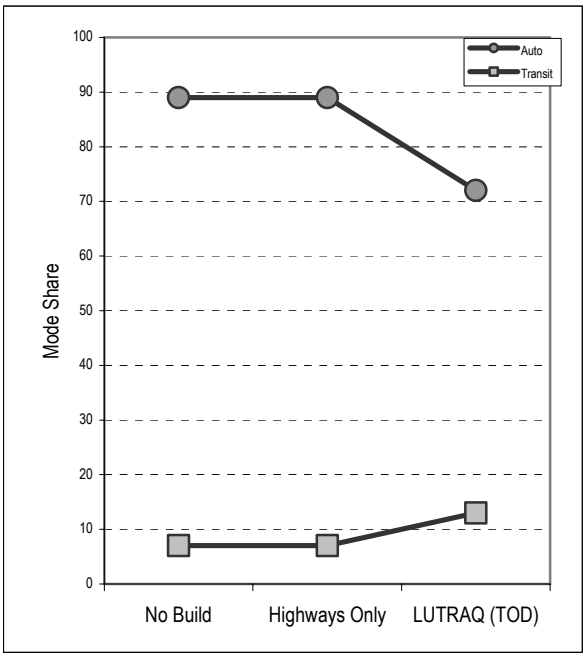
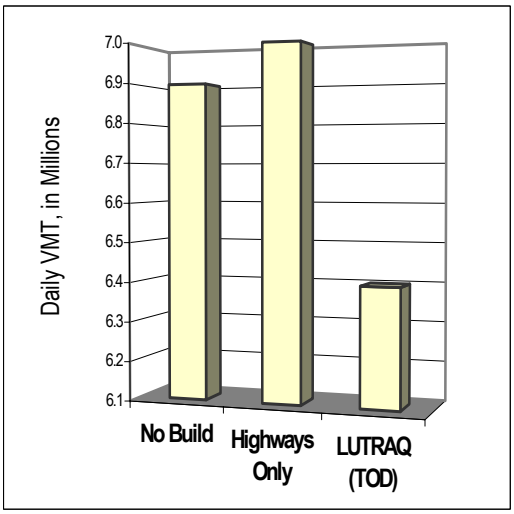


Figure 3.3 illustrates that a regional system of TOD can have a significant effect on rates of auto and transit use (referred to as "travel mode shares"). The percentages of automobile and transit trips under the 'No Build' and 'Highways Only' options are virtually identical in the figure above. Both of these scenarios "continue the auto-orientation of the study area," while the 'LUTRAQ' option results in a significant amount of automobile use shifting to transit, which is forecast to increase from 7 to 13 percent of trips.

LUTRAQ and VMT
The LUTRAQ model also analyzed vehicle miles traveled (VMT), as shown in Figure 3.4 below.

Figure 3.4: LUTRAQ Daily Vehicle-Miles Traveled, in Millions[XLVIII]



The figure above indicates a 7 percent decrease in VMT for the 'LUTRAQ' option compared to the 'No Build' option, and a 9 percent decrease from the 'Highways Only' option.

This analysis indicates that it is possible to decrease regional VMT by implementing TOD-style communities throughout a region. Neighborhood-level decreases are higher, as will be discussed in Section IV below.

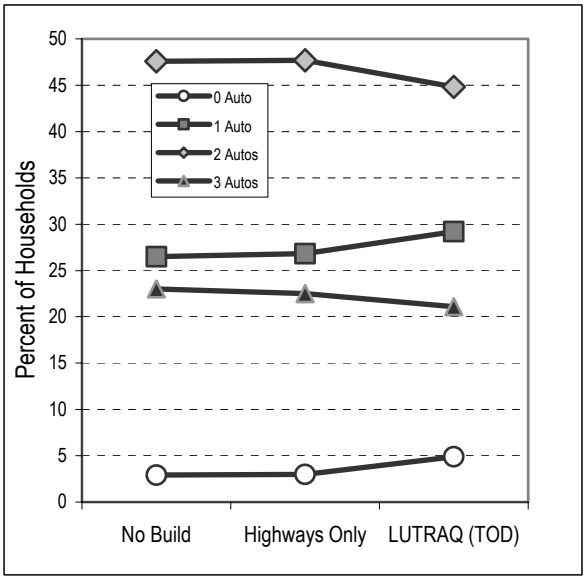
LUTRAQ and Auto Ownership
The initial portion of the LUTRAQ study found that the existing households within the study area were "more auto dependent than the region as a whole." [97] However, when this study modeled auto ownership under the three scenarios described earlier, the potential changes in auto ownership rates

[XLVII] Source: Cambridge Systematics and Parsons Brinckerhoff, 1996.

[XLVIII] Source: Cambridge Systematics and Parsons Brinckerhoff, 1996.

were predicted to be significant, as shown below:

Figure 3.5: LUTRAQ Change in Auto Ownership[XLIX]



As before, the difference between the 'No Build' and the 'Highways Only' scenarios is negligible. In contrast, the 'LUTRAQ' option would increase the number of one-automobile households by 10 percent. Furthermore the LUTRAQ option decreases the number of two-automobile households by six percent and three-automobile households by eight percent.

LUTRAQ and Walk Trips

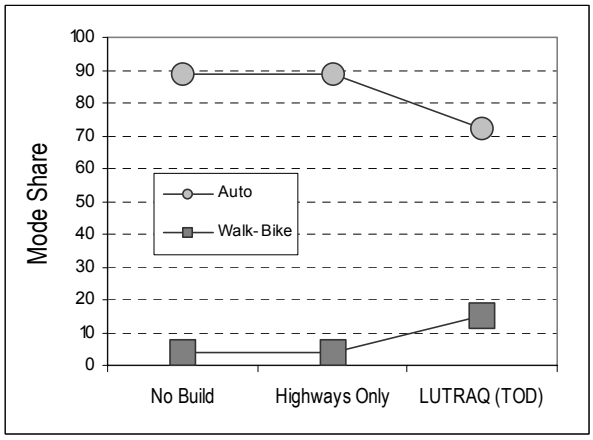
Finally, part of what made the LUTRAQ study unique was its use of new modeling techniques to incorporate the effects of the built environment on walk and bike trips. In order to measure pedestrian environmental quality, a "Pedestrian Environment Factor" (PEF) was developed.[98] The PEF represents a composite index of the "pedestrian friendliness" of each transportation analysis zone (these zones, made up of smaller portions of the metropolitan area, are used in travel models). In order to create this new variable, each transportation analysis zone in the Portland metropolitan region was rated according to the following attributes:

- sidewalk availability,
- street connectivity,
- ease of street crossings on principal arterials, and,
- terrain.

Each zone was rated on a scale of one to three for each of the above qualities, resulting in zone rankings of four (least pedestrian-friendly) to 12 (most pedestrian-friendly).

With the inclusion of the PEF in the travel model, the resulting forecast of bike and walk trips in the three alternatives indicates a large increase in non-motorized travel within the LUTRAQ planning area. This is shown in Figure 3.6 below.

Figure 3.6: LUTRAQ Auto and Pedestrian Mode Shares



Source: Cambridge Systematics and Parsons Brinckerhoff, 1996.

[XLIX] Source: Cambridge Systematics and Parsons Brinckerhoff, 1996.

The increase in pedestrian travel that is forecasted as a result of the 'LUTRAQ' alternative potentially increases from just under 4 percent of all trips to almost 16 percent. This represents nearly a quadrupling of walk and bike trips over the 'No Build' and 'Highways Only' alternatives.

Summary – Regional Level
The results of the LUTRAQ study, along with the other regional-level analyses cited above, highlight the transportation benefits that can potentially be obtained by taking a region-wide approach with a system of TODs. By allocating significant future jobs and housing to TOD-style development, these analyses indicate potential regional VMT decreases of more than five-percent.

Corresponding with this projected figure is the possibility of a five percent (or larger) increase in transit use, and a 10 percent increase in walk trips.

The next section examines the neighborhood or community level.

IV. TOD at the Community Level

> ***"The most efficient way of increasing transit use is to put transit service close to where people either live or work."***[99]

This quote expresses a relationship between transit use and urban form that is somewhat intuitive and the next few studies provide a supporting empirical foundation. This is followed by a look at the potential effect of transit-oriented development on auto use and pedestrian travel.

Transit Boarding Rates
A statistical analysis using data from the Puget Sound region of Washington State[100] compared work and shopping trips by different modes (automobile, transit, and pedestrian). This study examined the way in which the portions of trips vary according to different population and employment densities.

Frank and Pivo found that a combination of factors is important:

> *"Bus use to work is promoted by centers that combine dense employment with shopping and housing, while bus use for shopping is promoted by either dense employment with shopping or dense population with shopping" (pg. 33).*

An earlier study of the relationship between the physical environment and transit ridership for the San Francisco Bay Area's Rapid Transit heavy rail system (BART), concluded that both housing and work opportunities need to be clustered around rail stations if substantial transit ridership benefits are to be obtained. [101]

Using data collected for 27 residential and 18 office sites chosen for their proximity (i.e. within walking distance) to BART stations, Dr. Robert Cervero looked at the effect that a variety of factors can have on how people travel, such as: distance to transit stations, residential densities, levels of land use mixture, presence of sidewalks, and parking. He found that, for residential uses, the strongest predictors of transit ridership were proximity to the station and residential density.

Furthermore, Dr. Cervero's analysis of travel in relation to office use, found that four variables – proximity to a transit station, employment density, commuting behavior at employee's prior job, and occupation – explained 92 percent of the variation in transit mode split. Thus, Dr. Cervero concludes, "it is the 'clustering' of residences and workplaces near rail stations that has the biggest influence on travel behavior" (pg. 126).

Table 3.1[102]: 'Elasticities' for United States and Chicago Transit Systems[L]

Variable	US Commuter Rail	US Light Rail	Metra Commuter Rail, Chicago	CTA Heavy Rail, Chicago
Residential Density	0.25	0.59	not significant	0.24
Employment Density*	0.72	0.40	0.24	0.50

Section III of this chapter summarized a study of light rail and commuter rail systems (by Parsons Brinckerhoff in 1996), which was carried out using data from across the country, and examined the effect that station area land use has on transit boardings.[103] Table 3.1 above, presents 'elasticities'[LI] from this study, which also included transit boardings for two Chicago area systems.

Examining the two Chicago systems, Table 3.1 indicates that a doubling in employment densities at these rail stations is associated with a 24 to 50 percent increase in the number of transit boardings. The combined effect that increases in residential and employment densities around rail stations may have on rail boardings can be estimated from this data. Doing so indicates that a doubling of residential *and* employment densities could be associated with a 66 percent increase in rail boardings.

These and other studies indicate the importance of locating major employment centers in areas that are well served by transit. They also show that it is important to locate and design residential areas in a manner that encourages alternate modes of travel by walking, use of a bicycle and transit. With all these factors in place, the combination of TOD and high levels of transit service can potentially increase the use of transit within a neighborhood by 20 to 40 percent or more compared to typical 'automobile-oriented' land use.

Auto Use Rates

While automobile use does not, of course, disappear in TOD, it may be decreased as a more balanced transportation system is provided. A study of 22 mixed-use developments in South Florida supports this statement.[104] This study analyzed 'internal capture rates', or the extent to which trips remain internal to a neighborhood. A high internal capture rate can be an indicator of lower VMT. To be selected as a

[L] *Employment density for the US models is for central business district employment. Employment density for the Chicago rail and CTA stations is for station area employment.

[LI] * The term "elasticity" refers to the percentage change in one variable that can be associated with a percentage change in another. For example, with proximity to a transit station, ridership can increase.

study subject, a development had to have been built within the last 40 years and include a mixture of housing, shopping, and recreational facilities.[LII]

Researchers used the 22 developments to analyze internal capture rates as a function of overall density, jobs-housing balance, accessibility, and measures of employment. Their analysis found that:

"…the communities that were most successful at internalizing vehicle trips did so by developing at higher densities and providing a commercial element and balance of jobs" (pg. 11).

Cervero and Kockelman performed a unique analysis to determine how density, design, and diversity (the "3Ds") are related to VMT and to travel by means other than private automobiles.[105] They concluded "higher densities, diverse land uses, and pedestrian-friendly designs . . . must co-exist to a certain degree if meaningful transportation benefits are to accrue" (pg. 217). For this study, the researchers constructed an 'accessibility' index which "serves as a proxy of relative proximity and compactness of land uses" (pg. 206). A doubling of this index was found to be associated with a 25 percent decrease in VMT per household.[LIII]

Another recent study, which used data from Edmonton, Canada, looked at the relationship between urban form and automobile use.[106] The analysis tested urban form variables such as population and employment densities, accessibility measures for a variety of travel modes, and indicators of neighborhood street patterns. The researchers noted that: "As walk accessibility at the home location increases, households tend to own fewer autos . . . and make less use of the auto overall." And, as walk accessibilities at work locations increase, households also tend to make less use of automobiles (pg. 25). In this case, 'walking accessibility' refers to the ease by which an individual can walk from home and/or from work to desired locations.

The Edmonton study concludes that an urban form that encourages walking access, such as TOD, can lead to a reduction in automobile use. In terms of elasticities, the researchers found that a 10 percent decrease in the amount of walk time (i.e., an increase in walk accessibility) was associated with a three percent decrease in VMT.

Pedestrian Travel

Many studies have been carried out that examine pedestrian travel by comparing neighborhood characteristics. Most researches attempt to hold other factors, such as household income, as a constant. For example, a study was conducted in 1996 of pedestrian travel in six Austin, Texas neighborhoods that were chosen for their era of development (pre-1900s, post-WWII, and recent subdivisions).[107] It found

[LII] Residential subdivisions near commercial strips and downtown redevelopment projects were both excluded.

[LIII] Due to the construction of this index, it is challenging to precisely specify what a 'doubling' is. It can best be thought of as a significant increase in the mix and density of an area.

that, while urban form characteristics may be secondary to "individual motivations and limitations" in the choice to walk, they are nonetheless a significant factor.

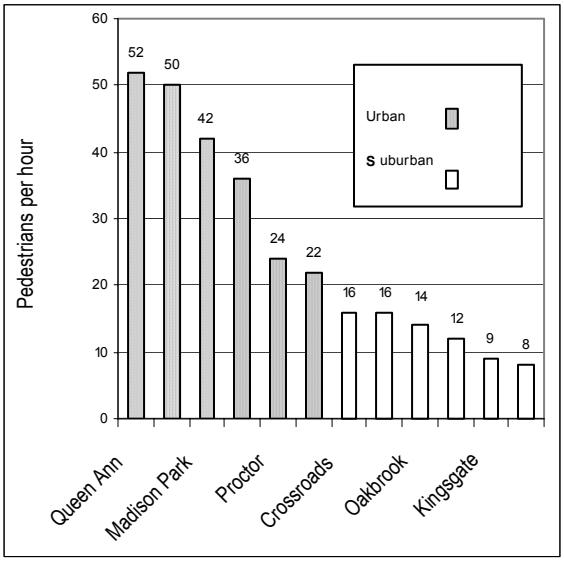
A study of Seattle neighborhoods[108] found that the walk trip was particularly influenced by mixed-use locations. Finally, a study of two San Francisco Bay area neighborhoods[109] with similar socio-economic characteristics, (one defined as 'traditional' with a mix of uses and the other as 'suburban,') found that individuals in the traditional neighborhood were 10 percent more likely to walk, bike, or use transit than those in the suburban neighborhood.

More recently, a study of Seattle neighborhoods[110] analyzed the relationship between site design and pedestrian travel. Twelve neighborhoods were selected for comparison which had similar population densities, land use mix, and incomes, but that were quite different in terms of neighborhood site design features such as block size and extensiveness of sidewalks.

Half of the neighborhoods, termed 'urban', had small block sizes, complete sidewalk systems, and on street parking with some small, off-street lots. The other half of the neighborhoods, termed 'suburban', had larger block sizes, incomplete sidewalk facilities, and no on-street parking (parking was in large off-street lots). The researchers found that these site-design characteristics were powerful in explaining pedestrian volumes.

Figure 3.7, below illustrates that the number of pedestrians per hour per 1000 residents indicates a large difference between urban neighborhoods with good pedestrian facilities and suburban neighborhoods without those facilities. Comparing the least walkable 'Urban' neighborhood (West Seattle) to the most walkable 'Suburban' neighborhood (Crossroads), there is an increase in pedestrian travel of almost 40 percent.

Figure 3.7: Pedestrians per Hour per 1000 Residents, Seattle



Source: Moudon, Hess, Snyder, and Stanilov. 1997

Another study focused entirely on non-work walking trips in Portland, Oregon using 1994 travel survey data.[111] These researchers included a derivative of the Pedestrian Environment Factor (PEF), which was described previously in the section on LUTRAQ. The analysis found that the number of cars per driver in a household decreases the likelihood of walking, while population density "positively affects the likelihood of non-work travel being completed by walking trips" (pg. 9). The analysts concluded that:

"Shorter distances increase the likelihood of individual walking trips for non-work activities. New Urbanist and TOD practitioners are thus quite correct to focus on this aspect of urban design if they wish to promote pedestrian behavior as an alternative to personal vehicle use" (pg. 16).

Summary – Community Level

At the community level, the effects of TOD on travel behavior can be substantial within walking distance of major transit stations. Several key variables are most important: station area densities, land use mix, and walk accessibility. If a 'well-designed' TOD [LIV] incorporates those variables (compared to 'status quo', automobile-oriented development), then the associated changes in travel may be on the order of a 25 percent average reduction in VMT, a 60 percent or more increase in transit boardings, and up to a 40 percent increase in the percentage of walk trips.

V. Conclusions

The body of evidence collected for this report suggests that meaningful travel changes can be associated with TOD. This is particularly the case when the implementation of a systematic network of TODs and other activity centers is linked with high-quality, frequent transit service.

At the regional scale (for example, the San Francisco Bay Area), widespread TOD development could potentially increase the use of transit overall by 5 percent or more (depending on the amount of growth taking place, its location, density, design, proximity to transit, and other regional-scale factors). VMT could decrease by 5 percent or more, concurrently, at the regional level.

At the local, neighborhood level, TOD could result in up to a 25 to 30 percent decrease in VMT per household near major transit stations, while the number of individual station-area boardings could increase by more than 50 percent (compared to non-TOD neighborhoods).

Within TODs, there also may be an increase in the number of households that have fewer automobiles (when compared to the surrounding area). Finally, TOD may help to reverse the downward trend in the rate of walking, and provide a way to make this most basic means of transportation a more viable, and enjoyable, option.[LV]

[LIV] A 'well-designed' TOD can be thought of as a TOD that fully meets a rigorous interpretation, such as the definition presented in chapter one.

[LV] These estimates depend on the extent to which development has the characteristics of TOD, the type and levels of transit service available, and the extent of service and destinations within a region.

SECTION 2: THE STATUS OF IMPLEMENTATION

This section provides an overview of the current status of the implementation of TOD, both in the United States and within California, including region-by-region reviews. Twelve "profiles" of actual TODs in California are also provided.

CHAPTER 4: What is the Status of Transit-Oriented Development in America?

CHAPTER 5: How and Where is TOD Being Implemented in California?

TrizecHahn Ehrenkrantz Eckstut & Kuhn Architects

'Hollywood/ Highland' - a major new mixed-use TOD featuring retail, entertainment, and lodging over a Red Line subway station - is described in a "TOD Profile" in Chapter 5.

CHAPTER 4: What is the Status of Transit-Oriented Development in America?

Principal Authors of Chapter: GB Arrington and Topaz Faulkner

I. Introduction

This chapter is based on a review of TOD implementation at the major urban rail passenger systems outside of California within the United States. It starts with a general review of some of the issues and trends surrounding TOD, (such as ingredients for success and major barriers) and ends with a review of several notable TODs in America. (Detailed system-by-system "snapshots" of TOD planning and implementation in America are included in the separate Appendix to this report.)

Parsons Brinckerhoff

A Successful TOD, like Collins Circle in Portland, Oregon, starts with the consideration of TOD in the design of the transit system

(The appendix to this report provides a detailed transit system-by-system review of the policy framework for TOD, the status of TOD implementation, and highlights and related key issues.)

A TOD "Renaissance"

A number of transit-oriented developments have been built or are underway in metropolitan areas throughout the United States. More so than at anytime in recent history there is heightened interest in, planning for and implementation of, TOD. A variety of factors appear to be at play, including:

- Escalating traffic congestion is increasing the attractiveness of inner city sites and suburban locations that are close to rail transit. [112]
- Rising land values in many communities are creating the economic conditions necessary to help make mixed-use compact development feasible.
- The increased trend of Americans moving back into the core of cities makes these areas more attractive places for investment. [113]
- Demographic changes underpin an expanding market for higher-density mixed-use communities.
- Nationwide, support for 'smart growth' is at record levels. In a September 2000 poll, nearly 8 out of 10 Americans indicated that they support smart growth and the strategies necessary to implement it. [114]

- There have been recent significant changes in Federal Transit Administration policies for 'joint development', and an emphasis on transit-supportive land use in Federal funding for new rail starts.

- More transit agencies are starting to realize they are in both the "community building" and the "people moving" businesses.

The strength of the real estate cycle over the past few years appears to have been more important in accelerating the implementation of TOD than was supportive public policy. (See Chapter 6 for a more complete discussion of this topic.)

However, to better achieve broader implementation of TOD, transit-friendly public policy[LVI] will be essential to help shape what happens in the next real estate cycles. Additionally, for long-term success, the link between public policy and TOD will need to be strengthened.

Key Ingredients for Success
Based on this assessment of TOD implementation in America, it is possible to propose some broad conclusions on the practice of TOD that could be applied to California. A recipe for successful TOD implementation is made up of several parts:

- Transit system design,
- Community partnerships,
- Understanding real estate,
- Planning and,
- Providing the right mix of incentives to make TOD work.

The communities that have been the most successful with TOD are those that have taken a proactive approach with each of these activities. They also tend to be communities that have a large toolbox of supportive planning and financial incentives.

The primary proponents of successful TOD implementation have often been local jurisdictions. Cities and counties in California have the necessary tools to encourage TOD, including: planning, zoning, and - in some areas - redevelopment authority.

Even so, the barriers to achieving the higher-density, mixed-use, walkable design necessary to realize the promise of TOD are both real and considerable. There is frequently a large gap between the desire for TOD and the reality of what is allowed and built in local plans. Most jurisdictions that have existing or planned rail systems do not have transit-friendly zoning or development plans in place around stations. This remains a major barrier to TOD implementation.

Success with TOD starts in the design of transit systems – selection of corridors, station locations, and the design of transit facilities. Recently there has been a stronger early emphasis on TOD in both the design and implementation of new

[LVI] Policies which focus growth into transit corridors, and clear development entitlements to allow higher-density, a mix of uses and development at higher densities.

transit systems. After their first experience with TOD, some transit operators are learning that TOD needs to be undertaken earlier in the planning and design process. Early efforts appear to be paying off in each of the systems that have already implemented TOD.

II. Lessons Learned

Early Action is Essential for Successful TOD

Over the past 25 years, there has been a pronounced shift in the planning for and implementation of TOD in America. Planning for TOD had not been a strong focus of many new rail starts. In the 1970s and 1980s, Washington, D.C., Atlanta, Georgia, Miami, Florida and Portland, Oregon prepared station area plans as part of the development of their transit systems. However, except for Portland and a few stations in Washington, D.C., the plans generally were not used to guide or shape development around stations.

Recently there has been a stronger early emphasis on TOD in both the design and implementation of new transit systems. For example, Portland's 18-mile Westside light-rail project, along with its 5.5-mile Airport line, were largely justified and designed with TOD in mind (see Portland description later in this chapter). Transit operators are starting to learn from their initial experience that TOD planning is something that needs to be done earlier in the project development process. Denver, Dallas, St. Louis, Salt Lake City, Portland, San Diego, San Jose, and Sacramento, are all examples of transit systems with new rail extensions that increased their TOD efforts well after their first line was already in place. Each of these systems gave more early attention to TOD with their extensions, than with their starter line. And, in each of those systems those early efforts appear to be paying off.

The lesson for communities interested in a future with more transit-oriented development is straightforward. In order to succeed with a TOD strategy, they need to start TOD planning much earlier in the project development process.

Decisions on alignment, where to locate transit stations, and the layout of transit facilities all can make a huge difference between a successful or unsuccessful development strategy. More times than not, these decisions are made without any effective consideration of future transit-oriented development. Furthermore, repairing the problem after the fact is costly, time-consuming and difficult.

Solving problems early on means bringing an expanded cast of characters to the table. Engineers and transit planners designing transit systems need to work with real estate economists, architects, landowners, residents and land use planners.

'Value Capture'

In the 1970s, the Federal government advocated TOD as a means to help pay for the

construction of new rail systems – the term then was 'value capture'. For a variety of reasons the theory and practice of 'value capture' never seemed to materialize. The challenge of trying to put together complex multi-party funding packages was often a greater hurdle than simply seeking more Federal funding for a new rail project. However, transit 'joint development' (involving the use of property acquired as part of a transit project) is used for development, has been increasing in the past several years. (Please see Section IV of this chapter for more information on the topic of Joint Development.)

Recently, there has been a reduction in the Federal percentage share (from 80/20 to 50/50) for new rail projects and significantly increased competition from a record number of rail proposals in the 'new starts' pipeline. As a result, the motivation to consider value capture has started to change.

Thirty years after the Federal government first started promoting the concept of value capture, there are finally some examples where TOD is playing a major role in the financing of new transit facilities. Three examples highlight this trend:

Portland, Oregon: The financing package of Portland's Airport light rail extension is built around TOD. Bechtel Enterprises is contributing $28.3 million toward the $125 million light rail project. In return, Bechtel, in partnership with Trammell Crow, will develop a 120-acre transit-oriented development with office, retail space, and hotel uses called *CascadeStation* at the entrance to the airport.

San Francisco Bay Area: The Bay Area Rapid Transit District (BART) is working on a TOD at the West Dublin BART station that will result in the private development of transit facilities, including the BART station, parking structure, and pedestrian bridges. The complex financing structure will help transform a 17-acre site that was initially acquired for BART parking into a mixed-use high-density TOD.

Southern California: The Pasadena 'Blue Line' light rail project is rounding out its financing package with the development of excess project right-of-way. From this, the Pasadena Construction Authority expects to realize a $30 million dollar contribution to the capital cost of the project.[115]

These projects each are in response to unique local conditions, but they also help demonstrate that TOD is starting to transform how we think about the financing and definition of transit. With the right project and market conditions, 'value capture' is a strategy that can provide benefits as part of transit 'joint development' projects. More information is provided on this topic in section IV of this chapter.

III. The Next Generation of TODs

In addition to what is happening with systems that have operating rail lines, it is helpful to look at new rail systems in America.

Because of their innovative early TOD work, some new transit systems to watch include:

Hiawatha Corridor, Minneapolis, Minnesota -
The City of Minneapolis and the Metropolitan Council have undertaken a program to plan for and implement TOD as part of the light rail project. Their approach is noteworthy in that they have targeted a handful of station areas for detailed TOD master plans rather than undertaking planning for the entire corridor.

City-led TOD master plans for one-half mile around stations are underway for Lake Street, Cedar/Riverside and Franklin, 46th Street and a 'multi-modal' station in downtown Minneapolis. Up to $9 million has been set aside for TOD planning and land assembly. The funding is a combination of urban renewal funds from the City of Minneapolis and Federal Congestion Mitigation Air Quality (CMAQ) funds.[116] (For information on funding options for TOD, see Chapter 7. Also, the Appendix volume to this report provides additional detailed information on funding sources.)

Sound Transit, Seattle, Washington -
A strong real estate market in Seattle, along with a collaborative TOD planning process with local governments and some early seed funding for TODs, are putting all the key fundamentals for a successful TOD strategy into place. The City of Seattle has established a Station Area Planning Team to lead the process of developing new land use plans in the areas around Sound Transit light rail stations.

Station Area Overlay districts for eight stations were adopted in July 2001 "to discourage auto-oriented development and increase opportunities for housing near transit corridors where light rail stations are proposed."[117]

Charlotte Area Transit -
The City of Charlotte/Mecklenburg County, North Carolina, has a broad regional policy framework in place to link transit and land use with its "2025 Transit/Land Use Plan". Their 'centers and corridors' land use strategy is organized around major transit investments in five transportation corridors. Charlotte now faces the hard choices required to make the vision real.

Duany Plater-Zyberk

'Cornelius' in suburban Charlotte, N. Carolina

Four towns are clearly aware of these points and do not want to squander the chance to concentrate people and jobs.[118] Although train service is at least five years away, the towns are already buying land and encouraging developers to build dense new neighborhoods near the tracks. In some cases, towns have

adopted temporary moratoriums on non-TOD new construction along the line. Others have adopted innovative land use and development rules that allowed the construction of transit-friendly villages like Cornelius and Vermillion where streets connect to make access easy.

The key lesson in each of these examples is the strong involvement of both the city and the transit agency. TOD is not something transit agencies typically have successfully accomplished without partnerships.

Let the Market Decide?

Dallas, Texas is an interesting example of where market factors, rather than supportive public policy, are leading to development next to transit. Since the opening of the Dallas Area Rapid Transit (DART) light rail system in 1996, *The Dallas Morning News* reported that more than $800 million in new commercial and residential investment has either been constructed or is in process of being built within walking distance of the DART line.[119] This has happened without subsidies, TOD planning, or supportive policies by the regional planning agency, the City of Dallas or DART along the starter line. Other than the Cedars Project, there has been virtually no public TOD subsidy in Dallas.[120]

While there has been a lot of development next to DART stations, it is largely "transit adjacent" not "transit-oriented." Development has not been shaped by transit, partially because TOD is technically 'illegal' in Dallas. In other words, the zoning and development code in the City of Dallas does not allow development to occur in a different manner because of its proximity to transit. In some instances, even when the market wants to respond to transit in Dallas, it is not allowed to. For example, the developer of Dallas's "Mockingbird Station" believes he had to build $6 million worth of additional structured parking in the project because of the City's refusal to reduce the parking requirements for the project to reflect lower parking demand due to its location next to a DART station.[121]

Parsons Brinckerhoff

Gatalyn Park Station, Richardson Texas

While until recently the City of Dallas has not conducted TOD planning, Dallas's suburban communities of Garland, Richardson and Plano are leading the charge with new TOD plans along DART extensions that are under construction. The challenge for Dallas along with the rest of the country is whether the next real estate market cycles will be as accommodating to TOD as in the late 1990s. Furthermore, without supportive public policy, will DART stations be favored locations for development? (For more information on Dallas TOD, see the profile in the Technical Appendix volume.)

Transit System Parking or TOD?
Is the land around transit stations best used for commuter parking or building communities? Determining an answer to that question continues to create a dynamic tension in transit systems across the country. The long-term goal of 'community building' and the essential short-term goal of maximizing ridership are often put in conflict with each other.

The compromise offered by many transit managers is to use commuter parking as land for development. In theory, as the TOD development market matures, the surface parking lots can be "harvested" as land for TODs. In reality, however, the theory has rarely worked due to the difficulty of taking parking back from existing park-and-ride patrons (who often view the parking as their vested right). Indeed, the collective voice of existing park-and-ride patrons is always louder than the voice of future residents. (For an example of a TOD created from a park-and-ride lot, see the Ohlone-Chynoweth profile in Chapter 5.*)*

Designing transit systems for commuter parking often has resulted in a transit station platform surrounded by a sea of commuter parking. That has limited the opportunity for TOD in a number of important ways: First, the parking separates the transit system from the adjacent community along with potential TOD parcels. Second, the parking creates an automobile oriented environment, rather than the pedestrian environment that is essential for transit-oriented development. Third, the need for significant parking leads to locating stations in locations that are not conducive to TOD. Finally, regulatory requirements for replacement parking in some places limit the possibility of converting commuter parking into TODs.

Washington, D.C. and Maryland Metropolitan Transit Agency are fairly typical of the dilemma TOD planners face. The primary function of many suburban stations is to provide commuter parking for transit riders. Under their procedures, surface parking can only be used for TOD if commuter parking is replaced on a "1:1" basis.

The cost of replacing parking spaces in order to allow for development becomes a TOD requirement, not a transit system requirement. In other words, the TOD must develop enough revenue to replace surface parking for transit commuters with structured parking. This can result in a significant barrier to implementing TOD.

Due to the complexity and importance of this topic, a separate report entitled *"Parking and TODs: Challenges and Opportunities"* has been prepared. (It is available from the California Department of Transportation, Division of Mass Transportation.)

IV. Transit 'Joint Development'

Heavy rail systems, like those found in Atlanta, Georgia, Washington, D.C. and the San Francisco Bay Area, offer an important insight into the ways that some transit agencies have responded over time to integrating transit and

land use. These systems have been operating for a minimum of 20 years. Each of them has pursued TOD though transit 'joint development' which involves offering transit agency-owned property that is physically or functionally related to a transit stop for private or public/private development.

One of the consequences of building heavy rail systems has been the need to acquire large amounts of land. A way in which this has been done is through the use of joint development. Through joint development, these systems have seen a significant amount of development on their property. By contrast, there has been limited privately-built TOD in the immediate area around stations.

What is noteworthy is that each of the systems is experiencing a renewed interest and emphasis on joint development as a revenue source, increased ridership, and 'livable communities' after a pronounced lull. More than any other factor, the Federal government's change in procedures for joint development appears to be responsible for the renewed interest.

Until Federal procedures were changed in 1997 [122] there was very little financial incentive for transit agencies to undertake joint development.

Under the old FTA rules, if land was acquired with Federal funds and a transit agency sold the land for joint development, they had to reimburse the Federal government for their share of the grant funds used to purchase the land. Typically 75 to 80 percent of the proceeds would go back to the Federal treasury. However, under the current Federal rules, proceeds from the sale or use of land for joint development can be retained by the transit agency.

Early Development Around Washington Metropolitan Area Transit Authority's Stations

Washington's transit operator, WMATA,[LVII] has undertaken more joint development projects than any other transit agency. To date WMATA has carried out 27 development projects at a value of more than $2 billion on land they own. These undertakings produce more than $6 million annually in additional funds to the Metro system.

In July 2000, WMATA released a Joint Development Solicitation for 15 sites ranging from over 30 acres to just one acre. The amount of revenues to WMATA is forecast to grow to $15 million annually by 2015. WMATA estimates they have realized a 50 percent price increase (over appraised value) on land sales in the past year. The premium in land sales to WMATA exceeds $50 million.[123]

One of the early examples of high-density redevelopment, the rail corridor between Rosslyn and Ballston in Arlington County, Virginia, includes many TOD design elements.[124] The County's General Land Use Plan calls for the concentration of high-rise residential developments within walking distance of the Metro stations.

[LVII] Washington Metropolitan Area Transit Authority

The Plan provides for a mix of office, retail, and residential units. Densities, heights, and uses are then tapered down to meet the adjacent single-family neighborhoods.

Until 1985, Ballston was the end of the rail line and the station area featured a large bus terminal. Nearby, there was a small commercial district surrounded by single-family homes and garden apartments. With the extension of the rail line in 1986, the bus connection was no longer needed. In the next five years, a new town of high-rise residential, office, and hotel structures sprang up within a quarter mile of the station. The bus transfer lot was redeveloped into the Metrorail station with the Metro Center located above. In addition to office space, this 28-story tower contains 200 hotel rooms, 284 condominium units, numerous retail shops, and a health club.[125]

More 'Joint Development' than TOD

More times than not, TOD in the vicinity of commuter rail stations has been an after thought. In many ways this is understandable. Washington, Atlanta and the Bay Area built multi-line regional transit systems that span many jurisdictions. With these systems, the challenge and opportunity of TOD is necessarily regional and multi-governmental in nature. It is therefore more difficult for these transit agencies to implement a system of TODs.

Until fairly recently, these transit systems haven't paid enough attention to land use issues surrounding their stations. In Washington, the leadership has come from local governments, not WMATA. In addition, Atlanta station areas typically have no special zoning, parking or design requirements that take advantage of the presence of a transit station. While BART has been operating for 25+ years, only in the last decade or so has it intensified its working relationship with local communities in the areas around BART stations.

Parsons Brinckerhoff

Transit 'Joint Development' at Bethesda Metro Center directly above the WMATA subway stop

When these transit systems were built, station area plans were produced to focus development around the stations. Yet the leadership and the resolve to transform those plans into reality rarely materialized. As a result, many of the plans stayed on the shelf.

The transit villages in Bethesda Maryland, Ballston in Washington and Pleasant Hill in the San Francisco Bay Area, became the exception not the rule to the above issue. (For more information on TOD and Joint Development in Washington, D.C. refer to the separate appendix to this report)

V. Noteworthy New TODs

This study has identified a number of new TODs that are noteworthy both for attention today and for follow-up later. This is not intended to be a comprehensive list – it is just a starting point.

Denver, Colorado
The new City Hall for Englewood was built into a former department store on the site of the failed Cinderella City mall. Adjacent to Denver's new Southwest Corridor light rail, the Englewood TOD combines a transit hub with a civic and cultural center, as well as retail uses and entertainment. More than 500 residential units are planned, along with a park and open space. The 55-acre site is located on a prime downtown corner. The City purchased the property, developed a master plan focused on light rail, and sold parcels to developers. The Regional Transit District built the track and paid for parking.

Parsons Brinckerhoff

The Englewood City Hall is a former department store in the Denver region's first TOD

Carter Associates

Lindbergh City Center Main Street

Atlanta, Georgia
Lindbergh City Center, the flagship joint development project of Atlanta's transit operator MARTA, represents a mixed-use project consisting of office, retail and multifamily residential development on 47 acres owned by MARTA. The transit agency recognized the potential of this property during the early days of TOD policy formation. Using a competitive bid process, the Authority selected a private real estate consulting firm to help market the Lindbergh property in August of 1997. This initial marketing effort started a three-year process involving the selection of a master developer, public hearings, zoning, negotiation of long-term ground leases and contracts, court challenges, and many other activities that determined the final makeup of the Lindbergh City Center project.

A team headed by Carter & Associates was selected as the master developer. Their plan called for building a mini-city with a pedestrian-friendly Main Street as the public focal point. A pedestrian bridge extends to the existing transit station and into a multifamily residential area.

During the time MARTA and its developer were introducing the project to area residents, one of Atlanta's largest corporate citizens recognized the potential of the Lindbergh development. BellSouth asked to become the anchor tenant in the office portion of the project.

BellSouth's investment in the TOD represented part of an overall $750 million relocation of corporate operations from scattered suburban offices to a concentration near central city transit. Other partners involved in the Lindbergh City Center include Post Properties, Harold A. Dawson Company and Federal Realty Investment Trust.

As a part of its role in this project, MARTA will invest significantly in the upgrading of infrastructure, including sewer improvements and station expansion. These upgrades will be financed through the Authority's bonding capacity.

Portland, Oregon - Orenco Station: A 190-acre TOD is located 14 miles from downtown Portland on the Westside MAX light rail line. The project has received attention from the White House, and an award from the National Association of Home Builders as one of the 'best master-planned communities' in America. [126]

Tri-Met and the City of Hillsboro began working with PacTrust and Costa Pacific Homes during the station community planning program to develop a transit-friendly master plan for the site. Transit-oriented zoning for Orenco Station was approved in August 1996. Soon after, the development team submitted a master plan based on the zoning for 550,000 ft^2 of shopping, hotel, and theater space, 100,000 ft^2 of office and other commercial space, and a minimum of 1,834 residences. The plan envisioned a community with a pedestrian-oriented spine between Intel and the MAX station lined by parks, high-density residential areas, and neighborhood commercial spaces with residential units above.
Orenco Station strategically occupies all the land between Westside MAX and one of chipmaker Intel's high-technology plants. PacTrust originally acquired the 190 acres for industrial uses in Portland's burgeoning Silicon Forest.

Fletcher Farr

Orenco Town Center

Orenco Town Center is a vertically mixed-use TOD, office and residential over retail. PacTrust has completed construction of the Orenco Village Town Center and the village's Main Street with shops, restaurants, and residential lofts above retail space facing out onto
the street. To help create a 'pedestrian scale', the region 'flexed' $500,000 in Federal clean air funds to help construct the main promenade street.

According to Costa Pacific, the ability to "walk to [get] a pint of milk" is one of the main reasons for strong residential sales at Orenco Station. Sales of the small-lot single-family residence at Orenco Station has been brisk, with approximately nine homes selling per month.

Homebuyers received an annual transit pass with the purchase of their home. Nearly 80 percent of Orenco residents stated in a survey that their transit usage had increased since moving into their new residence.[127]

Orenco Station is showing that transit-oriented development can generate more transit trips and work well in the marketplace without public subsidy.

Pac Trust / Fletcher Far

Orenco Station Master Plan

Washington D.C

Construction has begun on the first phase of recreating the 'downtown' of Silver Spring near the nations capital as the vibrant center of the community. Silver Springs declined steadily since the early 1960s, when migration to new suburbs siphoned housing, offices and retail away from the core. After 10 years of stop-and-go planning along with citizen opposition, development is underway on a 20-acre parcel purchased by the city.

The concept developed by RTKL Architects is for an active, 16-hour-a-day downtown serving every aspect of Silver Spring life from breakfast to midnight snacks, from grocery shopping and Saturday trips to the hardware store, to cultural performances at the American Film Institute and sidewalk dining.

High-frequency bus service and a Metro Red line station are located within a 5-minute walk. [128] The project includes 450,000 square feet of retail 240,000 square feet of office, 255 apartments, a hotel, and the so called "demalling" of 'City Place', a five-story retail mall built in the 1980s, by opening it up to the street.

(The separate appendix to this report provides a detailed transit system-by-system review of the policy framework for TOD, the status of implementation, and highlights and key issues related to TOD in various locations in the U.S.)

CHAPTER 5: How is Transit-Oriented Development Being Implemented in California?

Authors of Chapter: GB Arrington, Topaz Faulkner, Terry Parker, and Daniel Mayer

I. Introduction

This chapter provides an overview of the status of the implementation of transit-oriented development (TOD) in California. The chapter begins with an overview of several issues, trends, and overall observations regarding TOD implementation in California. Next, there is a brief review of major differences between TODs near bus and rail stations. This is followed by a review of the status of implementation in each of the State's major metropolitan areas. Finally, the chapter concludes by providing brief 'profiles' of a dozen TODs recently built in California. (Note: additional detailed information about each of these TODs is included in the separate appendix volume.)

- TODs served by a mix of modes, including: fixed route and shuttle buses, light rail, heavy rail, and inter city rail service.
- TODs comprised of a mix of different land use types in both urban and suburban locations – office, market rate and affordable housing products, social services, high technology, destination and local-serving retail, and mixed-use projects.

Parsons Brinckerhoff and the California Department of Transportation

Housing above retail along San Francisco's new Embarcadero light rail line

Transit-oriented development in California includes a variety of project types, locations, experiences, challenges and successes. The dozen TODs that are profiled in Section V of this chapter were chosen to reflect that diversity. They illustrate various challenges and 'lessons learned'. These profiles include:

- TODs constructed at a variety of locations, ranging from new 'greenfield' sites, 'brownfield' sites, large and small-scale urban infill projects,[LVIII] and the conversion of surface transit parking lots into TODs.

[LVIII] 'Greenfields' are newly developing areas, often at the fringe of urban or suburban areas; 'Brownfield' sites are or have been contaminated; and 'urban infill' sites are located within existing developed areas.

- TODs in which a variety of participants took the lead – private developers, transit agencies, non-profit groups, redevelopment agencies, local governments, and public-private partnerships; and

- TODs that were partially funded with various types and amounts of public subsidy, as well as those that were completely privately-financed.

II. Overall Observations

It is estimated that between 1990 and 2000, over $14 billion was invested in mass transit in California.[129] During the past 30 years, this State has built more new rail systems, more miles of track, and more transit stations than any other state in America.[130] California also has several of the nation's highest-use transit systems.

California's growth has produced a record number of new transit-oriented developments. Even so, the dominant land use around the majority of the major bus and rail stations in California is still conventional, car-oriented development that neither responds to nor is supportive of proximity to transit service.

Following are some general findings and observations on the challenges and status of implementing TOD in California. Additional detailed information on challenges and barriers to TOD implementation is provided in Chapters 6, 7 and 8.

TOD Activity is Widespread

There has been more activity with TOD planning and implementation in California during the past decade than at any time in the state's post - WWII history. There are a record number of TOD projects underway around transit stops in California. Every major transit agency that was surveyed as part of this study reported at least one or more new TOD projects underway at its stations. For some transit systems, these are the first TODs they have been involved in after more than a decade of providing rail service.

Lennertz and Coyle Associates / Seth Harry

A proposed addition to the existing Pleasant Hill BART station TOD is one of a record number of TOD planning and implementation projects underway.

Variety in TOD Implementation

Given the scale of investment in bus and rail transit in California and the State's sustained rapid growth rate, it is worth noting that no consistent approach to transit-oriented development planning, design, or implementation has emerged in California. TOD planning and implementation have largely been local initiatives – all with different methods and priorities. However,

there are several common challenges and barriers to implementing transit-oriented development that are experienced consistently statewide.

The lack of consistency in the design and methods of TOD implementation at local levels may not be particularly surprising given a variety of factors:

- TOD planning and implementation in California has been episodic – starting and stopping with swings in the economy and political support;
- There are wide differences among the major regions in the state regarding land use and transportation planning and implementation;
- California does not have strong or cohesive TOD policies, programs, and/or objectives at the State level;
- The State has not taken a strong role in overseeing local land use planning.[131]

The Transit Villages Act of 1994 (referred to in Chapter 1)[132] is acknowledged by many as the most important step at the state level to raise the policy profile of transit-oriented development. At the same time, TOD observers generally agree that this legislation, while well-crafted, provides no funding and has therefore not been as successful as it could be in facilitating TOD implementation in California.

Roles of local governments and transit agencies in TOD

Successful TOD implementation requires a partnership between transit agencies, local governments, financial sources, and private developers. The key public sector player in successful transit-oriented development projects is often the local government (either city or county) – with zoning and comprehensive planning authority. Compared to transit agencies, California's local governments have the authority, tools, and development experience at their disposal to plan for and encourage transit-oriented development.

Parsons Brinckerhoff and the CA Department of Transportation

The 'Uptown District' in San Diego is an example of how bus TODs can be part of a community's strategy to

Where transit agencies or developers have difficultly obtaining the support of local governments, progress on TOD implementation in California has been limited. In some communities, local governments have been reluctant partners in pursuing transit-oriented development. In other communities, the transit agency has been the hesitant participant. However, where cities and transit agencies have

established a strong working relationship (such as in San Diego and parts of the San Francisco Bay Area, for example), TOD implementation has tended to flourish.

In several of the State's major metropolitan areas, transit agencies have played an important role in the education, advocacy and funding of transit-supportive development.[LIX] And, transit agencies often own land near stations that can potentially be used for transit-oriented development. However, transit agencies lack authority over land use to approve such projects (land use authority in California is held solely by local governments).

There are considerable opportunities for conflict between local governments and transit agencies regarding planning and implementing transit-oriented development. Transit agencies and local governments may have very different goals, priorities, and constraints. For example, transit agencies can be expected to maximize ridership and agency revenues, while cities may have a completely different set of objectives. For example, in response to local community concerns, many cities have resisted the land use zoning changes that are necessary for TOD, especially if they include somewhat higher densities than surrounding neighborhoods.

[LIX] 'Transit-supportive development' and 'transit village' are terms that are used interchangeably with transit-oriented development in this report.

III. Bus and Rail TODs: An Overview

This section takes a closer look at several issues regarding a successful bus TOD strategy. Transit-supportive development can be implemented in communities with rail or bus investments. In communities across California, TODs at major bus stations also present an attractive strategy to respond to growth. (However, the experience in California, like the rest of the country, tends to be somewhat mixed regarding bus TODs.) The 'Uptown District' in San Diego (see profile later in this chapter) is an exceptional example of a bus TOD and redevelopment project.

One of the important advantages of a TOD strategy for bus or rail systems is that transit-oriented developments can increase transit ridership[133] and facilitate providing transit service to growing areas.[134] Furthermore, by helping to focus growth in more compact areas, TODs can allow transit operators to more efficiently provide service.[LX]

[LX] Typically 80 percent of the cost of providing bus service is the cost of the operator. Transit service is expensive to provide in suburban areas in part because of the cost to extend routes to reach new development and the dispersed nature of suburban trips. A TOD strategy addresses both of those barriers. In comparison to conventional dispersed suburban development, serving TODs can be cheaper because fewer service hours are required to provide the same level of service.

Focus on a Few Stops
An advantage of bus service is that it can be ubiquitous – buses may serve an entire community. In addition, the routes and service levels are more flexible than rail. However, these factors can also present a disadvantage for moving forward with a TOD strategy.

Because the locations of bus routes are not fixed or permanent, this greatly increases the risk of investing in transit-supportive land use development. In addition, along bus corridors it is more difficult to focus attention and resources on the numerous bus stops, compared to a limited number of rail stops. In San Diego, for example, there are 49 light rail stops and 3,400 bus stops.[135]

One advantage of rail transit is that programs and incentives can be targeted to specific, permanently located rail stations. If the same advantages were bestowed upon numerous bus stops, the limited incentives available would become diluted and confer little advantage. Therefore, a successful bus TOD strategy will need to be strategically focused on a few key locations.

Differences With Technology?
One of the questions to ask when considering bus versus rail TOD is: *Does a specific transit technology have a material impact on the opportunity to create a successful transit-oriented development?* Simply stated, the transit technology does not, in and of itself, create land use development impacts or benefits. High-quality bus service, light rail, commuter rail, or heavy rail does not automatically guarantee the success or failure of TOD implementation strategies.

In addition to the type and level of transit services, other important factors for successful transit villages include: how transit fits into the urban environment; the location and design of stations; the quality and coverage of transit service; the strength of the local real estate market; the planning and policy framework for transit-friendly development; and perceptions of the development community, neighborhoods, and government about transit and land use.

Ottawa, Canada, and Curitiba, Brazil, are often cited as successful examples of shaping growth with bus service. Dr. Robert Cervero, who conducted an assessment of Ottawa's busway,[136] states that the reason such a system has not been replicated in the U. S. has largely to do with the poor reputation that bus service has here. He adds: "the 'bus rapid transit' program is trying to change this but buses are still stigmatized as second-class forms of transportation. Brazil has managed to shake this image, but I'm not exactly sure why. I think modern, low-floor buses help a lot."[137]

Bus Rapid Transit
Bus Rapid Transit (BRT) is an emerging technology that provides an opportunity to capitalize on many of the advantages of rail with the lower cost and flexibility of buses – like a "train on wheels." Los Angeles has a successful BRT demonstration project underway on two routes: Whittier-Wilshire Boulevard (line 720) and Ventura Boulevard (line 750).

According to the Los Angeles Metropolitan Transportation Authority (LA MTA),[138] ridership is much higher than expected - and they met their goal to decrease trip times by 25 percent.

Los Angeles MTA

Metro Rapid Bus demonstration project in Los Angeles

LA MTA's Bus Rapid Transit service includes the following:

- Low floor buses painted differently than regular buses;
- Stations spaced further apart, similar to light rail;
- Special 'transponders' that keep the traffic signal light green longer at intersections to speed bus travel;[LXI]
- Specially-designed station stops, some with message signs that advise travelers of the specific times when the 'next bus' will arrive; and
- Ticket machines at stations for pre-paid tickets (future)

LA MTA is also considering putting two BRT routes on exclusive guideways that would have extensive landscaping and other urban design amenities. Designated stations will serve as major transit hubs and have large park-and-ride lots.

Other Considerations

Beyond the differences between bus and rail, there are other important differences to keep in mind when planning and implementing a TOD strategy:

- Rail riders and bus riders have tended to be somewhat different demographically. Rail systems have been effective in attracting new "choice" riders to transit, and new riders tend to have higher incomes than existing bus riders. For example, new transit riders comprise 45 percent of total riders on a new light rail system in Salt Lake City (Utah), and 39 percent in Denver (Colorado).[139] It is likely that similar results could also be achieved with new high-quality 'BRT' bus service.
- The different geographic and travel markets they serve explain part of the demographic difference between rail and bus service.
- Many new rail investments have been targeted to serve the more affluent suburban-to-downtown markets, while buses tend to serve existing urban markets.

[LXI] A transponder, in this case, is a device that transmits information about the location of a bus to a traffic light. In response, the traffic light adjusts its timing, reducing the amount of time the bus spends waiting for the light to change.

- Rail and bus service tends to have significant differences regarding the use of supportive public policy and incentives in areas around stations. Because of the magnitude of rail investments and the "newness" of the investments, rail development is more likely to have supportive public policies.

- The location of rail transit is relatively fixed, while the permanency of bus line locations is uncertain. This uncertainty increases the ability of developers and financiers to invest in transit-supportive development near rail stations, as compared to bus stations and corridors.

- Rail systems are more likely to present opportunities for transit 'joint development' on transit agency-owned property as compared to buses, given the nature of the construction process for rail.

Los Angeles MTA

Model of an MTA Metro Rapid Transit Station

- Finally, rail systems have a proven track record of TODs around stations, while bus TODs are more rare.

Conclusion – Bus and Rail TOD
Both bus and rail transit villages can be effective tools to help shape growth in California. With good planning, favorable market conditions, and strong leadership, it is reasonable to assume that, over time, many of the negative perceptions regarding investing in TOD along high-quality bus lines can be overcome.

Rail has consistently demonstrated an ability to shape growth, attract new riders, and increase property values when it is implemented in a growing market with supportive policies in place. The opportunities for transit-oriented development are more limited with buses than with rail. Making bus TODs work will require a focused approach and an extra level of leadership and intervention than a comparable rail TOD. At the same time, as a public policy tool, bus-oriented transit-supportive developments show promise as a 'smart growth' strategy to focus development, reduce dependence on the automobile and help revitalize cities.

IV. Regional TOD 'Snapshots'

There are many transit-oriented development efforts underway across California. The San Francisco Bay Area and San Diego stand out as leaders in TOD planning and development. The experience of these regions can be valuable to other areas in California, as well as outside the state. Two of the major transit agencies in these regions (BART in the San Francisco Bay Area, and the Metropolitan

Transit Development Board [MTDB] in San Diego) grew into their TOD roles after a slow start. During the last decade, both agencies have partnered more closely with cities and regional agencies in planning and implementing transit villages.

Following is a series of brief overviews of the current status of TOD in each of California's major metropolitan areas, starting in Sacramento and moving to the southernmost part (San Diego). This is followed by a set of 'profiles' describing sample TODs in each of these areas, including "lessons learned" from their implementation.

Sacramento Area

Sacramento Regional Transit (RT) has been operating light rail since the spring of 1989 without paying serious attention to transit-oriented development – that is, until recently. Ironically, the nation's earliest TOD-focused General Plan was adopted by Sacramento County in the early 1990s. Unfortunately, the TOD components of this plan have not been consistently implemented.

Even so, Peter Calthorpe's *Transit-Oriented Design Guidelines for Sacramento County*[140] has provided a framework for linking transit and land use development in several other jurisdictions in the U.S. (Please refer to the Appendix volume for more detail on this framework.)

The City of Sacramento has adopted a policy to allow higher-density land uses near transit stations and is actively attempting to integrate transit villages into several community plans.[141] For example, the 'R Street Corridor Plan' was adopted by the City for a portion of an existing light rail line near the Central Business District (CBD). This Plan requires minimum densities in the corridor and near the transit stations; ground-floor uses that promote pedestrian activity; and an emphasis on housing for upper floors of mixed-use projects. Several projects consistent with the Plan have been built.

In addition, since 1998, the City has been working with community members to prepare a TOD land use plan and zoning change for a

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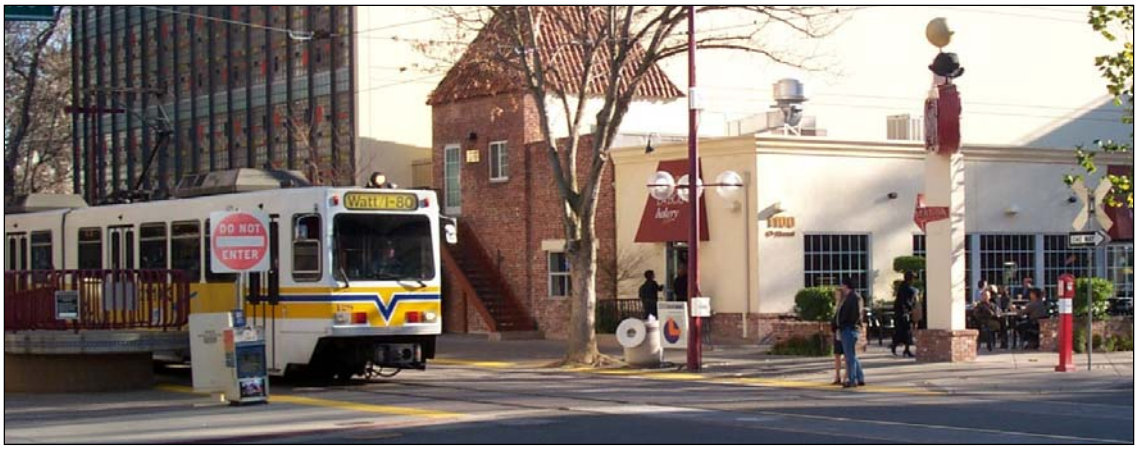


Light rail station at 'Posey's Corner' in downtown Sacramento

neighborhood surrounding a light rail station east of downtown. A draft of that plan has been completed, with the assistance of the 'PLACE^{3}S' [LXII] planning method and software. The Plan focuses on redeveloping this area into a 'University Village' that will provide housing and retail opportunities for students and faculty at the nearby California State University, Sacramento campus.

During the past few years, in a pattern similar to California's other transit agencies, the Sacramento Regional Transit District (RT) has dramatically increased its efforts to work with local communities on planning and implementing transit-supportive development. As part of its current eastward 'Folsom Corridor' and 'SouthLine' light rail extensions, RT secured funding from the Federal Transit Administration (FTA) to undertake a major TOD community planning program.

RT's 'Transit for Livable Communities'[142] effort is designed to identify ways that the new SouthLine light rail line and Folsom extensions can most effectively benefit the communities they serve. A major result of the project will be the identification of ways to use parcels of land RT owns at stations for 'joint development'. Also, RT is hopeful that these efforts will result in local government actions to rezone the land surrounding transit stations to allow transit-supportive land uses.

[LXII] PLACE^{3}S: an interactive urban planning method and GIS tool to help communities make informed planning choices for TOD. (Additional information about this tool is provided in the Appendix volume.)

The San Francisco Bay Area

The four major transit agencies in the San Francisco (SF) Bay Area have been active regarding TOD. These are: the Bay Area Rapid Transit District (BART), the San Francisco Municipal Railway ('Muni'), Caltrain, and the Santa Clara Valley Transportation Agency (VTA).

The activities of these transit agencies in TOD have been enhanced by efforts occurring at a regional level in the Bay Area. For example, in 1990 the Association of Bay Area Governments (ABAG) adopted policies to allow for the development of new communities along transit corridors and to encourage cities and counties to focus housing and jobs in proximity to transit stations.[143]

In the face of two of the Bay Area's most serious problems – escalating traffic congestion and a severe housing shortage – in the late 1990s the Metropolitan Transportation Commission (MTC) initiated a program designed to encourage planning and implementation of "livable communities" efforts, such as improved pedestrian and bicycle facilities, better access to transit, and similar local programs. This effort was entitled the 'Transportation for Livable Communities Program' (TLC) for which MTC set aside $54 million in flexible Federal funds over six years (from 1998 through 2003).

In 2001, MTC decided to significantly expand funding for the popular and successful TLC program to $29 million per year (from $9 million).

The TLC program provides funds to local jurisdictions for planning and capital improvement projects, such as streetscapes, bicycle and pedestrian facilities, transit-oriented development, and other local 'livable communities' efforts.

Metropolitan Planning Commission

Higher-Density Housing along VTA's Light Rail Line

Starting last year, MTC also initiated another new program entitled the 'Housing Incentive Program' (HIP), which distributes funds to local jurisdictions as a 'reward' for locating new compact housing near transit stations. Jurisdictions may spend the HIP funds they receive on any neighborhood-based transportation projects that are consistent with MTC's TLC program guidelines.[144]

Santa Clara Valley Transportation Authority

The Santa Clara Valley Transportation Authority (VTA) provides bus and light rail transit service in California's "Silicon Valley" south of San Francisco. VTA has been proactive in promoting and implementing transit-oriented development for some time. For example, the 'Tamien Child Care Center' was nationally recognized when it opened in 1995. VTA created a precedent when it undertook a so-called "tranodominium" project on an underutilized park-and-ride lot adjacent to the Ohlone–Chynoweth light rail station (see TOD profile later in this chapter)[145]. In 1997, the Board of the Santa Clara Valley Transportation Authority (VTA) adopted a Strategic Plan that includes the integration of transportation and land use as one of its five major goals.[146]

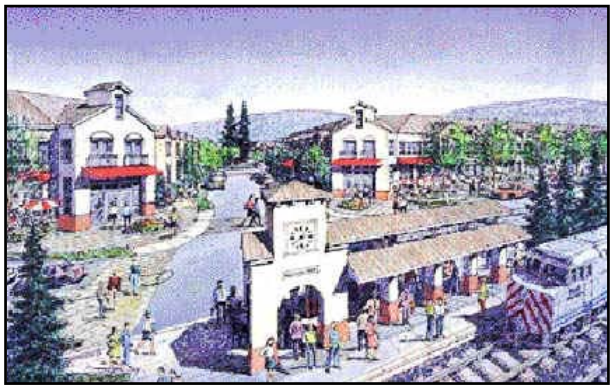
Several of the local jurisdictions in the Silicon Valley have been active in the TOD 'arena'. For example, the City of San Jose has taken an important leadership role in providing a framework for TOD by revising its general plan to provide for high-density development around transit stations[147]. The City's *Housing Initiative Program and Intensification Corridors Special Strategy* targets station areas for high and very high-density housing.[148]

Efforts have recently accelerated with the opening of the 'Tasman West' light rail line in December 1999.[149] According to staff of VTA, the Cities of Mountain View and Sunnyvale have actively pursued policies that promote development in proximity to light rail. The City of Mountain View, for instance, rezoned 40 acres of industrial land for 520 housing units adjacent to the 'Whisman' light rail station.[150]

Due to the shortage of affordable housing in the Santa Clara Valley, the VTA Board is also interested in developing several agency-owned, underutilized light rail parking lots for housing.[151]

Caltrain

Caltrain, a commuter rail system that links San Francisco to San Jose and Gilroy, is operated under a Joint Powers Agreement among the counties of San Francisco, San Mateo, and Santa Clara. In October 1997, the Caltrain Board of Directors approved a resolution in support of Transit-Oriented Development (TOD), and instructed staff to produce a document containing design guidelines and strategies for infill, redevelopment and new growth along the Caltrain Corridor.



Calthorpe Associates

Design for a Caltrain Station at 'The Crossings' TOD in Mountain View

As a result, Caltrain is partnering in numerous TOD plans with more than 17 local jurisdictions in its tri-county service area. For example, 'The Crossings' in Mountain View is a Peter Calthorpe-designed TOD built in the mid-1990s on the site of a defunct 1960s-era shopping mall that was suffering financially.[152] After the mall went out of business, the City of Mountain View rezoned the site for a TOD. Now, a higher-density, mixed-use 18-acre development is adjacent to a new Caltrain station. It includes stores and more than 500 dwelling units – apartments, condominiums, and single-family housing. The overall housing density averages nearly 30 units to the acre.[153]

Bay Area Rapid Transit District (BART)

California's oldest urban rail mass transit system also has the most complex history with transit-oriented development. When BART was originally built, there was an expectation that higher-intensity development would automatically take place near BART stations. This was based on the premise that if BART built a transit station, then suitable development would fairly automatically follow.

Unfortunately, outside several urban core areas, intense development generally did not follow the building of BART. As a special district with no land use authority, BART did not make a concerted effort to modify local land use designations and zoning codes, or to assemble land or undertake development programs.[154]

Fortunately, several of the jurisdictions served by BART (such as the cities of Berkeley, Concord, Fremont, Hayward, Oakland, Orinda, Richmond, San Francisco, and Walnut Creek) have long identified BART station areas as focal points for higher-intensity land uses. Even so, TOD development has not taken place in these areas without effort.

The areas adjacent to BART stations in downtown Oakland (most notably Oakland's 'City Center') and Berkeley have experienced significant increases in office development, commercial growth, and residential density. Since BART initiated service in 1972, the amount of office space in downtown San Francisco has tripled, associated with at least 200,000 new jobs. In 1973, San Francisco adopted a 'Transit First' policy that mandates transit-supportive development and limits parking. Today, about one-half of all people crossing the bay to San Francisco during morning commute hours ride BART.

In 1984, with the enactment of a 'Station Area Development and Implementation Policy,' BART initiated an active transit 'joint development' program (for which supportive policies had been in existence since 1969). Since then, BART's "one-for-one" parking replacement policy has been a major factor in shaping the nature of development on BART property in suburban portions of the San Francisco Bay Area. BART's 1984 joint development policy requires that proposed TOD projects provide a competitive investment return to BART's land value. Thus, projects that could not at least pay for the cost of replacing BART surface parking places (estimated then at $25/square foot of land) were not implemented. Because of this, nearly all of BART's potential development sites near transit stations are still used as surface parking lots.

In the mid- to late-1980s, numerous transit-supportive development efforts were undertaken. Included was the sale of Transferable Development Rights (TDRs) at the Pleasant Hill Station and negotiation of a ground lease for a hotel development at the Concord Station. The Pleasant Hill BART station area is one of the first suburban TODs developed in the United States.[155]

The Pleasant Hill BART station planning effort was led by Contra Costa County. It has involved creating 'Specific' and 'Redevelopment' plans, assembling land, and issuing bonds for infrastructure improvements. (For a discussion of the Pleasant Hill TOD, see its profile later in this chapter). However, just after the projects at Pleasant Hill and Concord took shape in the late 1980s, the real estate market entered a recession, which significantly slowed progress.

In the late 1980s, BART re-initiated its joint development effort. BART's first joint development solicitation was released in 1991 for its two stations in El Cerrito. Staff also conducted a number of Board of Directors workshops on joint development. The general objective for the joint development program is generating annual revenue (and/or capital offsets) along with transit riders.

Calthorpe Associates

Housing is planned as part of a downtown Richmond BART station area TOD

Recognizing that local support is necessary for successful joint development projects, BART initiated numerous cooperative planning activities during the mid- to late-1990's in concert with local jurisdictions. One of these was participation in the Castro Valley Specific Plan effort through the release of a request for proposal, selection of a developer, and construction of a transit-oriented development project.

Like many organizations, BART has changed its approach over time. The Strategic Plan most recently adopted in 1999, for instance, emphasizes a community-based emphasis for TOD. The plan states: "In partnership with the communities that BART serves, we will promote transit ridership and enhance the quality of life by encouraging and supporting transit-oriented development within walking distance of BART stations."[156]

San Francisco 'Muni'

Muni has operated rail service in San Francisco's neighborhoods for many years without any direct involvement with transit-supportive development. At the same time, the City of San Francisco has been a pioneer in leading the rest of the nation regarding what can be done to establish transit-friendly policies. Limits on downtown parking and its 'transit first' policy are two notable examples.

The construction of a new light rail line to the South Beach area opened the door for Muni to participate in joint development. An excess parcel along the waterfront has enabled Muni to undertake its first major transit 'joint development' project. In 1999, Muni completed a 3-year process to allow a 200-room hotel to be built on its property (across The Embarcadero from the Ferry Building) on San Francisco's downtown waterfront. Project construction started in June 2001, and a 65-year ground lease will generate $311 million in revenue to Muni, while an additional $540 million in other taxes will flow to the City of San Francisco.[157]

The South Beach area adjacent to the Embarcadero light rail extension area has been transformed into a high intensity mixed-use, transit-friendly community. There is some debate about whether transit played a role in the transformation of the area. However, it is clear that transit availability was one criterion that the City of San Francisco considered in planning the redevelopment of the area. There can be no doubt that the result is a transit-friendly community in one of the most spectacular settings for TOD in the United States – overlooking San Francisco Bay.

Southern California

Despite various efforts to establish transit-oriented development districts in Los Angeles County, few local jurisdictions have taken a strong lead in station area planning in this region. The Los Angeles County Metropolitan Transportation Authority (MTA) has focused its efforts on joint development of agency-owned properties, resulting in projects such as Hollywood/Highland (see profile in this chapter) and a few smaller projects. The MTA is now taking a closer look at its role in promoting station area development.

Parsons Brinckerhoff

Light Rail station on the Los Angles Blue Line running from LA to Long Beach

The foundation for TOD planning in Los Angeles was established in 1993 with the adoption of "A Transportation/Land Use Policy for Los Angeles," a joint policy between the City of Los Angeles and the Los Angeles County Metropolitan Transportation Authority. Although the policy has had some impact on the establishment of transit-oriented districts within Los Angeles, it has not yet resulted in any significant TOD projects.

The City of Los Angeles Planning Department designated a special TOD Planning Unit for several years to develop transit-oriented districts around rail transit stations. The original goal was to designate seven districts in a variety of station areas. To date, however, only two TOD plans and associated ordinances have been or are in the process of being adopted. These projects have been successful primarily due to strong political support by local elected officials.

The County of Los Angeles has also designated transit-oriented districts around four Long Beach 'Blue Line' and two Norwalk-El Segundo 'Green Line' light rail stations. However, the County does not have a program to proactively create development opportunities.[158]

One of the most active local jurisdictions in Southern California is the City of Pasadena. The City's General Plan Land Use Element contains numerous references to TOD in its objectives and policies.

The City has been implementing transit-oriented developments along with transit-friendly specific plans years before its light rail system arrives. (An example of this is the 'Holly Street Village' housing development in downtown Pasadena, which has a light rail station built into the ground-floor, awaiting arrival of the new line).

A new light rail line connecting downtown Los Angeles and Pasadena is scheduled for completion in 2003. Phase I of the Project will extend 13.7 miles from Union Station in downtown

Los Angeles, serving the communities of Los Angeles, Chinatown, Lincoln Heights, Highland Park, to South Pasadena and Pasadena.

There are six new stations planned in Los Angeles, one station in South Pasadena, and six in Pasadena.[159] This project includes plans for developing 'excess' right-of-way parcels, which the Pasadena Construction Authority expects will contribute approximately $30 million toward the capital cost of the light rail project.[160]

San Diego

San Diego is widely acknowledged as a leader in transit-oriented development within the State of California. San Diego opened America's first modern light rail system in 1981, but did not initiate any TOD planning until several years later.[161] Whereas TOD was not considered in planning the first light rail line, TOD projects and plans are now in place at more than 15 of the light rail system's 49 stations.[162]

The City of San Diego has been a willing partner in supporting both mass transportation and transit-supportive development. The City was one of the first localities in the nation to adopt "Transit-Oriented Development Design Guidelines" in 1992. [163]

San Diego has also implemented a unique 'transit overlay zone' that reduces parking in areas that have a high level of transit service, and has been proactive in planning for urban development downtown and in other communities.

In San Diego it is possible to see two of the most recognizable examples of TOD in California. One of these is the American Plaza (for which there is a profile in the following section). The other is the Mills building, which houses the Metropolitan Transit Development Board (MTDB) headquarters. The light rail train passes through both buildings.

Parsons Brinckerhoff and the California Dept. of Transportation

The Hazard Center stop on the Mission Valley Light Rail line serves a shopping center, offices, and housing

TOD has also been an important consideration in the design and alignment of the Mission Valley East light rail extension that began operations in November 1997.[164] (See the TOD profile on Rio Vista in section V of this chapter for more detailed information).

The City of San Diego's Planning Department and MTDB have a strong history of coordination that provides a model for other areas. The City assigns a planner directly to the MTDB planning staff to work as a technical expert and liaison on TOD. This kind of direct collaboration is unique within the United States.

At a regional level, the San Diego Association of Governments (SANDAG) approved a 'Regional Growth Management Strategy' that calls for increased development in "transit focus areas (TFA)."[165]

Also, MTDB recently coordinated an 18-month '*Transit Works'* process to define the role that transit could play in helping to solve the San Diego region's growing transportation challenges. As a result, MTDB has adopted a new strategic plan ('*Transit Now'*) calling for the aggressive expansion of modern transit service, as well as transit-supportive land uses.[166]

Parsons Brinckerhoff and the California Department of Transportation

This San Diego light rail station is located within the America Plaza TOD in downtown San Diego that includes offices, shops, and an art museum.

V. California TOD Profiles

Following are brief overviews of 12 sample transit-oriented developments at major bus and rail stations in each of California's major metropolitan areas. More detailed information on each of these is available in the Technical Appendix volume, including details about how they were implemented as well as people who may be contacted for additional information.

Sacramento Area:

1. Aspen Neighborhood, West Davis

Developer:	West Davis Associates
Jurisdiction:	City of Davis
Transit Agencies:	Unitrans; Yolo County Transit Authority
Transit Service:	5 Unitrans bus routes, with 5 to 25-minute frequency

This neighborhood in Davis (a university-oriented city of 60,000 located near Sacramento) was not purposely built as a transit-oriented development; but it has evolved to function as one. It includes medium-density residential development near a sheltered transit stop in a suburban neighborhood at the corner of Arlington Blvd. and Shasta Drive in West Davis (west of Highway 113).

This bus stop is easily accessible by wide tree-lined sidewalks, bike lanes, and controlled pedestrian crossings. Two medium-density apartment complexes are located across the street from the bus stop, and the well-known, pedestrian-friendly "Village Homes" is just south of it. Elementary and middle schools are also located within a five-minute walk from this corner, and there is a neighborhood shopping center within a 15-minute walk.

California Department of Transportation

Bus stop serves students & commuters

In 1991, West Davis Associates, developers of the Aspen neighborhood, built the two-story "Aspen Village" apartments. Financing for this market-rate complex was from private sources. Aspen Village includes 88 units on 4.5 acres (at 20 dwelling units (du)

per net acre density), with 230 parking spaces (2.6/unit).

California Department of Transportation

Interior courtyard of Heather Glen affordable housing complex

In 1992, the Community Housing Opportunity Corporation (CHOC) built the affordable Heather Glen Apartments on land the developer donated in compliance with the City's "inclusionary affordable housing" ordinance. Heather Glen's two-story apartments are clustered around a central lawn and play area that is visible and well maintained. It is less than one block from the transit stop. The complex consists of 62 units on 3.5 acres (a net density of 17 dwelling units (du)/acre), with 124 parking spaces (2 spaces/unit). Funding for Heather Glen was provided by Yolo County and the Federal department of Housing and Urban Development (HUD). CHOC continues to manage this successful rent-controlled complex for low and medium-income families. There has been no community opposition to this attractive development.

The 'Muir Commons Co-Housing' community is one block north, still within a 10-minute walk of the transit stop. This innovative project was the first "Co-Housing" development to be completed in the U.S., in 1991. It was designed by residents over a three-year period, and built by West Davis Associates developer. Muir Commons consists of: 26 self-contained townhomes with small yards; a large community building with commercial-size kitchen, dining room, childrens' playrooms, large meeting room, and laundry facilities; a lawn, gardens, and children's play structure; a workshop/garage; an orchard; a hot tub; and landscaped sitting areas. The layout of the site encourages community interaction and safe play for children. It is situated on 2.9 acres (9 du/acre net density), with 45 parking spaces (1.7/unit) on the peripheries. The east side connects to a greenbelt and bicycle/pedestrian path, which is part of a citywide system of paths.

Transit Service
The transit stop was built by the two transit agencies (Unitrans and YoloBus) with funding from the developer. In addition to five local bus routes heavily used by UC Davis students, there are also two commuter express routes to downtown Sacramento.

Lessons Learned
This neighborhood is a successful example of a suburban bus TOD. There has been very little community opposition to the attractive and well-maintained medium-density housing complexes. The private developer has indicated a desire to include transit in future projects due to the benefit of reduced traffic and parking problems in this neighborhood due to its accessibility to high-quality transit service (especially for students).

San Francisco Bay Area:

2. EmeryStation, Emeryville

Developer:	Wareham Development Co.
Jurisdiction:	City of Emeryville
Transit Agencies:	Amtrak; Emery Go-Round shuttle; AC transit
Transit Service:	Amtrak: 13 daily round trips; 'Emery Go-Round': 10-minute peak service

Parsons Brinckerhoff and the CA Dept. of Transportation

An Amtrak station anchors this 20-acre mixed-use TOD on a former brownfield. A pedestrian bridge spans the tracks.

EmeryStation is a new 20-acre mixed-use transit-oriented development anchored by an Amtrak station in the city of Emeryville in the East Bay. The site is located on a former contaminated 'brownfield'. Wareham Development and the City of Emeryville provided the leadership to implement the project that includes reuse of old industrial buildings and new construction.

The project was initiated by the City, which was interested in having a train station in Emeryville.[LXIII] Amtrak's interest in an Emeryville station, combined with the leadership of the Wareham Development Co., helped transform a contaminated site into a viable TOD. Amtrak offered to pay lease expenses for a new station, and the City negotiated the purchase of a three-acre site from Chevron and leased a quarter of it to Wareham to build a new rail station. The station opened in 1993, and in 1996 the City constructed a pedestrian bridge over the rail tracks to a nearby mixed-use retail center.

Wareham Development

Amtrak's interest in an Emeryville station, combined with the leadership of Wareham Development, helped transform this brownfield into a TOD.

In 1998, construction began on 'EmeryStation Plaza', a three-building 550,000 square foot mixed-use complex on the north, east and south sides of the new Amtrak station. Between 10 to 15 percent of this development is ground floor mixed-use space, allowing retail, commercial or office uses as the

[LXIII] The City provided $5.8 million and Wareham Co. contributed $1.5 million to build a new Amtrak train station.

market demands. In the first phase of the project, a 247,000 square foot, five-story office building was built that includes about 27,000 sq. ft. of ground-floor retail space and two levels of parking underneath. Phase II - EmeryStation North - added 170,000 sq. ft. in office space and was completed in 2001.

EmeryStation also includes 101 units of owner-occupied lofts and townhomes. Wareham also plans to build an additional 60 units of housing north of the office buildings.

At full build-out, the investment in EmeryStation is estimated to total at least $200 million. Approximately two-thirds of EmeryStation's original tenants moved there from San Francisco; now the project draws tenants and buyers from throughout the Bay Area.

Emery Go-Round
A free shuttle service – the 'Emery Go-Round' - links Emeryville's busiest business, retail and entertainment areas. It also provides access to the McArthur BART station two miles away. The buses operate from 5:45 am to 9:30 pm, with 10-minute headways during peak commute periods. Various employers and businesses in Emeryville pay for the service, and the City requires new development projects to contribute to the operation of the shuttle as a condition of approval. In addition, AC Transit also provides additional daily bus service to the Amtrak station.

Parking
Most of the buildings have three parking spaces per 1,000 square feet, reflecting the standards in the City's code. Residential parking is provided at one space per bedroom. The developer has provided over 1,000 parking spaces in this TOD.

Lessons Learned
EmeryStation is an example of how a developer with a long-term view and a City can partner with transportation agencies to create a significant TOD. Wareham Development has taken a flexible approach to address market opportunities. Also, since this site had brownfield contamination issues, Wareham's extensive experience in working with regulatory agencies on remediation and its ability to obtain loans and grant funds through the City were critical in making the new train station and associated land use development possible on this site.

Photo by Kim Harrington, provided by Wareham Development Co.

The TOD includes 550,000 sq. ft. of office and ground- floor retail, and 101 condominum units.

3. Fruitvale Transit Village, Oakland

Developer:	Fruitvale Development Corporation
Jurisdiction:	City of Oakland
Transit Agency:	Bay Area Rapid Transit (BART)
Transit Service:	BART Station (10-15 minute service)

Unity Council

Fruitvale Transit Village is a mixed-use TOD involving 20 public funding sources. The complexity of the project has been a barrier in moving from this model to construction.

The Fruitvale Transit Village involves the redevelopment of 5.3 acres of BART surface parking into housing and a community center. The Unity Council (formerly the Spanish Speaking Unity Council), created the Fruitvale Development Corporation (FDC) for the purpose of developing this mixed-use, public/private project.

The project was conceived as part of a neighborhood alternative to BART's construction of a parking structure at the station. BART relinquished its plan and agreed to work with the Unity Council to pursue a different type of development. The core of the transit village will cover five acres, including a 99-year ground lease of BART's property.

The plan for Fruitvale Transit Village includes: 337 units of housing; 25,000 sq. ft. of office space; 25,000 sq. ft. of retail/commercial space; a library; and a 40,000 sq. ft. health clinic. The project is being completed in phases. In the initial phase (completed in 1998), sewer and water lines were installed, 67 units of affordable senior housing were built, and trees were planted.

Groundbreaking for the second phase occurred early in 2002, for a new parking structure on a 300-space surface BART parking lot. These surface spaces will also be replaced by new parking at nearby locations, resulting in a net increase of 415 parking spaces.

Unity Council

The Transit Village was originally conceived as a neighborhood alternative to the construction of structured BART parking at this site.

Project Funding

The Fruitvale Transit Village received the Federal Transit Administration's first Livable Communities grant. The Fruitvale


Unity Council

The first phase of construction includes 67 units of affordable senior housing.

Development Corporation also used small grants to fund a façade improvement and building renovation program involving more than 100 properties along the business corridor. (Before this program, vacancies had been as high as 40 percent in the area; now, they are less than 1 percent.)

Ultimately, more than 20 sources of funds have been combined to raise the total amount needed. Most of these are public funds, with an additional expected $20 million in private investments. Each funding source has its own set of special requirements, some of which are conflicting. It took significant time and effort to negotiate a set of acceptable requirements for each element of the project and to make the various timelines mesh.

Parking
Parking is a key element of this project. Without replacement parking for BART riders, it would be more difficult for BART to transfer its land for the TOD. The FDC obtained $7.6 million in grant funds for a new parking structure for this purpose. These funds will be credited toward the ground lease with BART.

The City of Oakland has created a special zoning district with reduced parking requirements for residential and commercial land uses in the Fruitvale TOD due to its design and proximity to transit. In this special zone, the residential parking requirement of one space for every two units of housing is well below the minimum citywide requirement of one space for each unit. No parking is required in this special district for commercial uses.

Lessons Learned
The Fruitvale Transit Village demonstrates the power of a community to attract grant funds and to develop solutions that meet its unique needs:

- The project is based on a community process.
- Implementation of the transit Village has been hampered by the complexity of the project and the enormity of the vision. This has held back major progress on the project.
- The Unity Council risks becoming a 'victim of its own success' if improvements drive up property values and displace current residents. FDC's response has been to initiate a Homeownership Program that involves buying, rehabilitating and selling homes at affordable prices to help stabilize the community.

4. Moffett Park, Sunnyvale

Developer:	Jay Paul Company
Jurisdiction:	City of Sunnyvale
Transit Agency:	Santa Clara Valley Transportation Authority (VTA)
Transit Service:	Future Tasman West Light Rail Line Station

Jay Paul Company

View north from the new light rail station.

Moffett Park includes 651,372 sq. ft. of new "high tech" office space. The developer was able to increase the project's density by 35 to 56 percent due to a TOD design and proximity to a new Tasman West light rail line immediately adjacent to the property.

In order to qualify for a 60 percent increase in the allowable floor area ratio ('FAR', a measure of commercial density), the developer altered the original proposed plan. He changed it from one in which office buildings were surrounded by large parking lots, to a TOD design of buildings clustered along a walkway leading to a new light rail station built with developer funds.

According to a City of Sunnyvale staff report: "Elements supporting the FAR increase include the provision of public art, more than minimum landscaping, on-site amenities such as a fitness center, restaurant, bicycle facilities, and plazas, construction of the new light rail station, excellent design, and use of high quality materials."

The developer approached the transit agency, the Santa Clara Valley Transit Authority (VTA), and offered to pay the cost of building a new $2.5-million light rail station to serve the site. The City required that the new transit station be completed within two years from the issuance of occupancy permits as a condition of approving the project.

Jav Paul Company

A pedestrian "spine" leads to a new privately-financed light rail station.

The City planning staff report for this project also stated:

> "Construction of a light rail station is a unique and unprecedented measure to encourage alternative transportation use. A conceptual plan has been reviewed and approved by the City and the Valley Transportation Authority. Staff supports inclusion of this feature, but recommends a condition of approval that station construction be completed within two years of project occupancy."
>
> "Historically only three percent of employees in this region have used public transit. Staff believes that provision of a light rail transit station can provide sufficient incentives so that future ridership levels will increase."

Parking
Sunnyvale's standard parking requirement for an Industrial/R&D Office zone is one parking place per 25 to 500 square feet of interior floor area. As part of the TOD design, and in support of the city's transportation demand management goals, the developer agreed to a parking ratio at the lower end of the range.

Lessons Learned
Moffett Park is a good example of a local jurisdiction's incentive-based policy leveraging a TOD design:

- The developer wanted the increased density and was willing to take significant steps to achieve that goal.
- The site design integrates a pedestrian spine oriented to transit and a conventional office campus.
- Moffett Park demonstrates the value of efforts to reduce the rate of vehicle travel associated with new developments.

However, the site configuration appears to focus on 'private' (on-site) use of the station. It would perhaps have been better to provide more public access to the station.

Parsons Brinckerhoff and the CA Dept. of Transportation

A new station on the Tasman West light rail line connects to this walkway. The parking ratios for the project reflect a transportation demand management goal of reducing trips by 15 percent.

5. Ohlone-Chynoweth, San Jose

Developer:	Eden Housing
Jurisdiction:	City of San Jose
Transit Agency:	Santa Clara Valley Transportation Authority (VTA)
Transit Service:	Light rail 10-minute frequency

Parsons Brinckerhoff and the CA Department of Transportation

Ohlone-Chynoweth is a precedent-setting project that redeveloped a park-and-ride lot into housing, including these units developed by Eden Housing.

Ohlone-Chynoweth includes housing and community facilities developed on a previously underused surface park-and-ride lot at the intersection of two VTA light-rail lines.

The former parking lot is now a variety of uses: 240 park-and-ride spaces, 330 units of affordable housing, 4,400 sq. ft. of retail, and a day care center for children.

For this project, VTA issued a request for proposals (RFP) seeking a developer for its 7.3-acre site. Although the City used an expedited process for application review, the number and type of issues raised by six homeowner associations in the area resulted in the City Council deferring decisions several times.

An earlier project adjacent to the site has 135 units of affordable housing built by Bridge Housing. With the Eden proposal of 195 units, the neighbors were concerned about a total of 330 units of affordable housing in one area.

At 27 dwelling units per acre, the residential density is relatively high compared to the predominantly single family neighborhood surrounding it.

The 1,100 space park-and-ride lot was redeveloped into 330 units of affordable housing, retail, childcare and a 240 space park-and-ride lot.

After several meetings, the City Council approved the project and determined that the community will benefit from the additional housing, day care center and the retail uses.

Parsons Brinckerhoff and the California Dept. Transportation

The retail element of this TOD would benefit from better visibility from the street.

Project Financing
The $31.9 million project included $14.5 million in tax-exempt bonds, $10.5 million in tax credit equity, a $5.2 million loan from the City to support affordable housing, $824,000 in Federal transportation funds for improvements, a $500,000 Affordable Housing grant, and $350,000 State Proposition 1 funds to reimburse the school fee.

Lack of previous TOD experience within VTA at the time and few prototypes of similar projects required proponents to work hard to convince major stakeholders, such as bankers, to support the project.

Lessons Learned
VTA staff faced the challenge of having little "TOD institutional memory" because the staff that had learned from previous experience developing a transit village were no longer with the agency when this TOD was proposed.

Working out issues with the homeowner associations and the school district helped City staff discover a process that will facilitate future projects.

What would you do differently?
VTA staff offered the following observations on the implementation and design of the TOD:

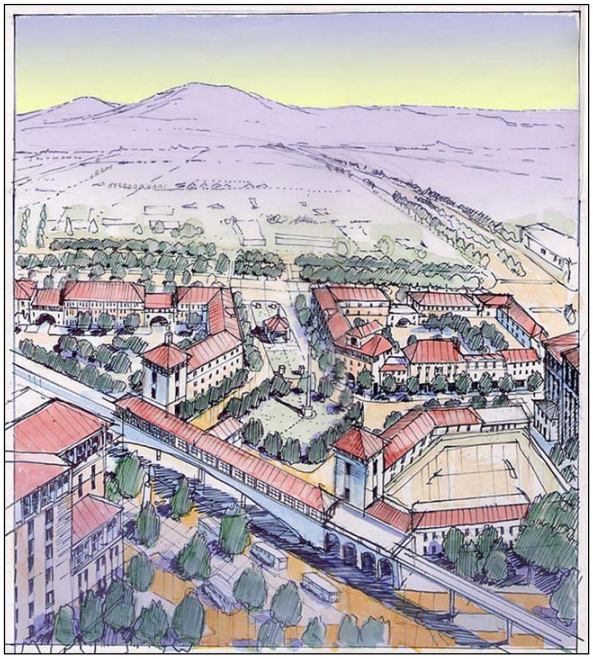
- Pay more attention to the program aspect of the project to ensure success of the retail, childcare center and computer space. For example, identify local businesses that would be particularly appropriate for the TOD and then offer them reduced rent for a period of time to assist them in getting established.
- Place small retail spaces along the street, rather than at a single node at the station. This can encourage the larger neighborhood to patronize the businesses. As it is, the retail component is somewhat isolated.
- Design pathways to provide direct connections to nearby neighborhoods. In this case, residents of the adjacent single-family neighborhood must use an indirect path around the parking lot, which does not encourage them to use the station or patronize the retail stores.
- Hold meetings with the homeowners associations early in the process. Arrange to meet with representatives of all affected groups at the same time.

6. Pleasant Hill Bart Station Area

Developer:	Millennium Partners (New York)
Jurisdiction/Urban Renewal Agency	Contra Costa County Redevelopment
Transit Agency:	Bay Area Rapid Transit (BART)
Transit Service:	BART: 10-15 minute frequency

The Pleasant Hill BART station area is one of the earliest examples of suburban transit-oriented development in the United States. TOD planning for the Pleasant Hill BART station is now entering its second phase, following the initial Specific Area Plan that was developed in the 1980s.

In 1995, working with the County Redevelopment Agency, BART researched market interest in turning its 18-acre surface parking lot into a TOD. Millennium Partners was subsequently selected through a request for proposal process.



Lennertz and Coyle Associates/Seth Harry

Proposed Master Plan for redevelopment of BART's parking lot into a TOD.

A charter planning process was held this year to identify what the community would support. As of March 2001, the draft project proposal includes: 411,000 square feet of office space, up to 345 apartments and townhouses, up to 50 for-sale units, a town square and community green, a child care facility and about 40,000 square feet of ground floor retail and restaurants.

At build-out, Pleasant Hill will continue to be an employment center. Neighborhood groups have expressed that they do not want it to be a commercial/retail destination, however. An earlier proposal would have created an entertainment attraction that would have brought transit riders in during off-peak times on a reverse commute. After two years of controversy, the multiplex entertainment center part of the project was dropped.
BART, the County and the Redevelopment Agency continue to work together to build community support for this TOD.

Parking
Commuter parking for the station remains at capacity, as BART ridership is drawn from a wide area. To recover the 1,477 surface parking spaces that BART will lose by leasing its land for new transit-oriented development, replacement parking will be provided in a new

garage. Private parking for residential and commercial uses will be provided within those buildings.[LXIV]

As part of the TOD, the County Redevelopment Agency would finance the replacement of BART parking, as well as assisting with providing other public facilities and affordable housing. Subject to negotiations, the Redevelopment Agency would be a partner with BART in a long-term ground lease, and would receive a proportionate share of revenues from new development.

In the Pleasant Hill Specific Plan, requirements for parking are reduced below the County standard rates as follows:

- for offices, from five spaces per 1000 sq. ft. of interior space, to 3.3 spaces;
- for retail uses, from five spaces per 1000 sq. ft., to four spaces; and
- for residential units, from 1.75 parking spaces per housing unit to 1.35 spaces.

Lessons Learned
Staff involved with the Pleasant Hill project offer these lessons:

- Developing a TOD is a long process, particularly in an infill setting. It is important to formalize agreements while the people who adopted the plan are still in decision-making roles.
- Having a strong community process from the beginning, including people throughout the region representing broader interests, is critical.
- The County's political and financial support is critical to project development.
- The importance of a determined political advocate who is persistent in working to achieve community consensus cannot be overstated.

Lennertz and Coyle Associates / Seth Harry

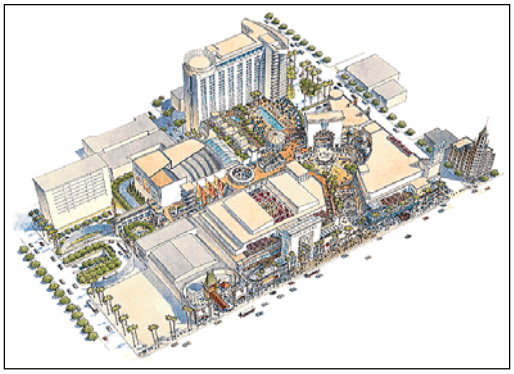
BART's surface parking lot will be transformed into offices, housing, and a community park in Phase II

[LXIV] Additional information on parking at this TOD is provided in a special report titled *Parking and TOD: Challenges and Opportunities.*

Southern California:

7. Hollywood/Highland, Los Angeles

Developer:	TrizecHahn Centers
Urban Renewal Agency:	L. A. Community Redevelopment Agency (CRA)
Transit Agency:	Los Angeles Metropolitan Transit Authority (MTA)
Transit Service:	Metro Red Line; 10-minute frequency



Site plan for the project

The newly-constructed Hollywood/ Highland TOD project is located above the Metro Red Line subway station at the intersection of Hollywood Blvd. and Highland Ave. in Los Angeles. The complex combines 1.3 million square feet of specialty retail, multiplex theaters, restaurants, a 640-room Renaissance Hotel, the restored Graumann's Chinese Theatre, a 3,000 space underground parking structure, plus the Kodak Theatre – the new permanent home for the Academy Awards.

To jump-start this impressive project, a request for proposal (RFP) was issued jointly by the Los Angeles Community Redevelopment Agency (CRA) and the Los Angeles Metropolitan Transit Authority (MTA).

The subway station and the complex were under construction simultaneously. The transit station was completed and service began in June 2000. The TOD was completed in November 2001.

TrizecHahn Ehrenkrantz Eckstut & Kuhn Architects

The new home for the Academy Awards anchors this $560m major mixed-use TOD built on top of the Red Line Hollywood, Highland subway station.

TrizecHahn holds a land lease for up to 99 years, and owns and operates the retail projects. The City of Los Angeles owns and operates the theater and parking structure, and the MTA owns and operates the station and transit facilities.

The TOD has increased the land use mix, density and employment of the area. It is in an important location and has already become a major destination/ attraction. Due to increasing ridership, the Red Line has six-car trains at peak periods.

TrizecHahn Ehrenkrantz Eckstut & Kuhn Architects

Hollywood & Highland will generate significant tourist ridership. The station opens onto the "Hollywood Walk of Fame".

Project Financing and Public Agency Participation

Simultaneously constructing the TOD and the Red Line station presented major coordination challenges. Apart from normal underwriting issues (e.g., lease requirements), the developer believed there were no significant problems arranging financing for the project.

The City of Los Angeles financed the garage and the theatre through two separate bond offerings. An $81 million bond for parking structures is to be repaid from parking fees, business license fees, the transient occupancy tax for the project, and $20 million in developer equity.

The development results from the assembly of eight separately-owned parcels, only one of which (50,000 square feet of land) was owned by MTA. This parcel is provided on a long-term lease for 60 years with four 10-year extensions.

Lessons Learned

- The subway system will benefit from ridership associated with this project.
- This TOD demonstrates the need to start transit-supportive development planning early so the designs and schedules of the transit facilities and land use development fit together. In this case, MTA started construction following a design that did not lend itself well to the addition of a large structure on the street level. Also, a "fast track design" process caused subsequent construction problems.
- This project heightened awareness of the need to have seasoned construction managers involved early in negotiations and schedule coordination. Fortunately, a construction manager with significant experience and credibility represented MTA, who was able to respond to demands to speed up transit station completion.

8. Pacific Court, Long Beach

Developer:	The Janss Company [sold project in 2000]
New Owner:	Meruelo Enterprises
Jurisdiction:	City of Long Beach
Urban Renewal Agency:	Long Beach Redevelopment Agency
Transit Agency:	L..A. County Metropolitan Transit Authority (MTA)
Transit Service:	Blue Line Light Rail & Bus; 15-minute frequency

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Parsons Brinckerhoff and the CA Department of Transportation

Pacific Court includes 142 apartments over retail and a multiplex theatre.

Pacific Court is a heavily subsidized mixed-use transit village put together by the Long Beach Redevelopment Agency. The 2.1-acre project is located in downtown Long Beach near the western terminus of MTA's "Blue Line" light rail.

The residential component includes a mix of 142 affordable and market rate apartments located above 96,000 square feet of retail, including a 16-plex-movie theatre. Smaller shops ring an open-air, interior courtyard.

Project Financing

The Long Beach Redevelopment Agency assembled land for the project, and leased the property to the Janss Company. It also provided short-term 'gap financing' to facilitate construction, which was completed in December 1992 ($25 million in Multifamily Housing Bonds, $7 million of which were tax exempt, and $13.6 million in Community Facility District Bonds issued by the City to be repaid from project revenues).

Parsons Brinckerhoff and the CA Department of Transportation

According to surveys, 10 percent of Pacific Court's residents use transit. A MTA Blue Line light rail station is within a block.

This transit-supportive development increased housing, land use mix, and density in the area. It also added 300 jobs in the short-term, but given an increasing retail vacancy rate in the project, it is unclear how many of these jobs still exist.

Parking
The project includes 430 parking spaces, 263 for the public and 167 for residents. Parking for the project is fairly conventional – approximately one space per bedroom for residences and 5 spaces per 1000 square feet of retail.

Through a variance, guest parking was reduced to 3 spaces for every 10 units because of the project's high level of access to transit. According to surveys, 10 percent of Pacific Court's residents use transit. An MTA Blue Line light rail station is within a block.

Market Performance
The mix of affordable and market rate housing has proven to be problematic. As of July 2001, all residential units are now market-rate.

Design problems and limited visibility between the retail shops and the theater have also hurt the performance of the retail portion of the project. Retailers say the design does not encourage pedestrians to view the shops on the way to the theater, and as a result, retail vacancies have been high. In addition, the theater itself is no longer "state of the art" and therefore is drawing fewer patrons.

According to some observers, the high level of retail vacancies may have helped push the project into foreclosure. In 1993, the full cost of the project was listed at $53 million. The Janss Company experienced financial difficulties with Pacific Court and other projects that culminated in bankruptcy. After foreclosure and emerging from bankruptcy, Janss sold the project for $13.5 million.

Parsons Brinckerhoff and the California Department of Transportation

Visitor parking was reduced to take advantage of transit availability.

9. 'NoHo' (North Hollywood) Arts District, Los Angeles

Developer:	Los Angeles Neighborhood Initiative (LANI) North Hollywood Community Forum
Jurisdiction:	Los Angeles
Urban Renewal Agency:	L.A. Community Redevelopment Agency (CRA)
Transit Agency:	L.A. County Metropolitan Transit Authority (MTA)
Transit Service:	4 bus lines, 20- to 40-minute frequency

LANI

Parsons Brinckerhoff and the CA Department of Transportation

The NoHo (North Hollywood) bus TOD has promoted economic development, increased pedestrian activity, and improved the general attractiveness of the area

The 'NoHo' bus-oriented development resulted from a community partnership, with the Los Angeles Neighborhood Initiative (LANI) assisting in the formation of a community-based organization that was responsible for planning the improvements. Later, the nonprofit North Hollywood Community Forum was formed to continue promoting projects in the area.

The Los Angeles Community Redevelopment Agency owned the vacant lot that became an art park, and leased the property to the North Hollywood Community Forum for one dollar a year. The art park and surrounding small businesses have created an attractive area that is now a much greater draw for local residents than previously.

Parsons Brinckerhoff and the CA Department of Transportation

Pedestrian plaza

The economic development leveraged by this project has encouraged businesses to fill previously vacant commercial spaces. Eight new businesses have moved into the immediate vicinity of the art park. One vacant property has become a Starbuck's Coffee shop, and other vacant buildings are now occupied by small businesses.

LANI estimates that pedestrian foot traffic in the area has increased significantly, particularly in the evenings. At least 30 new jobs have been created in the NoHo Arts District. The NoHo project has installed a parking lot across the street from the Arts Park.

Project Financing
Funding for $100,000 of transit amenities came from a Federal Transit Administration *Livable Communities* grant.

Lessons Learned
The NoHo bus transit village reveals more about community development than transit, and illustrates how one of the greatest powers of TOD is to serve as a catalyst to achieve a community's vision. Key ingredients were:

While LANI contributed seed money, it encouraged residents to make decisions as to how the funds would build capacity in the community.

- Giving community groups some control over the funds to be used in their neighborhood promoted ongoing public involvement.

NoHo is an example of how a single, well-focused project can have greater visibility than a series of changes along a corridor. It also demonstrates how short-term impacts can stimulate longer-term development in a community.

Parsons Brinckerhoff and the CA Department of Transportation

After creation of the art park, this restaurant created a new opening in a wall to serve outdoor diners.

San Diego:

10. American Plaza, San Diego

Original Developer:	Starboard Development Corporation (No longer in business)
Current Owner:	Shimizu Land Corporation
Jurisdiction:	City of San Diego
Redevelopment Agency:	Centre City Development Corporation
Transit Agency:	Metropolitan Transit Development Board (MTDB); Amtrak (train station nearby)
Transit Service:	10-minute light rail service

Parsons Brinckerhoff and Calif. Dept. of Transportation

The American Plaza light rail station is incorporated into the structure of one of San Diego's tallest buildings.

This two-block transit-oriented development includes one of two commercial towers in San Diego that are distinguished by having a light rail stop built directly into their structures.

Starboard Development Corporation financed the office building and nearly four-fifths of the $5.2 million capital costs for the station. The developer spent $3.78 million to temporarily relocate light rail tracks, construct the new station, and connect the C Street light rail alignment to the Broadway alignment.

The Metropolitan Transit Development Board (MTDB) contributed $1.2 million to the project and the City and Redevelopment Agency vacated and contributed the site, including the street between the two blocks. All other costs, including on and off-site utility and other public improvement costs, were borne by the developer.

Project planning began in 1987, and the structure was built in conjunction with the new Broadway-Kettner station. To meet MTDB's light rail construction schedule, the station had to be built by January 1, 1992. The developer beat the deadline by six weeks, completing the station on November 14, 1991.

Shortly after construction began, the primary lender (a savings and loan – S&L - and prospective anchor tenant) collapsed and new financing had to be found. Meanwhile, the project schedule was being driven by the need to complete the light rail track in time to connect to new service on the other side of the site.

Parsons Brinckerhoff and Calif. Dept. of Transportation

The light rail station is completely within American Plaza.

While construction continued, financial arrangements were made that resulted in a Japanese bank buying out the original S&L and supporting the project.

The 34-story tower opened in 1992, and is one of the tallest buildings in the city. The 555,000 square foot "vertical TOD" includes offices, a specialty retail galleria/food court (17,000 square feet), and the San Diego Museum of Contemporary Art (10,000 square feet).

Parking and Transit
American Plaza has 1,250 parking spaces in four levels under the building. The parking ratio of 2.2 spaces per 1,000 square feet of office is transit-friendly, however adjacent surface parking is available.

No ridership estimates are available for the project, however approximately 25 percent of all San Diego downtown workers use rail transit during peak commuting hours. The ground floor retail, 33 floors of office space and the museum all contribute to transit patronage. In addition, the outstanding station design provides transit patrons with a unique waiting area, and has become an attractive destination and attraction.

Lessons Learned
The American Plaza project presented major challenges regarding schedule deadlines and overcoming the bankruptcy of the lender. According to MTDB, success resulted from:

Parsons Brinckerhoff and the California Department of Transportation

Coaster Commuter rail, Amtrak and light rail service is available next door at the historic Santa Fe Station.

- Choosing the best team to develop a project concept, rather than letting the concept drive the selection.
- Setting a "fair" project budget and schedule with allowance for changes.
- Controlling the schedule through agreements.
- Having an "ironclad" delivery date.

11. Rio Vista West, San Diego

Developers:	CalMat Co., site planner, Greystone Development Company
Jurisdiction:	City of San Diego
Transit Agency:	Metropolitan Transit Development Board (MTDB)
Transit Service:	Mission Valley Light Rail; 15-minute frequency

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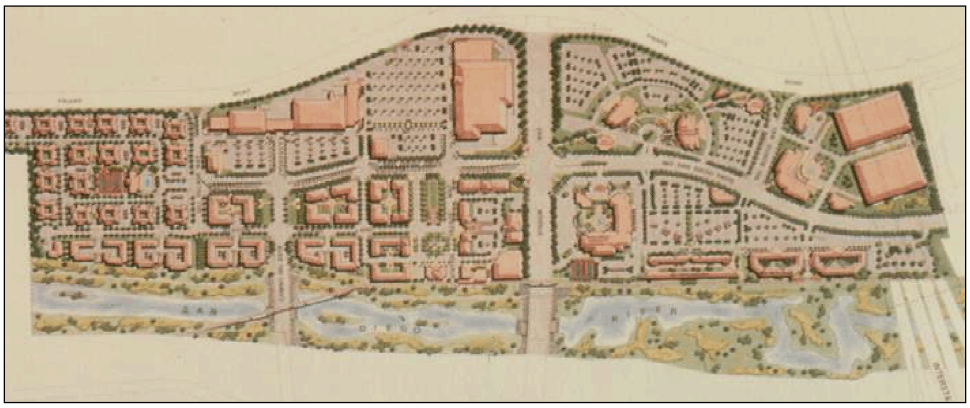


CalMat Co., image created by Peter Calthorpe Associates

The Rio Vista West Master Plan includes a mix of auto-oriented and transit-oriented land uses on a 95-acre parcel in Mission Valley.

Rio Vista West is a mixed-use transit village being built in phases on 95 acres near the Rio Vista light rail station. The City of San Diego's 1985 Mission Valley Plan designated multiple urban nodes and envisioned higher-density for this area.

Rio Vista West's first phase was a fairly standard shopping center. The first residential development in this area was located one-quarter mile from the station. These units are in three-story structures at blended densities of 33 units per acre, well above the typical densities found in the surrounding suburbs which average 4 to 5 units per acre.

The second residential phase of 240 condominium units broke ground in quick succession.

Construction is now underway on the final residential portion immediately next to the station. The 1,000-unit project at a density of approximately 70 units per acre is estimated for completion in 2002. The residential units are over ground-floor retail stores.

The portion of the TOD near the light rail station includes 30,000 to 50,000 square feet of small office and neighborhood retail. There is minimal street parking near the office/retail uses because of the availability of transit, and much of the parking is underground.

Parsons Brinckerhoff and the CA Department of Transportation

The Rio Vista TOD includes conventional retail; the first phase of residential is at the end of this road.

Lessons Learned

Rio Vista is an important example of the challenges and opportunities with a phased TOD project. Some observers were skeptical about early development phases of the project because of their automobile orientation. However, the most recent phase - the higher-density residential portion - holds the promise of being one of the most transit-friendly suburban projects in California.

TOD Policies and Programs

In 1990, MTDB adopted a policy on land use coordination that calls for working closely with other agencies on pedestrian and transit-oriented developments. The City of San Diego's TOD design guidelines were adopted in 1992 and incorporated into official policies and regulations.

San Diego does not provide density bonuses for transit-supportive development, but does zone for higher densities around transit stations. The City zoning code allows mixed-uses in most commercial areas.

The City encouraged the developer to follow guidelines, and received a design that met most of the objectives of the City. No subsidies were involved in this TOD; the project was privately financed and market driven.

Major lessons from this project include:

- Providing a TOD-friendly master plan can facilitate quality development.
- Having a motivated developer who is committed to the project for the long-term is important.
- The importance of being persistent and pursuing quality TOD design.

Parsons Brinckerhoff and the CA Department of Transportation

The first phase of apartments is beyond an easy walk to the light rail stop; 1,000 new apartments are under construction immediately adjacent to the station.

12. Uptown District, San Diego

Developer:	Oliver McMillan / Oldmark & Thelan
Jurisdiction:	City of San Diego
Transit Agency:	Metropolitan Transit Development Board (MTDB)
Transit Service:	5 bus routes, 15-minute frequency

The Uptown district is a 14-acre mixed-use bus-oriented development that was put together under the leadership of the City of San Diego. For this project, San Diego wanted to showcase a mixed-use development. There was no public opposition to the project since it required relatively little change to the community (the site was a former Sears store in an existing mixed-use community).

Parsons Brinckerhoff and the CA Department of Transportation

Ralph's Grocery viewed from second level offices with an outdoor café below.

The City issued a request for proposal soliciting developers for the project in 1987, and the project was completed in 1989. The residential component has 320 units at an average density of 43 units per 'net acre'[LXV] and 145,000 square feet of retail and commercial space, including a 42,500 square foot supermarket.

Parsons Brinckerhoff and the CA Department of Transportation

These gated condominiums face onto landscaped courtyards.

TOD Policies and Programs

In 1990, the San Diego Metropolitan Transit Development Board (MTDB) adopted a policy on land use coordination that promotes working closely with other agencies regarding pedestrian and transit-oriented developments.

The City of San Diego adopted TOD design guidelines in 1992 (after project completion), which were incorporated into official policies and regulations. San Diego does not provide density bonuses, but does zone for higher densities around transit stations. City zoning code allows mixed-uses in most commercial areas.

[LXV] A 'net acre' is a portion of land that is available for development, and does not include open space or roads.

Transit ridership in the area was strong before the project was built, and increased after project construction (requiring additional bus service). Many residents walk to nearby bus stops.

Parsons Brinckerhoff and the CA Dept. of Transportation

A pedestrian arcade connects a bus stop on University Avenue to the core of the neighborhood.

The Uptown project was funded by the City redevelopment agency and by private companies. It has been successful in creating a higher-density community where it is convenient to walk to shopping and access to bus transit service is good.

Parking

No special parking reductions were implemented to account for the presence of transit. The parking ratio for commercial development in San Diego is one space per 285 square feet and 2.25 spaces per unit for the condominiums. The developer chose to construct more parking spaces than the City recommended in its solicitation.

Residential and supermarket parking is located underground, and street level spaces are also available for retail shoppers. No parking is provided specifically for bus riders.

Lessons Learned

With strong city leadership, a bus TOD became an important community asset. Like other transit-supportive developments, the residential portion is more successful than the retail. For this project, public land ownership was important, because the City could wait for a quality design to be proposed before allowing development.

Uptown is a good example of how to accommodate the needs of the automobile *and* create a well-designed, pedestrian-friendly mixed-use transit-oriented development.

Parsons Brinckerhoff and the California Department of Transportation

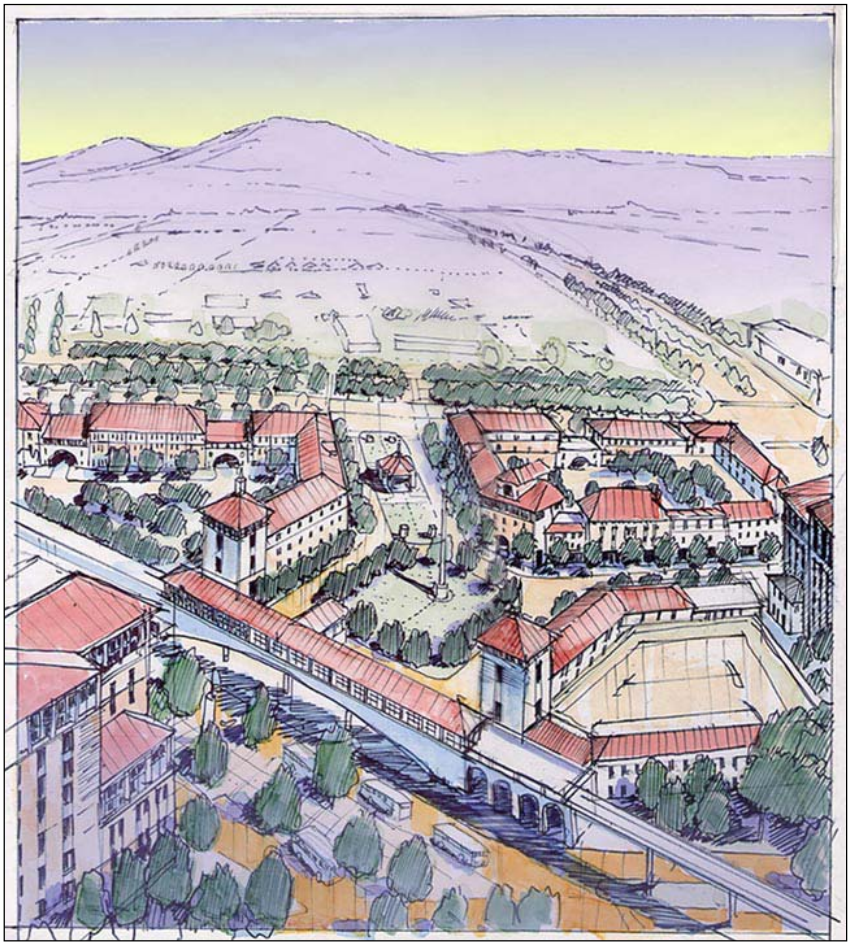
The Uptown neighborhood has an extensive network of inviting pedestrian walkways and plazas.

SECTION 3: IMPLEMENTATION OPPORTUNITIES and CHALLENGES

This section of the report summarizes major barriers to TOD implementation and discusses key issues. Challenges in financing and developing TOD are discussed, and a list of public and private funding sources that are available to TODs is also provided. This Section includes:

CHAPTER 6: What are the Opportunities and Challenges of Developing TOD in California?

CHAPTER 7: What are the Challenges in Financing TOD, and What Funding Sources are Available?



Lennertz Coyle Associates/Seth Havvy

Replacing transit surface parking spaces with expensive structured parking is a major challenge in TOD implementation. This has been an issue in the redevelopment of a transit agency's surface parking lot at the Pleasant Hill BART Station in the San Francisco Bay Area.

CHAPTER 6: What are the Opportunities and Challenges of Developing TOD in California?

Primary Authors of Chapter: Janet Smith-Heimer and Ron Golem, Bay Area Economics

I. Overview

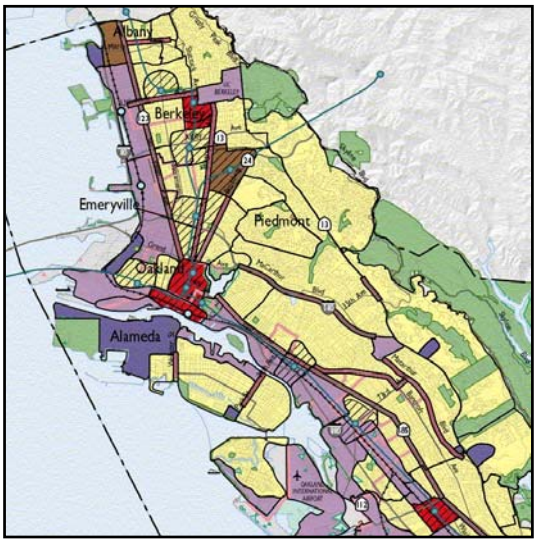
This chapter focuses on the challenges of implementing transit-oriented development (TOD) in California, including the barriers and opportunities to improve development feasibility.

"Development feasibility" as used in this report refers to the combination of factors that affect the ability of a developer to build and lease or sell a TOD project in a profit-making context. Factors which can affect feasibility include: market demand, financial feasibility (revenues, operating expenses, and development costs), the ability to obtain competitively priced and sufficient amounts of financing, and the time and expense arising from local development entitlement processes.

Information for this chapter was obtained from available studies and real estate reports. In addition, new information was gathered by convening two panels of developers that have built TODs or urban infill projects in California. One panel each was convened in northern and southern California in 2001.[LXVI]

[LXVI] A summary of the results of these discussions, as well as a list of the panel participants, are provided in the Appendix volume.

Information for this chapter also included in-depth interviews with developers of five TODs in California. These five projects are a subset of the 12 California TOD Profiles described in Chapter 5, and provide more in-depth detail about implementation and financing. (Detailed summaries of these five development case studies are included in the separate Appendix.)



Dvett & Bhatia

Several large demographic trends are having a positive impact on the market for TOD in California

The following discussion begins with a summary of statewide market trends affecting TOD feasibility today and in the future. These trends include dramatic projected population growth, need for affordable housing, and employment growth. The chapter continues with a summary of the main barriers to

implementing TOD that were identified during the developer panel discussions and the in-depth case studies conducted for this study. Opportunities to improve development feasibility are also outlined, along with suggestions for actions that public agencies may undertake to assist the implementation of TOD.

II. Market Performance for Cities with Rail Transit

There are general indications that demand for rental multifamily housing within larger California cities is very strong. Regional profiles for multifamily rental market conditions are provided in the separate Appendix volume for several large cities with rail transit service, including: Los Angeles, San Diego, San Francisco, and Sacramento.

Rent Premiums for TOD

Several researchers have attempted to quantify the presence of a "rent premium" for development projects located near rail transit that occur because homebuyers, renters, and office lessees place a premium on proximity and accessibility to transit.[LXVII] (Several of these are summarized in an article included in the separate Appendix volume.)

For example, an analysis that was prepared in 1997, presents "rent premium" findings for the S. F. Bay Area Rapid Transit (BART) system.[167] Depending on the distance of the development project from the BART station, the analysis found the following:

- Single-family suburban homes near transit stations had price premiums ranging from $4,280 to $9,140 per unit.
- Single-family central city and urban homes had premiums from $2,880 to $48,960 per unit, if close to transit.
- Multifamily rental units in urban locations near transit had rent premiums averaging $50 per month.
- Multifamily rental units in suburban locations near BART transit had rent premiums averaging $42.30 per month.

Office rent premiums of $0.07 per square foot to $0.28 per square foot were found, depending on distance from a BART station and urban/suburban locations.

III. Market Trends and TOD

Several broad demographic trends influencing California's future also positively affect market demand for TODs. These are summarized briefly below, and more in-depth information is also provided in the Appendix volume.

[LXVII] A comprehensive summary of these types of studies and their methodologies can be found in "Transit-Induced Accessibility and Agglomeration Benefits: A Land Market Evaluation" (Robert Cervero, Institute for Urban and Regional Development, 1997).

With respect to housing, these trends include significant population and household growth, a shortfall of housing production, and a rising need for affordable housing. With respect to employment, these trends include increased numbers of jobs, particularly in labor-sensitive sectors such as business services and finance/insurance/real estate sectors. These population and employment trends contribute to lengthening commute times and traffic congestion.

Housing and Employment Trends

According to a study conducted for the California Department of Transportation, over the next 20 years, California is expected to add 11-16 million new residents and four to six million additional households.[168] This unprecedented growth is more than the California experienced during the 1950s, 1960s, and 1970s, combined. Furthermore, 95 percent of this household growth is projected to occur in existing metropolitan areas.

In order to meet the housing needs of these additional residents, it is anticipated that housing developers will need to build an average of 220,000 housing units each year.[169] Given the recent history of housing construction statewide, according to a recent report by the California Department of Housing and Community Development (HCD), it will be difficult to achieve this objective.

Between 1990 and 1997, only 91,000 new units were built on average per year statewide. In 1999, for example, (widely considered a boom year for the national housing market) there were fewer than 140,000 housing units constructed in California, far short of the average of 220,000 needed to keep pace with projected housing demand. Should these housing production trends continue at their current rate until 2020, the six-county Los Angeles metropolitan area would fall short of necessary new housing production by 48,400 units per year, while the nine-county San Francisco Bay Area will have a 12,000 unit yearly shortfall.

Urban land available to build this needed housing varies by metropolitan region. It is anticipated that Los Angeles, Orange, and Santa Clara Counties will likely not have enough vacant suburban land to accommodate projected household growth through 2010, while Alameda, Contra Costa, San Diego, and Ventura Counties will begin running out of developable land around 2020. However, there is evidence to suggest that residential development densities increased significantly during the 1990s, especially in metropolitan areas. If this trend continues, development that is served by transit will grow increasingly important as a means to meet overall housing demand as well as mobility needs.

Affordable Housing

The proportion of income that households pay for housing is a strong indicator of need for affordable housing. In general, households are considered to have a "cost burden" if they pay more than 30 percent of their income towards housing. In 1995, the high cost of ownership and rental housing in California meant that about 3.1 million California households still paid more than 30 percent of their income for housing.[170] More than 80 percent of these households (2.4 million households) were low-income, and about two- thirds of these overpaying households were renters.

Based on projections, HCD[LXVIII] estimates that by 2010, approximately 3.1 million low-income California households will have unmet affordable housing needs, rising to 3.7 million by 2020.

Transit-oriented development offers an important option in the solution to these dramatic unmet affordable housing needs by enabling TOD residents to gain access to greater employment opportunities and afford more housing due to lower transportation costs. The typically higher densities in TODs can also help reduce per-unit housing development costs and create affordable housing options for California residents.

[LXVIII] HCD is the California Housing and Community Development Department.

Employment Trends

The strong economic trends experienced during the late 1990s in California are expected to continue over the long term. The California Employment Development Department (EDD) projects that between 1998 to 2008, over 3.2 million new jobs will be created in California, an increase of about 24 percent during that time period. By 2008, there will be nearly 17 million jobs in the state, compared to 13.5 million in 1998.

While employment trends will no doubt fluctuate year-to-year with business cycle 'ups and downs', jobs in office-style workplaces will continue to grow. There is evidence that the development of more clustered, denser office complexes has been occurring to accommodate this growth in key locations. For example, many Silicon Valley companies have begun constructing mid-rise office structures amidst the prior development pattern of sprawling low-rise campuses.

Commute Times, Traffic Congestion, and Urban Housing Preferences

California's workers have been experiencing lengthening commute times due to longer distances and increasing traffic congestion. Comparison of data for California's metropolitan areas using the American Housing Survey (AHS) indicates that among homeowners who recently purchased a home (i.e., "recent movers" who moved in the past year), median commute time increased from 20 minutes in 1985 to 25 minutes in 1995, and median

commute distance increased from 12.5 to 17 miles statewide. This trend is even more pronounced among first-time homebuyers, whose statewide median commute times grew from 20 minutes in 1985 to 31 minutes in 1995. [171]

State residents continue to perceive traffic congestion as a major problem. In the San Francisco Bay Area, each year the Bay Area Council conducts a telephone poll to track public issues. Since 1996, each year this poll has identified transportation (including traffic congestion, road conditions, and public transit) as the number one concern of the region's residents. The affordability of housing has also grown as a top-ranked concern.[172]

One result of the increasing commute times and distances has been renewed interest in downtown and urban housing. Research regarding urban and downtown housing preferences portends well for increased TOD housing demand. For example, Bay Area Economics (BAE), a land use marketing research firm, has conducted several surveys of the housing preferences of employees in the S.F. Bay Area. One of these was conducted in downtown Oakland (which has many office workers), and another in the 'East of Highway 101' area of South San Francisco.[173] In both cases, sizable segments of the respondents indicated that they would prefer a housing location near their workplace to avoid worsening traffic congestion; this trend was especially noticeable among young single-person households as well as respondents age 45 and over. BAE also surveyed existing market-rate housing residents in downtown Sacramento and San Jose, and in both cases found that the predominant demographic characteristic was the "empty nester" household, typically aged 55 and over.[174] This group preferred shorter commute times offered by urban housing, as well as increased access to urban amenities and activities.

According to HCD, the age cohort of 55- to 64-year olds will increase by 3.1 million between 1990 and 2020, and will account for 12 percent of California's total population by 2020. As this cohort ages, the demand for conveniently located and affordable housing that is served by transit and accessible to urban amenities can be expected to increase.

IV. Challenges to TOD Development Feasibility

Market trends suggest increasing demand for TOD. These trends include rapid household growth and associated housing demand, a continued need for more affordable housing options, employment growth, and a growing preference for urban housing offering reduced commute times and urban amenities.

Developers attending the panels convened for this study reiterated these trends, and generally believed that this strong demand is already translating into rent or sale price premiums for housing near transit, as compared with traditional units. Nevertheless, developers emphasized the challenges of

creating financially feasible TOD projects, as well as their unique challenges and barriers.

Despite the overall strong market outlook for TOD, the implementation of successful projects has been limited to date in California. This section explores some of the barriers affecting TOD development feasibility from the point of view of private developers attempting to implement TOD. The findings summarized below are derived from the two developer panel discussions convened for this study, as well as five in-depth case studies of specific TOD projects. (These items are provided in the Appendix volume).

Lack of Transit Agency/Local Jurisdiction Coordination
One of the barriers to the wider implementation of TOD projects in California has been a lack of coordination between transit agencies and local governments in many areas regarding the location and design of transit and land use. Examples were provided of transit stations located near freeways rather than close to population or employment centers. Transit agencies and cities often do not coordinate well with respect to TOD zoning and incentives. In addition, developers noted that many transit agencies do not have staff with a detailed knowledge about how to implement TOD, although this is starting to shift.

Difficulty Obtaining Entitlements
Another barrier is the ongoing difficulty that prospective transit village builders often encounter in obtaining development approvals from local jurisdictions. These delays cost significant time and money, and make it more difficult for project proponents to obtain financing. In addition, many local planning review and approval processes mandate non-TOD project changes, such as reducing densities or expanding street widths. These changes can significantly affect project feasibility as well as undermining the integrity and effectiveness of TODs.

Traffic Concerns
Creating a network of TODs linked by quality transit service can significantly improve mobility overall in a region (see Chapter 3 for more information). However, at the local level, proposals for TOD projects are often met by strong neighborhood opposition. Concerns about potential increases in localized traffic congestion are often at the top of the list. Nearly all of the developers who were interviewed shared experiences of transit-supportive proposals that encountered strong local opposition, which sometimes halted or significantly delayed projects.

This is a challenging situation, but not an impossible one to deal with. Although residents and employees of transit-oriented developments tend to use transit at higher rates (compared to non-TODs), the higher densities typically associated with TOD design can result in additional traffic on neighboring streets. However, these local traffic impacts can be compensated by the significant mobility benefits at the

community-wide and regional levels that result from a network of TODs.

Most local land use decision-making processes do not take these larger benefits into consideration when reviewing individual project development proposals. This has become a serious impediment to the wider implementation of TOD in California. It is exacerbated by a lack of up-to-date or accurate data on transit usage rates in the analysis tools that are commonly used to assess development proposals, such as local transportation models.

Parking Issues

Developers repeatedly cited the issue of parking to serve TOD projects as one of the key barriers to increased TOD implementation in California.[LXIX] This issue takes several forms.

When surface transit parking lots are converted to transit villages, the parking spaces that are lost must be replaced so that transit riders who drive to stations will have a place to park. However, it is much more expensive to provide parking in structures (which can cost up to $25,000 per space), compared to surface parking. This creates a financial challenge for transit agencies and developers who wish to build TODs and must also provide parking spaces for the housing, offices, and retail uses. This can be especially problematic if banks or local governments require parking to be provided at the same levels as in non-TOD projects.

For example, several transit-oriented developments have been proposed on BART-owned surface parking lots in the San Francisco Bay Area. In several cases, local jurisdictions' parking requirements, along with BART's policy of 'one-for-one' replacement parking, have led to a situation in which private developers could only get financing for TODs in which the economics of a project are so strong that there is sufficient profit to fund additional structured parking.

Developers also reported that excessive parking requirements imposed by local governments on TOD projects is a potential barrier, although opinions on this varied. For some developers, the typical requirement of one parking space per bedroom, or two spaces per housing unit, made their proposed TOD financially infeasible due to the high costs of providing that much structured parking (e.g., garage or underground). Other developers cited an opposite problem, in which some local jurisdictions imposed maximum parking limits at lower-than-market-demanded levels, resulting in the need to fight for the ability to provide the amount of parking spaces necessary to adequately serve the marketplace.

Finally, another barrier developers identified is a lack of a district-wide approach to distributing parking requirements among all landowners near a transit station.

[LXIX] For additional information on this topic, you may refer to the report, "TODs and Parking: Challenges and Opportunities", available from the California Department of Transportation, Division of Mass Transportation.

Increased Costs for Infrastructure[LXX]
Many TODs are located within older urbanized areas where infrastructure is in place, but it may be too obsolete or undersized to adequately serve a denser form of development. In these areas, TOD implementation costs and development feasibility can be impacted by the high cost of replacing or expanding outdated or undersized infrastructure.

These costs can be exacerbated further by the need to demolish existing structures, remediate contaminated 'brownfields,'[LXXI] relocate existing uses, or work around existing businesses and surrounding land uses, as is typical in a reuse or redevelopment situation.

Land Assembly
Developers cited difficulty in assembling large enough parcels to make development feasible as a major constraint to TOD in many locations. While redevelopment agency participation has sometimes helped this situation, land assembly nevertheless is a major concern for potential TOD developers.

Financial Challenges
Developers participating in this study did not generally report that obtaining financing for TODs was particularly difficult, provided that the underlying project economics "made sense." However, they did indicate that to the extent a TOD has a mix of land uses, the mixed-use aspect of the project can make it difficult to obtain private financing. Although some lenders have learned how to assess mixed-uses, underwriting practices still usually require that each land use be appraised separately, sometimes missing the synergies created by mixing the land uses.

In other cases, when the underlying project economics constrain feasibility, TOD financing can become difficult. Such cases include those where: infrastructure replacement is expensive; replacement parking requirements are burdensome or not supportable by cash flow; land assembly is complicated; or obtaining development entitlements poses time delays and risks. Many of these problems confront urban infill projects in non-transit locations as well, and demand special creativity and experienced approaches for successful implementation.

Two types of TODs pose even more challenging financing issues: those that contain affordable housing and TODs on 'brownfields'. Affordable housing development in California, practiced by numerous experienced non-profit and for-profit developers, faces the burden of needing to secure multiple financing sources. Brownfields pose the added challenge of costly environmental remediation and State agency approval risk. Depending on the reuse, TODs on brownfields can pose this risk well into project construction and occupancy.

[LXX] 'Infrastructure' in this report refers to water, sewer, roads, and other utilities.
[LXXI] Sites with potential toxic contamination.

Lack of Conclusive Data

Finally, several developers cited a need for more comprehensive data regarding the benefits of TOD for neighborhoods, transportation networks, and the fiscal health of cities in order to assist with project entitlements and lender acceptance. The lack of a substantial track record of TOD as a successful development product was also cited as an obstacle in convincing stakeholders and bankers about the benefits of individual project proposals. And, the lack of accurate or up-to-date information on the potential effects of TOD in shifting travel from automobile to transit in local analysis tools, such as traffic models, is also a serious impediment to its implementation.

"The Crossings" neighborhood at the San Antonio Caltrain commuter rail station in Mountain View (south of San Francisco) replaced a shopping center that went out of business. It was designed by Architect Peter Calthorpe.

CHAPTER 7: What are the Challenges of Financing TOD, and What Funding Sources Are Available?

Principal Authors of Chapter: Scott Polzin and GB Arrington

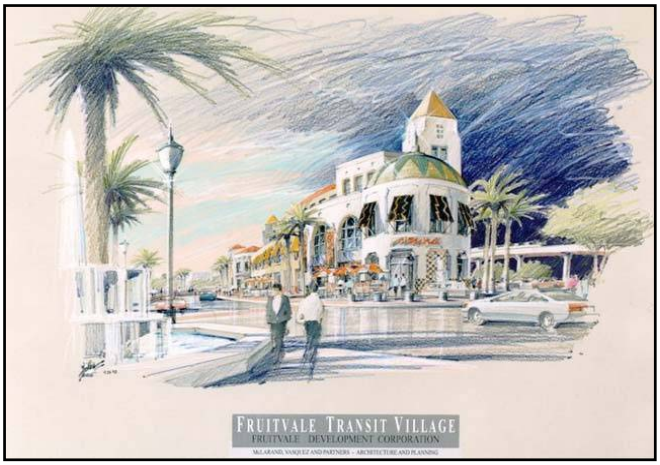
I. Introduction

This chapter focuses on financing of transit-oriented development projects, which is one of the major barriers to its wider implementation. It also presents information on the availability of funding sources that may be used to support TOD.

The very nature of TOD presents challenges in obtaining the necessary financing to make such projects viable. These include:

- Difficulties obtaining financing for mixed-use developments;
- Difficulties associated with appraising TODs; and
- Potential lender or investor resistance to urban or central city locations.

This chapter provides a brief insight into these challenges, and presents strategies to help overcome them. It explores various Federal, State, local/regional and private funding programs that might be used as sources to finance TODs. A few of the identified funding programs are presented as "good fits" for TOD.[LXXII] (One-page summaries of each of the funding programs listed in this chapter are available in the separate Technical Appendix volume.)



Unity Council

TODs in California with affordable housing typically rely on multiple funding sources. The Fruitvale Transit Village in Oakland has 20 different sources of funds.

There are only a handful of funding sources specifically targeted to TOD, and those sources have a tendency to be modest in scale. Not surprisingly, successful TOD projects are often funded from sources that are available to a variety of projects. Accordingly, this chapter takes a more expansive look at TOD funding.

The funding sources reviewed here tend to be ones that are available for housing and infrastructure improvements. While a number of programs are discussed, it is not the intent of this chapter to capture and explain every possible funding program, grant, loan, or creative solution that is available.

[LXXII] For the purposes of this chapter a "good fit" program is one that targets development projects with design aspects as a TOD (e.g., mixed-use, compact development, pedestrian-friendliness, emphasis on transit, urban redevelopment, etc.).

II. Funding Challenges

Whether real or perceived, many developers believe there are significant barriers to overcome in trying to secure funding for TODs. These include: the belief that mixed-use developments are risky; difficulty in appraising TODs using traditional appraisal methods; and a perceived unwillingness of many investors to fund developments in central cities, where some TODs are located.

Perceived Risk of Mixed-Use Developments

One of the barriers to TOD is the perception that financiers are often unwilling to invest in mixed-use projects. This perception is frequently found to be true because lenders oftentimes have difficulty clearly understanding how the mixed land uses in a TOD work together. This underlying uncertainty regularly leads lenders to the perception that TODs are a risky investment. Therefore, this perceived high-risk assessment leads to lenders requiring higher rates of return than they otherwise would.

A study commissioned by the Congress for the New Urbanism and conducted by the Wharton School of the University of Pennsylvania, presents the following recommendations designed to assist developers in overcoming a financier's hesitation and to increase their chances to obtain financing for innovative projects such as TOD:

- Well-planned phasing is required. Some component of the overall development needs to start generating cash flow early while the remaining phases of the project are completed.
- Acquire multiple sources of capital. Having multiple capital (e.g. financing) sources with varying investment timelines allows a development to satisfy a higher rate of return on some short-term capital sources.
- Develop solid project track records and conduct accurate market studies.[175]

Appraisal Difficulties

A second challenge to securing private financing for TODs has been the difficulty in accurately appraising their market value. Traditional appraisals focus on a single land use and compare this use to other similar uses. As a result, the mixed-use nature of TOD complicates the traditional appraisal process, which many times results in a TOD being under-valued by appraisers. Traditional appraisals often fail to account for the additive value and unique attributes of TOD.[176]

The higher development costs typically associated with TOD are reflective of the higher quality design. Higher resale values for property in TODs can be attributed to more intangible 'quality of life' benefits, such as increased opportunities for walking, proximity to neighborhood stores, access to transit, and a stronger sense of 'belonging' to a neighborhood.[177]

Modifying the methodology of appraisals to account for the unique nature of TODs could make it easier to secure financing. However, until this happens, utilizing multiple funding sources with varying return rates and life spans will continue to be an effective approach.

Central City Concerns
Many of the developers interviewed during this study report that "it is difficult to get [financiers] to provide the first new investment" for a central city TOD, "particularly when it is an existing urban area in need for revitalization and/or there are safety or other negative perceptions".[LXXIII]

The findings of a study conducted by the Wharton School (referred to above) lead one to conclude that this may only be a perceived barrier. The Wharton study found that the financiers they interviewed felt that an existing urban community would more easily accept New Urbanism projects in urban infill locations, which already have higher densities and a variety of uses, than would its suburban counterpoint. This finding increases the chances of successful project implementation and lowers the risk to the financier.[178]

The Wharton study suggests that lenders and investors are not adverse to the idea of financing TOD in central cities, so long as their investment is not the only financing provided in a project. This provides further evidence that securing multiple funding sources is a necessary component in TOD financing.[LXXIV]

Community Reinvestment Act
A driving force behind a lending institution's willingness to invest in central city locations can be attributed to the Community Reinvestment Act (CRA). Originally enacted by the U.S. Congress in 1977, and revised in 1995, the CRA encourages "Federally insured banks and thrifts to meet the credit needs of their entire community, including low- and moderate-income residents".[179]

As a result of the CRA, lending institutions have invested millions of dollars in urban redevelopment projects in the communities they serve. According to the California Treasurer's office: "Partly due to the positive experience of lenders under the CRA and partly due to the increased market knowledge, investment vehicles, targeted to distressed communities and sectors, have emerged. The success of these ventures is breaking down old myths about the risk and return of community investment".[180]

Therefore, if a transit-oriented development were proposed in a distressed community or neighborhood that was targeted for financing, it would have an increased opportunity for receiving investments from a local lending institution.

[LXXIII] Summary notes on the TOD Developer Panel discussions conducted by Bay Area Economics on February 1 and 6, 2001, February 7, 2001, are provided in the separate Appendix volume.

[LXXIV] According to Bay Area Economics consulting firm, a typical affordable housing project in California has seven different funding sources, and some have up to twenty.

The CRA has helped lending institutions recognize the existence of inner-city markets that would otherwise have continued to be undervalued and avoided. “Lenders subject to the CRA are, in many respects, two decades ahead of most other private sector capital sources and pension funds in understanding the extent to which there are solid risk-adjusted returns in community reinvestment”.[181]

Overcoming Barriers

After reviewing the barriers to funding TOD, it becomes evident that a combination of public funds and private investments will most likely be necessary to successfully implement TOD. To increase the odds of successful development, TOD projects require effective and committed partnerships between private developers and public agencies that will “recognize and pursue the various Federal, State, and local funding sources available for this type of development”.[182]

III. Multiple Funding Sources

A cursory review of the existing Federal, State, local/regional, and private funding programs may lead people to believe that there is more than enough money available to finance transit-oriented developments. However, there are many other types of projects that are in competition with particular TOD proposals for the same sources of funding. As a result, several deserving California TOD projects each year are left without sufficient funding to move forward.

A complete TOD funding package may be comprised of Federal, State, and local/regional government funds as well as private grants and loans. The following tables identify several of these potential sources. They also identify the focus of each particular fund: transportation facilities (including bicycle and pedestrian facilities), transit facilities, environmental efforts, affordable housing, and general community investment.

A number of programs seem to be more appropriate to TOD projects than others. These programs could be considered “good fit” funding programs for TODs because they target development projects with similar design aspects (e.g., mixed-use, emphasis on transit, pedestrian environment, urban redevelopment, etc.). The “good fit” programs are identified in the following charts, and are also described in Section IV.

The availability of particular funding sources has had a significant effect on what types of development are included in transit-oriented developments. For example, some observers have pointed out that the availability of affordable housing funds for compact projects that are next to transit has a tendency to make TODs more affordable than they might otherwise be.

Table 7.1 FEDERAL FUNDING SOURCES*

Funding Source	Funding Focus					
	"Good Fit" for TODs	Transportation Facilities	Transit Facilities	Affordable Housing	Environmental Concerns	General Community Investment
Brownfield Economic Development Initiative (BEDI)					✓	
Community Development Block Grant (CDBG) Program	✓					✓
Congestion Mitigation and Air Quality (CMAQ) Improvement Program			✓		✓	
Economic Development Initiative (EDI)	✓					✓
Federal Transit Act Section 5309 Grant Program – New Rail Starts			✓			
HOME Investments Partnerships Program				✓		
HOPE VI	✓			✓		
New Markets Tax Credit				✓		✓
New Markets Venture Capital Program						✓
Section 108 Loan Guarantee Program	✓			✓		✓
Short Term Planning Grants						✓
Surface Transportation Program (STP)		✓	✓			
Tax Credits – Low Income Housing				✓		
Technical Assistance Grant (TAG) Program						✓
Transportation and Community and System Preservation (TCSP) Pilot Program	✓	✓	✓			
Transportation Equity Act for the 21st Century (TEA-21)	✓	✓	✓			✓

* Note: Additional information about each of these programs is provided in the separate Appendix volume.

Table 7.2 CALIFORNIA STATE FUNDING SOURCES*

Funding Source	Funding Focus					
	"Good Fit" for TODs	Transportation Facilities	Transit Facilities	Affordable Housing	Environmental Concerns	General Community Investment
Bicycle Transportation Account (BTA) Program		✓				
CalHome Program				✓		
California Organized Investment Network (COIN)				✓		✓
Child Care Facilities Finance Program (CCFFP)						✓
Cleanup Loans and Environmental Assistance to Neighborhoods (CLEAN) Program					✓	
Downtown Rebound Planning Grants Program	✓					✓
Downtown Rebound Program	✓			✓		✓
Home Investment Partnerships Program (HOME)				✓		
Interregional Improvement Program		✓	✓			
Multifamily Housing Program (MHP)	✓			✓		✓
Petroleum Violation Escrow Account (PVEA)					✓	✓
Regional Improvement Program		✓	✓			
State Community Development Block Grant Program (CDBG)	✓					✓
State Transit Assistance			✓			
State Transportation Improvement Program (STIP)		✓	✓			
Urban Predevelopment Loan / Jobs Housing Balance Program	✓			✓		✓

* Note: Additional information about each of these programs is provided in the separate Appendix volume.

Table 7.3 LOCAL/REGIONAL FUNDING SOURCES*

Funding Source	Funding Focus					
	"Good Fit" for TODs	Transportation Facilities	Transit Facilities	Affordable Housing	Environmental Concerns	General Community Investment
Housing Development Program – City of Oakland				✓		
Predevelopment Loan Program – City of Oakland				✓		✓
Housing Incentive Program (HIP) - S.F. Bay Area Metropolitan Transportation Commission (MTC)	✓	✓	✓	✓		✓
Transportation for Livable Communities – Capital Grant Program – MTC	✓	✓	✓			✓
Transportation for Livable Communities – Planning Grant Program - MTC	✓					✓

Table 7.4. PRIVATE FUNDING SOURCES

Funding Source	Funding Focus					
	'Good Fit" for TODs	Transportation Facilities	Transit Facilities	Affordable Housing	Environmental Concerns	General Community Investment
Affordable Housing Clearinghouse				✓		
Affordable Housing Program				✓		
American Communities Fund (ACF)	✓			✓		
Multifamily Affordable Financing Program				✓		
Revolving Loan Fund				✓		✓

* Note: Additional information about each of these programs is provided in the separate Appendix volume.

IV. "Good Fits" for TOD Funding

A review of various Federal, State, local, and private funding programs available supports the experience of many private developers and public agency representatives that there are a limited number of funding sources designed specifically for TOD. As a result, obtaining multiple funding sources for TOD may not only be beneficial to ensure successful funding, it may be necessary due to the variety of sources.

Those programs that accommodate TOD projects better than others can be considered "good fit" funding programs. A few of these sources focus on the development concepts of TODs, while others focus on a particular component, such as transportation elements or affordable housing. Some of these programs have only recently been created, while others have been around for several years.

The following overview of potential "good fit" funding sources for TOD is organized into three broad areas:

1. Transportation funding sources (Federal, California, and regional);
2. Housing and Community Development programs (Federal and California); and
3. Environmental funds.

(note: Additional information is provided for each of these programs in the Appendix volume to this report.)

1) Transportation Funds for TOD

One place to look for "good fits" that potentially could be used to support transit-oriented development is transportation-specific funding programs. Generally, these funds target transportation projects or transportation-related components of larger development projects. Components that could be a part of a TOD potentially include: sidewalks, crosswalks, street trees, benches, bicycle facilities, buses, light rail vehicles, and park-and-ride facilities.

There are too many transportation-related funding programs available to address the particulars of each one in this chapter. Therefore, a few of the more common programs that could be used for TOD implementation are touched upon below. (As with any of the funding programs discussed in this chapter, interested parties are encouraged to seek detailed information on the multiple funding programs available from a variety of governmental agencies.)

-- Federal Programs

Transportation Equity Act for the 21st Century (TEA-21)
Enacted in June 1998, TEA-21 builds on the successful initiatives established under the Federal Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. TEA-21 combines proven and effective programs from ISTEA with a host of new transportation-related initiatives.

TEA-21 funded projects "are designed to strengthen the cultural, aesthetic, and environmental aspects of the nation's intermodal transportation system".[183]

Typical stand-alone transportation enhancement activities related to TOD may include: bike lanes, pedestrian lighting, information kiosks, landscaping, public art, and/ or historic projects linked to transportation. Median refuge islands for pedestrians and non-generic right-of-way fencing are two examples of projects that could be "add-ons" to a standard transportation project.

In California, the Regional Transportation Planning Agencies (RTPAs) and Metropolitan Planning Organizations (MPOs) receive 75 percent of the Federal TEA-21 funds in California, with the remaining 25 percent distributed to the State primarily for interregional projects.

A few of the major specific Federal programs that receive funds under TEA-21 include: the Transportation and Community and Systems Preservation Pilot Program (TCSP), the Congestion Management and Air Quality (CMAQ) Program, and the Surface Transportation Program (STP). These are summarized below:

Congestion Mitigation and Air Quality (CMAQ) Improvement Program
The Federal Congestion Mitigation and Air Quality (CMAQ) Improvement Program is one of the major funding programs inTEA-21. This program provides funds for transportation projects that contribute to air quality improvements and reduced vehicle congestion in regions with air quality that is out of compliance with Federal standards.

TOD, with its emphasis on the use of transit and other non-automobile modes of travel, contributes to the goals of reducing air pollution from driving as well as providing mobility alternatives to vehicle congestion. As a result, CMAQ funds can be used to fund certain components of a TOD. In California, all CMAQ funds are passed directly through to the various regions.

Originally established by the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, CMAQ was re-authorized with the passage of TEA-21. The current CMAQ program has increased flexibility and added several new program options. This flexibility allows states to develop CMAQ activities with non-governmental entities in order to increase private investment through public/private partnerships.[184] Since one of the keys to a successful TOD is an effective public/private partnership, this added flexibility in the CMAQ program could lead to increased opportunities for TOD.

(The Metropolitan Planning Commission (MTC) uses CMAQ funds for its 'Transportation for Livable Communities' program, summarized below under regional transportation programs).

Federal Transportation and Community and System Preservation (TCSP) Pilot Program
The TCSP pilot program was created under TEA-21 as part of the Federal government's "Livability Initiative". It provides funds to State and local governments and metropolitan planning organizations to assist them in developing innovative strategies that use transportation investments to build livable communities.

Projects eligible for TCSP pilot program funds "investigate the relationships between transportation and community and system preservation and private sector-based initiatives".[185] They may include activities that improve the efficiency of the transportation system, such as traffic calming measures and other "livable communities" plans and projects. TCSP has been an important source of funds for TOD planning and implementation.

Federal Transit Act Section 5309 – New Rail Starts
Section 5309 – New Rail Starts provides some of the necessary capital to develop new fixed guideway transit systems and to extend and/or modernize existing fixed guideway systems. Under the Federal Transit Administration's (FTA) 'New Starts' program evaluation criteria, a local community's ability to plan for and implement TOD enhances its chances of being recommended for Federal funding in this highly competitive national program.

(The Department of Transportation and U.S. Congress determine which public transit agencies will receive Section 5309 – New Rail Starts funds on an annual basis through a highly competitive program based on adopted Federal criteria.)

– State Programs

Governor Davis's 'Transportation Congestion Relief Program of 2000' (TCRP) provides significant additional new funds for transportation. About 60 percent of the TCRP funds are allocated to various transit projects. And, the TCRP is funding the construction of several parking structures for TODs near major transit stations. In this program, gasoline sales tax revenues collected from 2003-04 through 2007-08 must be used for transportation purposes, including highways, streets and roads, and transit improvements (rather than going into the State general fund).[LXXV]

Proposition 42 (an initiative that was approved by California voters in March 2002) amended the State Constitution so that all gasoline sales tax revenues will be used for transportation purposes, even after the expiration of the TCRP in 2008. Proposition 42 specifies that 20

[LXXV] The state levies two types of taxes on gasoline and diesel fuel: an excise tax of 18 cents per gallon, plus a sales tax of 6 percent per gallon. For many years, California has had a constitutional limitation on the use of the state 'gas tax' (the excise tax on gasoline). Article XIX of the state constitution limits use of excise gas tax revenues in the State Highway Account (SHA) to "…State highways, local roads, and fixed (transit) guideway facilities." However, this limitation does not apply to the sales tax on gasoline.

percent of these sales tax revenues will be spent on mass transportation and related projects.[186]

Community-Based Transportation Planning Grants
The California Department of Transportation's Community Based Transportation Planning Grant (CBTP) Program provides funds for transportation/land use planning projects that support 'livable community' concepts. 'Livable community' is defined as projects that promote long-term sustainable economic growth and/or improve mobility and transportation choices for a wide range of users.

These include, for example, projects that support:

- Transit-oriented development;
- Mixed-use development;
- Pedestrian/bicycle/transit linkages;
- Jobs and housing balance;
- Re-use or infill/compact development; and/or community/economic development.

Projects funded in this program must have a defined transportation objective, and also must address a deficiency, conflict, or opportunity in coordinating land use and transportation planning. In addition, to be funded, projects must include a comprehensive public participation process and demonstrate the implementation of this process throughout the project.

– Regional Programs

'Transportation For Livable Communities' Program
In some areas of California, TEA-21 funds through regional transportation agencies (RTPAs and MPOs) may also be a source of TOD funding. In the San Francisco Bay Area, for instance, the Metropolitan Transportation Commission (MTC) administers the *Transportation for Livable Communities* (TLC) Program.

Two of the TLC program's primary goals include encouraging pedestrian, transit and/or bicycle trips, and providing for the compact development of housing, downtowns and regional activity centers.[187] This program demonstrates MTC's intent to foster projects near public transit hubs, town centers, and key streets as a way to enhance and revitalize communities.

Started in 1998, the TLC program was updated in November of 2000. According to an MTC 'fact sheet,' the goal of the TLC program "is to work with local areas to develop and plan community-oriented transportation projects such as streetscapes and pedestrian/transit-oriented development".[188]

The expanded TLC program now includes a Housing Incentive Program (HIP), and also provides two types of grants for planning activities and capital needs. These are summarized below (additional information on these programs is available in the Appendix volume).

MTC's 'Housing Incentive Program' (HIP)
The San Francisco Bay Area is facing a severe housing shortage. In response to high housing costs, many workers are living outside the region, which increases the number of miles driven by automobile and adds to already challenging levels of traffic congestion. The Metropolitan Transportation Commission (MTC) recognized this trend and created the Housing Incentive Program - 'HIP' - as a part of MTC's larger 'Transportation for Livable Communities Program' (TLC) in an effort to encourage the development of higher-density housing adjacent to existing transit facilities.

'Neighborhood Capital and Planning' Grants
In addition to HIP funds, the MTC administers capital grants and planning grants through the TLC program. Like HIP funds, these grants focus on transportation projects that help revitalize local communities.

The capital grants may be used for transportation-related improvements such as transit-villages, bicycle facilities and pedestrian plazas, which are all potential components of a TOD. The planning grants provide funds to conduct the necessary planning studies associated with such transportation projects.

2) Housing and Community Development Programs

– Federal Programs

HOPE VI:
HOPE VI funds administered by the U.S. Department of Housing and Urban Development (HUD) can be an excellent source of funds for TODs that have a mixed-income, affordable housing component.

HOPE VI program funds are available for revitalizing severely distressed neighborhoods. Projects that are sensitive to the needs of neighborhood residents and employ the principles of New Urbanism have improved chances of receiving HOPE VI funds. HUD asserts "…HOPE VI promotes sustainable, pedestrian-friendly, transit-oriented developments that are safe and accessible for all".[189]

HUD distributes HOPE VI funds to various public housing authorities throughout the nation, who in turn actively seek development partnerships: "Grantees are aggressively reaching out to the private sector and governments at every level, as well as to community-based nonprofits, faith-based and civic groups, institutions of higher learning, labor unions, foundations, and others".[190]

Community Development Block Grant Program:
The CDBG program is a Federal program administered by the US Housing and Urban Development agency. A TOD that has an affordable housing component could benefit from having CDBG funds make up a portion of its funding package.

Since 1974, the Community Development Block Grant (CDBG) program has provided grants to cities and urban counties for projects that aim to revitalize neighborhoods, improve community facilities and expand affordable housing.

Beneficiaries of CDBG funds include low- and moderate-income persons, as well as the overall community in which a CDBG-funded project is carried out.

Section 108 Loans:
Section 108 is a loan guarantee provision of the CDBG program. Section 108 loans are "one of the most potent and important public investment tools that HUD offers to local governments".[191]

Section 108 loans allow a local government to transform CDBG funds directly into Federally guaranteed loans. These loans are typically large enough for construction and revitalization projects that can help renew entire neighborhoods and inspire private companies to invest in the distressed areas of a community.

Economic Development Initiative (EDI)
Local Section 108 loans and EDI grants encourage economic development in a community by investing directly in development projects or by providing direct loans to private firms and individuals.

Section 108 loans are not risk-free. Local governments borrowing funds must use their current and future CDBG allocations (up to five years) as collateral against the Section 108 loans. Local governments may also receive EDI grants to provide additional security to reduce the risk to their CDBG funds.

Using an EDI grant as a loan loss reserve is not the only potential use for these grants. They may also be used to pay predevelopment costs and reduce loan interest rates. However, they are only available for use on projects that are receiving assistance through a Section 108 loan.

American Communities Fund
Fannie Mae, one of the nation's largest sources of mortgage funds, established the American Communities Fund (ACF) in 1996 to assist communities in implementing local housing and redevelopment projects by providing financial support in the form of equity and debt financing and historic tax credits.

The majority of ACF investments are in development projects that provide quality, affordable single-family and multifamily housing. However, the fund also invests in mixed-use and neighborhood retail developments that are designed to support housing while serving local residents.[192] It is this commitment that makes ACF a "good fit" for TODs.

- State Programs

The California Department of Housing and Community Development (HCD) awards loans and grants to California cities and counties as well as private nonprofit and for-profit entities. Its goal is to "provide the leadership, policies and programs to preserve and expand safe and affordable housing opportunities and promote strong communities for all Californians".[193]

The following HCD programs were enacted or received significant new funding in the Fiscal 2000-2001 State Budget. Many of these programs specifically mention mixed-uses and transit-oriented projects as eligible activities and, therefore, would be considered "good fits" for TOD.

Downtown Rebound Program
The Downtown Rebound Program is primarily a downtown revitalization tool that includes requirements for minimum levels of affordable housing. Sustainable, mixed-income residential development is a primary objective of this program.[194]

The program provides funding for development projects that involve the adaptive reuse of commercial or industrial structures into residential units, residential infill projects, and developments of high-density housing near mass transit stations (i.e. TODs). Eligible applicants may utilize these funds to fill funding gaps critical to the success of a TOD.

Downtown Rebound Planning Grants Program
Prior to beginning site preparation and construction of a TOD, planning studies and possible zoning ordinances or general plan changes may need to occur. The *Downtown Rebound Planning Grants Program* is available to fund such activities.

Cities and counties may use these grants to inventory potential sites, conduct infill feasibility studies, and complete "strategic action plans to remove barriers and promote infill housing, mixed-use developments and transit corridor development".[195] The funds may also be used to update general plans and zoning ordinances to encourage mixed-use and residential development within walking distance of transit nodes.

Multifamily Housing Program (MHP)
The MHP provides rental housing for low-income households through loans for "new construction, rehabilitation, or acquisition and rehabilitation of permanent or transitional rental housing, and the conversion of nonresidential structures to rental housing".[196] Funds may also be used to cover the costs of developing childcare and social service facilities linked to the assisted housing units.

Urban Predevelopment Loan/ Jobs-Housing Balance Program
This program provides short-term loans to local governments and nonprofit organizations that can be used to cover the initial costs of constructing, converting, preserving, and/or rehabilitating assisted housing

developments located within one-half mile of transit stations. Funds may also be used for land purchases, permit or application fees, and site preparation.[197]

Tax Credits – Federal and State
Other important tools available to spur investment in affordable housing projects are State and Federal 'Low Income Tax Credits'. Many affordable housing projects depend on the availability of these tax credits.

In the past, many affordable housing developments were not pursued because developers could not generate enough rental income to cover the development and operating cost of the units and provide an attractive return rate on the investment. To overcome this obstacle the U.S. Congress authorized states to allocate tax credits to qualifying housing projects, thus creating Low Income Tax Credits. Congress also charged the U.S. Internal Revenue Service (IRS) and the State tax credit allocation agencies with the task of jointly administering these tax credits.

California Tax Credit Allocation Committee (TCAC)
The California Tax Credit Allocation Committee (TCAC) is charged with administering the State's low-income housing tax credits. The State low-income housing tax credit program augments the Federal program. Only those projects that previously received or are currently receiving Federal tax credits may receive State tax credits.

New regulations adopted in June 1999 by the TCAC changed the system used to annually reward tax credits to eligible projects. "The reformed program establishes a point system that, among other things, prioritizes projects in struggling neighborhoods in which the housing is part of a comprehensive revitalization effort and also gives priority to projects that meet a set of sustainable development goals."[198] A project located within walking distance of transit is one example of the projects given new priority by the TCAC.

Location Efficient Mortgage (LEM) - Private lending institutions
As discussed earlier in this chapter, one of the barriers for a TOD to overcome involves producing a steady cash flow early in the project's life. If the residential component of a TOD is completed in the first construction phase, then these units need to sell.

A relatively new and innovative private lending program has been created – the Location Efficient Mortgage (LEM). Los Angeles and San Francisco were two of the first four communities in the U.S. selected to demonstrate the program.

Administered through private banks and mortgage companies by Fannie Mae (a secondary mortgage market), LEM allows people to qualify for larger housing loans if they choose to live in a high-density area served by public transit. It works by considering the portion of an household's gross income typically

reserved for driving-related expenses as "available income", thereby increasing the loan amount for which the borrower can qualify.

While a LEM does not provide the capital necessary to begin or complete the construction of a TOD, it does assist people in purchasing TOD residences, thereby increasing sales, boosting cash flow for the developer, and helping to ensure a successful TOD.

3) Environmental Funds for TOD

TODs may also tap funding programs that focus on environmental issues. The type of projects or components of projects that are eligible for environmental program funds may include programs to reduce vehicle emissions, relieve congestion, and/or clean up contaminated properties (e.g., 'brownfields' programs).

Several are briefly summarized below:

Brownfield Economic Development Initiative (BEDI)
One of the problems with developing areas in an urban setting, whether a TOD or a corner grocery store, is the possibility of a potential redevelopment property being classified as a 'brownfield'.

According to the U.S. Environmental Protection Agency (EPA), brownfields are "abandoned, idled, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination".[199] Once thriving locations of economic activity, many brownfield locations sit abandoned waiting. The Emeryville Amtrak TOD, for example, made extensive use of brownfield funds. (See profile in Chapter 5 for more information.)

In conjunction with Section 108 loans (administered by HUD), the Brownfield Economic Development Initiative (BEDI) provides funds to local communities for property acquisition and environmental cleanup of brownfield sites. BEDI funds can help a community transform an abandoned brownfield site into a vibrant housing or other economic development location.

Cleanup Loans and Environmental Assistance to Neighborhoods (CLEAN) Program
'CLEAN' is a State of California environmental program that targets the redevelopment of brownfields and underutilized properties. Established in 2000, this program provides loans to redevelopment agencies, non-profit and for-profit organizations, and individuals to help fund environmental site assessments and environmental cleanup actions on brownfield sites. In the 2001-02 State Budget, a one-time augmentation to expand the CLEAN program was proposed to assist parties in obtaining necessary liability insurance.[200]

V. Conclusion: Making it Work

In California and across America, a renaissance in TOD development is underway. Today there are enough well-performing "built" TOD products that the viability of TOD at many locations in today's California real estate market is not a significant issue. With each new success story, the arduous work of securing funding may become easier.

At the same time, there are not sufficient funding sources to meet the demand. This is particularly true for affordable housing. Mixed-use TODs also remain a challenge to finance and implement. TODs with a retail element historically have proven to be the most challenging in two regards – for financial performance and for adherence to TOD design principals.

Government agencies, which are beginning to realize the benefits of TOD in the community as well as for the region and the environment, may initiate new funding programs geared specifically towards TOD. Private lending institutions may also begin to better understand the dynamics of mixed-use developments and no longer consider them such high-risk investments.

Until then, the chances of realizing a successful TOD, in many cases, will require that all interested parties in the project:

- Form creative and effective public/private partnerships with active participation from those actively involved;
- Recognize and pursue multiple funding sources from a variety of Federal, State, local/regional, and private agencies; and
- Recruit the support of local city council or transit agency board members and regional planning agencies early in the process.[201]

SECTION 4: FACILITATING the BROADER IMPLEMENTATION of TOD

Chapter 8 summarizes the major barriers encountered by those wishing to implement TOD in California, and summarizes some options for addressing them. It then provides an overview of what other states are doing to encourage and facilitate TOD. Finally, Chapter 9 offers and describes 14 recommended strategies that the State of California could undertake to help facilitate the broader implementation of TOD at local and regional levels.

CHAPTER 8: What are Major Barriers to Implementing TOD, and What Could be Done to Overcome Them?

CHAPTER 9: What Can the State Do to Encourage and Facilitate the Broader Implementation of TOD in California?

Parsons Brinckerhoff and California Dept. of Transportation

This light rail station is located within the America Plaza TOD that includes offices, shops and an art museum in downtown San Diego.

CHAPTER 8 - What are the Barriers to Implementing TOD, and What Could Be Done to Overcome Them?

Primary authors of chapter: Terry Parker, GB Arrington

I. Introduction

This chapter first provides an overview of information regarding barriers to the wider implementation of TOD in California. It briefly discusses potential options for addressing these barriers. Finally, section II summarizes several important strategies that are being used in other parts of the country to help overcome barriers to wider TOD implementation.

This chapter 'sets the stage' for recommendations that are presented in the final chapter regarding what the State could do to help facilitate the broader implementation of TOD.

Parsons Brinckerhoff and Calif. Dept. of Transportation

The *EmeryStation* TOD at a busy Amtrak station in Emeryville has transformed a brownfield into a new mixed-use center.

II. TOD Implementation Issues in California

While the benefits of TOD can be significant, so are the barriers to its wider implementation. A decade ago there was concern about whether there was a sustainable market for TOD-style products in California. Today, however, there are a number of well-performing TODs in several metropolitan areas in California which demonstrate that market demand for TOD products in many urban and suburban locations is not a major barrier.

A number of implementation issues have emerged in this study's review of the implementation of TOD in California. These are summarized below, along with a brief discussion of potential options for addressing them. Chapter 9 provides more specific background information as well as recommendations on specific steps that could be undertaken to address these issues.

Financial Challenges

Mixed-use developments that include retail, office, and civic elements remain a challenge to finance and implement. Mixed-use projects are hindered by requirements for separate appraisals, and sometimes separate financing, for each land use. Also, TODs that include a retail element have proven to be challenging in two regards – financial performance and adherence to TOD design principals.

Infrastructure Costs[LXXVI]
Many TODs are located within older urbanized areas where infrastructure is in place, but may be too obsolete or undersized to adequately serve newer and denser development. In these areas, TOD implementation costs and development feasibility can be impacted by the high cost of replacing or expanding outdated or undersized infrastructure. Comparatively, for a community as a whole, encouraging infill development can lower infrastructure costs for local governments by reducing the need to expand facilities to far-away areas.

Fiscalization of Land Use
Many believe that local government dependence on sales tax revenues from retail development in California has tended to skew land use patterns toward high volume, more auto-oriented retail uses that are often located in outlying areas. While it can be true, on a single project basis, that 'big box'[LXXVII] discount stores and auto malls can generate more tax revenues for local governments than traditional retail stores, the land requirements for these large projects tend to push development to fringe areas that are typically accessible primarily by automobile.

Ultimately there is a limit to the number of large discount stores and shopping malls that can be financially supported in any metropolitan area. Furthermore, the location of 'big box' retail on the fringe of urban areas tends to make it more difficult for smaller retail establishments downtown and near train or bus stations to survive.[202]

This situation creates a significant challenge for local governments: although urban infill, transit-oriented development, and more housing may meet many important local needs, such land uses may not be fiscally supportable given the current tax structure in California. The result is that local governments may resist approving transit-supportive development when faced with the alternative of developing high-volume or big box retail uses that generate larger amounts of sales tax revenues.

Obtaining Development Entitlements
Developers and local planners interviewed for this study indicated that a primary barrier to TOD implementation is the challenge of obtaining local government entitlements (e.g. development approvals) to build TODs. This study confirms that there is often a lack of local transit-friendly zoning or plans at many major transit stations throughout the State. This creates a significant barrier to wider TOD implementation.

Changing zoning and/or General Plan designations to allow TODs can be a time-consuming, expensive, and often unpredictable process that significantly adds to the cost and feasibility of implementing TOD.

[LXXVI] 'Infrastructure' as used in this report refers to water, sewer, roads, and utilities.

[LXXVII] According to one source, "big boxes" typically occupy more than 50,000 square feet of land. Buildings are between 90,000-200,000 sq. ft. in size; they tend to be large, windowless, rectangular, and single-story, with standardized facades; they rely on auto-borne shoppers; and are surrounded by acres of surface parking. (Source: New Rochelle Studio), at: http://www.columbia.edu/itc/architecture/bass/newrochelle/extra/big_box.html

Part of the solution to the development entitlement issue may be for local governments to prepare 'specific area plans' [LXXVIII] around major transit stops, or to enact other similar planning tools (such as transit overlay zones, etc). Doing so would help ensure that individual TOD projects could be built without undergoing a prolonged and expensive zoning and/or General Plan change process. Furthermore, it would allow important community issues to be addressed in a more orderly and comprehensive way than reacting to development proposals. In that way, any subsequent projects that are consistent with an adopted plan could be more efficiently permitted.

However, many people who participated in this study stated that local land use planning in California is seriously under-funded in general, resulting in a lack of the type of land use planning necessary for TOD. (Please see Chapter 9 for more specific information and recommendations on this topic.)

Local Concerns about Traffic

TOD can be part of an effective regional or community-wide strategy to increase transit ridership and reduce automobile dependence.[203]

However, at a site-specific level, local community opposition to individual TODs often arises from concerns about potential increases in local traffic associated with increased densities or other characteristics needed for successful transit-supportive development.

These concerns often result in project delays, uncertainty, and reductions in allowable density. All of these tend to increase costs, dilute effectiveness, and/or reduce revenues of TOD.

Traffic associated with density can contribute to more intense traffic congestion within specific areas. However, local development approval processes do not have a mechanism to balance localized effects with community-wide or regional benefits. They typically also don't take into consideration how much traffic and air pollution would be generated if the same number of low-density, conventional houses or employment sites were to be built in a sprawl pattern or without transit.

Need for Better Data

The lack of evidence documenting a track record of TOD as a successful development product is an obstacle in convincing stakeholders and bankers about the benefits of projects. And, the lack of accurate or up-to-date information on the potential benefits of TOD in shifting travel from the automobile to transit and non-motorized modes in local analysis tools (such as traffic models) has become a serious impediment to the broader implementation of TOD, infill development, and affordable housing that meets market demand.

[LXXVIII] A 'specific area plan' is a legal tool authorized by Article 8 of the Government Code (Section 65450 *et seq.*) for the systematic implementation of a portion of a community's planning area. It specifies in detail the land uses, public and private facilities needed to support the land uses, phasing of development, standards for the conservation, development, and use of natural resources.

New or revised transportation analytical tools and data are needed to enable local and regional agencies to more accurately project the transportation performance of proposed TOD projects, as is required by CEQA and local development planning and approval processes. [LXXIX]

Parking Challenges
The location, type, and amount of parking can significantly impact the design and pedestrian-friendliness of a TOD project. As densities increase, so does the need for structured parking, which can add substantial costs to a project. [LXXX]

One mitigating factor is that parking requirements for housing, offices, and shops in TODs may be lower than for conventional auto-oriented development because of the availability of transit and the mixture of land uses. Reduced parking ratios can improve the financial feasibility of implementing TOD.

On the other hand, some developers state that they can't attract certain retail or private office tenants without providing sufficient parking, and that they would need to accept lower rents in return for reduced parking ratios. [LXXXI]

Land Assembly
Opportunities for TOD in existing urban areas are often limited by the availability of adequately large sites for development. Consequently, for TODs in urban and infill settings, land aggregation can be very important. In order to create projects with enough 'critical mass' to be economically viable, assistance with assembling land may often be required, especially in urban infill areas.

In California, redevelopment agencies have played an important role in assembling land for TOD in several areas. For example, the City of San Diego Redevelopment Authority assembled land for several TODs, including the Villages of La Mesa, La Mesa Village Plaza, Mercado at Barrio Logan, and Uptown Village. In the San Francisco Bay Area, the land for Del Norte Place (El Cerrito), Atherton Place (Hayward), and Park Regency (Pleasant Hill) was assembled by local redevelopment agencies.[204]

Disposition of Public Land
In many locations throughout the state, transit agencies and State departments own significant real property holdings that could provide a potential land supply for TOD. Furthermore, there is interest among many local governments and transit agencies in accessing State land for TOD purposes.

[LXXIX] California Environmental Quality Act.
[LXXX] Depending on land values and design, surface parking may cost between $1,500 and $3,000 per space. In comparison, stalls in a multi-level parking structure cost $15,000 to $25,000 each (or more).
[LXXXI] For a detailed discussion of the issues and challenges of parking in TOD, see the special report on *TODs and Parking* available at Caltrans' website: http//www.dot.ca.gov/hq/MassTrans/tod.htm

In most cases, State land disposition laws require State agencies to sell property to the highest competitive bidder, regardless of the proposed subsequent use. This can be a barrier when parcels are sold to buyers who have no interest in using the land for TOD.

Additionally, when local zoning designations for sites near transit stations are not transit-supportive, it even further complicates the appraisal and disposition process. Chapter 9 recommends a process for dealing with this issue in California.

Use of Tax-increment Financing
Beyond land assembly, redevelopment agencies have another powerful tool at their disposal: tax-increment financing.[LXXXII] This funding tool has been very beneficial in planning and implementing TOD within redevelopment areas because it provides a significant source of local funding for building projects.

However, tax-increment financing is currently only a limited tool for TOD since only a few of California's major transit stations are included within the boundaries of existing redevelopment areas. Without new legislation to allow the use of tax-increment financing at major transit stations and corridors outside of designated redevelopment areas, the majority of California TODs will continue to be precluded from its benefits.

Lack of TOD Expertise and Coordination
Many private developers, as well as local government and transit agency staff, lack the experience necessary to develop complex TOD and transit 'joint development' projects. The number of private developers and local jurisdiction staff that have a practical understanding of how to implement TOD or have successful experience with TODs is small.

In addition, a lack of effective coordination among local and regional land use, transportation planning, and transit agencies appears to be a challenge to implementing transit and TOD in several regions of the state.

Need for Better Information
Most of the participants involved in this study agree that there is a significant need for more and better quality information on TOD. In particular, there is a strong desire for information on TOD implementation, and its actual effects and benefits.

Technical experts agree that a significant information gap exists regarding general community-wide benefits of TOD, as well as project-specific data on travel and economic outcomes. Better data is needed to fill this gap, and many believe that this would be a reasonable role for the State of California to play.

[LXXXII] Tax-increment Financing is a technique allowed under California Redevelopment law wherein property taxes owed on the value of new development within a redevelopment area are captured for reinvestment in the district rather than going into general-purpose funds of the local governments. This allows the increase in tax revenues to be targeted for improvements defined in the adopted redevelopment plan for that area.

III. Other States' TOD Strategies

A brief overview of some of the latest innovations concerning TOD implementation in America reveals a variety of strategies and approaches that are potentially applicable to California. This section provides a 'snapshot' of these.

On a national scale, major types of TOD implementation strategies fall into these broad categories:

- TOD planning
- Abatement of taxes
- Transit joint development
- Direct Participation
- Use of government-owned land

Encourage TOD Planning
With the passage of the Federal 'Transportation Equity Act of the 21st Century' (TEA-21), it is now possible to use some Federal funds to pay for TOD planning at the local level. Transit agencies, metropolitan planning organizations and states can now transfer certain 'flexible'[LXXXIII] Federal transportation funds to local governments for use in a wide range of planning activities, including TOD planning and implementation. (For more detail on these funding sources, please see Chapter 7 as well as the Appendix volume.)

In California, the SF Bay Area's Metropolitan Transportation Commission's (MTC) 'Transportation and Livable Communities' (TLC) Program[205] is an example of a regional program that passes Federal transportation funds to local governments for TOD planning and implementation, as well as other 'livable communities' activities.

Beyond California, projects in the Portland region, Seattle, and Minneapolis are important examples of successfully "flexing" Federal funds for TOD planning and implementation.

Abatement of Taxes
In some areas, there may not be a sufficient real estate market for the higher densities, quality design, and/or lower parking ratios that typify TOD. One strategy that has been used in some states to help address this barrier is the abatement of property taxes or fees for qualifying TOD projects.

For example, to facilitate the broader implementation of TOD, the State of Oregon passed enabling legislation in 1995 that allows local governments the option of enacting local property tax abatement for up to 10 years for TODs. The cities of Portland and Gresham have taken advantage of this provision. The Portland Development Commission (PDC) administers the Portland program, which has resulted in the construction of nearly 1,000 new higher-density transit-supportive residential dwelling units.[206]

California law allows local governments to provide some abatement of property taxes for affordable housing projects.[207] However, California's Proposition 13

[LXXXIII] The funds are flexible in that they can be used for roads, highways or for transit. Federal funds in this category include CMAQ, STP, 5309, and TCSP.

limits flexibility regarding other property tax rate changes.

Transit 'Joint Development'
Transit joint development involves the use of publicly-owned property for land use development that is either "physically or functionally related" to a transit investment. In 1997, the Federal Transit Administration (FTA) added flexibility to its 'Joint Development Policy' to allow the use of land that was purchased with Federal transit funds for TOD.[208]

This FTA policy now allows property to be used for the "highest and best *transit* use" (which can include TOD), rather than the previous and much more narrow "highest and best *economic* use" which required selling property to the highest bidder, regardless of the intent for use.

Therefore, transit agencies can now directly use, sell, or lease property for land use activities that will help generate ridership and potentially additional revenue for the system. In addition, due to changes in Federal regulations, transit agencies are no longer required to repay the Federal treasury for its share of land that was acquired with FTA funds, as long as the land is sold or leased for the purpose of transit joint development.

As a result of these Federal policy changes, a significant number of transit agencies across the country are increasingly using, leasing, and/or selling land for TOD projects. (See chapter 4 for more detail.)

Transit systems in Washington, DC, Atlanta, and the San Francisco Bay Area are national leaders in joint development. For example, the Washington Metropolitan Area Transit Agency (WMATA) in Washington DC has undertaken 27 development projects on agency-owned land, with a real estate value of more than $2 billion. These undertakings now produce more than $6 million annually in additional revenue for the transit system.[209] Several California transit agencies are also becoming more active in joint development (these are described in Chapter 5).

Direct Participation
Some government agencies are now using Federal, State, and regional funds to directly participate in financing and building TODs. While these Federal funds come with a myriad of constraints and conditions, the broader prospects are promising as more local agencies and their Federal and State partners become more experienced with TOD implementation.

For example, the Portland area government, ('Portland Metro') uses a combination of Federal TEA-21 and local funds to purchase site control and for direct financial participation in TOD projects. To date, a revolving loan fund program that Portland Metro established has helped fund nine projects through investments in individual TODs ranging from $50,000 to $2 million each. The program is designed to be self-sustaining and expects to recapture its investments though loan repayment.

In addition, Portland also established a regional "Congestion Mitigation and Air

Quality (CMAQ) TOD Program" which is administered by the Portland Development Commission, the City of Portland's urban renewal agency. Under this program, to date the Commission has granted $3.5 million in CMAQ funds to nine TOD projects for land acquisition, design, and transit amenities. [210]

Use of Government Land

Some transit systems have proactively considered transit-oriented development in the design and implementation of major transit facilities, such as new rail lines, transit centers, and bus rapid transit projects. Transit facility parcels, along with other public agency lands, are being used to help build TODs.

It is often necessary to acquire and dispose of real estate as part of developing a new transit line or station. Transit agencies can make better-informed decisions about how much land should be purchased for a new transit facility when they consider TOD during their planning process. For example, rather than buying a small sliver of land (a 'partial take'), a transit agency could instead purchase an entire parcel to take advantage of TOD opportunities.

Another strategy for major transit projects, such as a new rail line, is to secure a construction mobilization site that can later be turned into a TOD. Nationally, depending on transit agency regulations, such land is often sold at less than full market value prices. The reduced cost of the land becomes an incentive to achieve higher-density, better design, and a different parking system than would otherwise be possible.

CHAPTER 9: What Can the State Do to Encourage TOD Implementation in California?

Primary Authors: Terry Parker, Mike McKeever, GB Arrington, and members of the Study's Technical Advisory and Policy Steering Committees.

I. Introduction

This chapter provides an overview, list and description of fourteen strategies that the study's Technical Advisory and Policy Steering Committees have recommended that the State of California could pursue to facilitate the broader implementation of TOD.

Jay Paul Company

Development incentives allowed the Jay Paul Company to agree to significantly increase the density of Moffett Park and reduce parking in exchange for a privately funded light rail station

The first five chapters of this report present information about the definition, status, opportunities, benefits, and impediments regarding transit-oriented development in the U.S. and California.

Chapter 6 provides important information about the market demand for TOD, along with important insights into the challenges and successes experienced by developers and others who are implementing transit-oriented development in California.

Chapter 7 discusses the challenges involved with financing TOD, and also provides suggestions about a number of local, regional, State, and Federal funding sources that could be used for planning and implementing TOD and similar projects.

Chapter 8 summarizes the major barriers that are typically encountered in California regarding the implementation of TOD. It also provides an overview of what other states are doing to encourage and facilitate the implementation of TOD, and the strategies they are using.

State Strategies

One of the primary "findings" of this study is that, even though investment in California's transit system has significantly increased in the past several years, the location and design of transit stations and nearby land uses often is not optimal to encourage and facilitate transit use. By more closely linking land use practices with other programs, such as transportation, housing, services and infrastructure, overall system performance could be improved.

The State could also reinforce its significant investment in transit and improve its cost-effectiveness. One of the major objectives of this study has been the identification and description of strategies that the State of California could pursue to help facilitate the wider implementation of TOD.

Recommendations regarding a set of fourteen promising State-level strategies has resulted from an extensive participatory process lasting over a year. The process to develop and recommend strategies unfolded as follows:

- A review of the 'state-of-the-practice' of TOD implementation for major transit systems throughout the United States.
- Investigation of TOD implementation in the major metropolitan areas in California (San Francisco Bay Area, Southern California, San Diego, and Sacramento).
- Preparation of case studies for a dozen TODs in California, focusing on: current status, how they were implemented, what barriers were encountered, and how those barriers were overcome, and "lessons learned".
- Interviews with developers, local officials, transit operators, and interested groups in California who are or have been involved in TOD implementation.
- Numerous day-long work sessions with this study's Policy and Technical Advisory Committees; and,
- The identification, development, discussion, and consensus recommendation of fourteen promising State strategies by the policy and technical advisory committees.

II. Overview of State TOD Implementation Strategies

The following sections provide an overview, list, and description of fourteen strategies that the members of the Policy Steering Committee and Technical Advisory Group to this study have unanimously recommended regarding actions that the State should undertake to encourage the broader implementation of TOD in California.

These strategies are organized in two broad areas:

1. State Policies and Practices; and
2. Finance and Implementation.

An overview of these two areas is provided below, followed by a list of the strategies. Finally, in Section IV, each strategy is presented and described in detail, including background information, activities involved in its implementation, strengths and issues, and priorities for implementation.

Strategy Area #1: State Policies and Practices

Recommended strategies in this category are:

- Encourage improved coordination of land use and transportation planning at local and regional levels.
- Facilitate the use and sale of State-owned land near major transit stations for TOD.
- Examine State environmental review requirements in relation to TOD to determine whether changes may be indicated to reduce barriers.
- Contribute to improved data on travel and economic impacts of TOD, and facilitate the use of this data in improved analysis and decision-making tools; and
- Develop and provide quality information and technical assistance on TOD implementation.

TOD proponents often face significant delays and difficulties when trying to secure local land use approvals for TOD projects, even in areas where policies are supportive of this type of development. The State can encourage local agencies to more closely link land use practices that promote a transit-friendly urban form by providing information, funding for planning, and encouraging closer cooperation among local and regional entities.

In addition, the State can provide direct assistance for TOD implementation by reducing existing barriers to leasing or purchasing State-owned "excess" and/or underutilized land located near major transit stations. There is also an important role for the State in directly developing and disseminating data and information about the effects and benefits of TOD regarding travel, economic, and social benefits and impacts. This information is needed to improve the accuracy of analysis prepared for proposed TOD projects, and also to help clarify and expedite local land use approval processes.

Strategy Area #2: State Funding for Planning and Implementation

Recommendations of this study regarding what the State of California could do to help overcome barriers to funding and financing TOD implementation are:

- Provide funding to local jurisdictions to prepare plans and adopt ordinances that facilitate transit-oriented development.
- Provide financial incentives to enable local agencies and private organizations to implement TOD.
- Offer funding for identified types of TOD demonstration projects.
- Change existing law to allow local agencies to provide 'tax-increment financing' around major transit stations, even if they are located outside redevelopment areas.

- Allow greater flexibility in the use of State transportation funds for TOD; and

- Help make private TOD mortgage instruments, such as the "Location Efficient Mortgage" (LEM) program, more widely available.

Even though market demand for TOD-style projects is high in major metropolitan areas, it is often difficult for developers of transit-supportive projects to obtain adequate funding and financing. Public incentives for TOD implementation in California are very limited outside of established local redevelopment areas. And, the mixed-use aspect of good TOD design can make it much more difficult for developers to obtain loans from private financial institutions not accustomed to funding these types of projects.

To complicate the situation, local jurisdictions often lack adequate resources necessary to prepare TOD 'specific plans' or to change development ordinances to encourage TOD. In addition, local agencies typically cannot provide adequate financial incentives or assistance to encourage quality TOD design and implementation, unless a project is located within an established redevelopment area where tax-increment financing is available.

Photo by Kim Harrington, provided by Wareham Development

EmeryStation, Emeryville, California

III. Recommended State TOD Implementation Strategies List

State Strategy Area 1: STATE POLICIES and PROGRAMS

STRATEGY 1A - Improved coordination of local and regional land use and transportation planning

Encourage local and regional agencies to more closely coordinate land use and transportation planning and development.

STRATEGY 1B - Use and sale of State land for TOD

Facilitate the use and sale of State-owned land near major transit stations for TOD.

STRATEGY 1C – Facilitate local review and approval processes

STRATEGY 1C(1) – CEQA processes in relation to TOD

Coordinate a study of California Environmental Quality Act (CEQA) processes and requirements in relation to TOD.

STRATEGY 1C(2) - Improved models and analysis tools

Encourage the development and use of analysis and decision-making tools that more accurately account for the benefits and effects of TOD in local land use review and approval processes.

STRATEGY 1C(3) – Improved data on effects and benefits of TOD

Fund and disseminate research to develop reliable data on the effects and benefits of TOD, especially regarding transportation and economic changes. These data should be incorporated into analysis and decision-making tools.

STRATEGY 1.D - Technical assistance and information

Develop and disseminate practical information and technical assistance on TOD statewide, including:

i) Create and fund a statewide information "clearinghouse" on TOD implementation.

ii) Sponsor conferences, courses, and other outreach efforts.

iii) Fund 'circuit riders' to provide technical assistance to local agencies and developers regarding TOD implementation.

State TOD Strategy Area #2:
FUNDING for TOD PLANNING and IMPLEMENTATION

STRATEGY 2A - Provide funding to local agencies to plan and implement TOD near major transit stations

STRATEGY 2A(1) - Funding for local TOD planning

Develop and provide funding to local jurisdictions to create plans near major transit stations, and to remove existing barriers to TOD implementation in local codes. Such funding would be based on the coordination of land use, transit, housing, jobs and services in local plans and programs.

STRATEGY 2A(2) - Funding for local agency TOD implementation

Develop and provide funding to local agencies for TOD implementation, and to provide incentives. Funding would be based on local adoption and implementation of transit-supportive planning, zoning, and/or other programs.

STRATEGY 2A(3) - Funding for TOD Demonstration Projects

Fund TOD demonstration projects that 'showcase' certain innovative features (such as particular design characteristics; mixed land uses; projects in rural communities; use of innovative financing; coordination among local groups; etc.)

STRATEGY 2A(4) - State "Housing Incentive Program"

Create and fund a State-level 'Housing Incentive Program' to encourage the development of moderate to higher-density housing near major transit stations.

STRATEGY 2B - Targeted tax-increment financing for TOD

Adopt legislation to allow local jurisdictions and agencies to create special districts around major transit stations (outside established redevelopment areas) that have tax-increment financing powers to implement TOD.

STRATEGY 2C - Financing for private sector development

Implement a State financing program to facilitate the private sector development of TOD, including:

a) a capitalized revolving loan fund to provide 'gap financing' for TOD implementation; and/or,

b) a loan guarantee or mortgage insurance fund to increase the ability of mixed-use projects to obtain private financing.

STRATEGY 2D - Use of State transportation funds for TOD

Allow greater flexibility in the use of State transportation funds to implement TOD.

STRATEGY 2E - Expand 'Location Efficient Mortgage' Program

Consider assisting the expansion of an existing private-sector 'Location Efficient Mortgage Program' outside Southern California and the S.F. Bay Area (where it currently is being implemented).

IV. Descriptions of State TOD Implementation Strategies

The following section provides fairly detailed descriptions of fourteen strategies that members of the two Advisory Committees to the Statewide TOD Study have recommended that the State should consider implementing to encourage and facilitate the broader implementation of transit-oriented development in California. These strategies are designed to provide assistance to local jurisdictions, transit agencies, and developers of TOD in overcoming specific implementation barriers identified in this process.

For each strategy, the following types of information are provided:

- The number, heading, and proposed title of the strategy.
- **Brief Description of Strategy** – summarizes information about the overall purpose and objective.
- **Background** – provides information on the need for the strategy and other relevant information.
- **State Actions** – lists the types of activities that the State could undertake to implement each strategy.
- **Strengths** – anticipates the potential positive aspects of implementing each strategy.
- **Issues** – lists some of the overall political and other 'issues' potentially involved with each strategy.
- **Policy Steering Committee ratings** – average ratings of committee members regarding the benefits that may result from implementing each strategy, their practical feasibility, and timeframe involved.

State TOD Strategy Area #1: POLICIES and IMPLEMENTATION PROGRAMS

STRATEGY 1A - Improved coordination of local and regional land use and transportation planning

Encourage local and regional agencies to more closely coordinate land use and transportation planning and development.

Brief Description of Strategy
In this strategy, the State would increase its efforts to encourage local and regional agencies to more closely coordinate land use and transportation planning and development through the activities listed under ”specific actions” below. The State should encourage local and regional agencies to work more closely with one another, and to coordinate with the State as a resource.

This strategy is intended to improve coordination between State departments as well as among State, regional, and local agencies, including Regional Transportation Planning Agencies, transit agencies, local governments, and other local and regional groups. It also involves encouraging local jurisdictions to develop plans and programs that link housing, jobs, and services in a coordinated way. The State should also identify and obtain information on examples in California and the U.S. of successful land use and transit coordination, and provide information about those efforts.

Background
Local jurisdiction and transit agency staff and other implementers that were interviewed for this study consistently reported that one of the major barriers to the broader implementation of TOD is a lack of effective coordination among the many local and regional agencies involved in planning and implementing land uses and transit systems. In some areas of California, transit agencies have taken a leadership role regarding land use and transit coordination; and in other cases, local jurisdictions are taking the lead. In just a few areas of California, there is effective and efficient coordination among many of the agencies involved with transit-oriented land use planning and implementation (San Diego is one good example, as well as parts of the S.F. Bay Area). However, in most places this level of coordination is not occurring in a broad or consistent manner.

Specifically for TOD (in comparison with some other ‘livable communities’ strategies), there is a practical need to locate transit-supportive land uses in the same vicinity as existing or planned transit systems. However, to be successful, this requires a high level of coordination between local governments and transit agencies

in planning, placing, designing and implementing transit systems and land use development. Often, major new transit routes are sited along existing road corridors or freeways because of the comparative ease and lower cost of obtaining right-of-way. However, this creates transit systems that do not necessarily connect major employment centers. Therefore, clusters of higher-density housing, shopping centers, or other activity centers, opportunities to increase the effectiveness and efficiency of land use and transit projects by linking destinations are often lost.

According to a report published by the National Transportation Research Board (TRB): "In the long run, if lasting and effective transportation improvements that act as a permanent, positive force for livability are to be achieved, then they must take place within the context of an overall land use policy designed to further the preservation and revitalization of dense, lively town centers as well as the creation of new nodes near public transportation. Such a policy can nurture initiatives that cluster activities around transit hubs, provide opportunities for short commutes and easy walking, promote alternative transit use, and avoid the wastes of energy, land, and the environment that sprawl creates."

State efforts: There are several existing State efforts designed to help improve the coordination of land use and transportation planning. One is the creation of an 'Office of Community Planning' by the California Department of Transportation (DOT) focused on such issues. This office recently began providing grant funds and technical assistance to local jurisdictions and other transportation agencies to improve coordination. (See Chapter 7 for more information on this program.)

Other State departments, such as the Housing and Community Development Department (HCD), Governor's Office of Planning and Research (OPR), Office of the Treasurer and State Technology, Trade and Commerce Agency (TTCA), also provide financial and/or technical resources for implementing land use strategies. HCD provides significant funding for housing implementation through its Jobs/Housing Balance and other programs. OPR offers guidelines and assistance to local governments on updating General Plans and other land use planning tools. And the TTCA's Main Street Program offers in-depth technical assistance regarding the preservation and renovation of downtown areas. However, none of these programs is specifically focused on transit-oriented development, although each could certainly support that objective.

Local and regional efforts: There are several important land use and transportation coordination efforts underway in various parts of California. For example, during the past several years, the San Francisco Bay Area Rapid Transit District (BART) has been actively working with local jurisdictions to develop land use plans for station areas. Each year, BART funds and coordinates the preparation of at least three 'comprehensive station plans' that include transit station access. In the San Francisco Bay Area, the Metropolitan Transportation Commission (MTC) annually grants $9 million to local jurisdictions for 'livable community' land use plans and projects. This amount was recently increased to over $25 million annually. The San

Diego Area Council of Governments (SANDAG) recently released a major regional plan ('TransitWorks') that promotes the closer coordination of land use and transit plans and investments.

Specific Actions:
In this strategy, the State would:

- Provide information, coordination, and technical assistance to encourage improved local and regional coordination of land use and transportation planning, development, and related activities.
- Identify areas of California that have demonstrated effective leadership in coordinating land use and transit planning and development at the regional, community, and local levels. Obtain information on how that coordination took place, who the important participants were, and the activities involved.
- Provide information on model 'case studies' of land use and transit coordination to other parts of California, including: funding sources that were used, agencies involved, and the benefits that resulted from the coordination.
- Encourage improved land use and coordination efforts through 'memoranda of understanding' (MOUs) and other cooperative efforts.

Strengths

- There is an important role for the State in encouraging local and regional agencies to improve the coordination of land use along with transportation planning and system development.
- Such coordination could significantly improve the efficiency of the State's investment in public transit systems and service, reduce environmental impacts, and streamline project delivery for land use and transit projects.
- Local and regional agencies already plan and develop land uses and transit systems; this strategy would encourage them to do so in a more coordinated manner.
- The State can provide important information, coordination, and other resources not currently available to local and regional agencies.

Issues

- Local and regional authority over land use and transportation decisions is closely guarded.
- The State currently does not have significant authority over coordination between land use and transportation agencies in California.

Policy Steering Committee's ratings regarding the implementation of this strategy:

How great a benefit or impact may result from this strategy?	**Medium to High**
What is the practical feasibility of implementing this strategy?	**Medium**
What is the timeframe for implementing this strategy?	**2-3 years**

STRATEGY 1B - Use and sale of State land for TOD

Facilitate the use and sale of State-owned land near major transit stations for TOD.

Brief Description of Strategy

This strategy involves revising current State procedures and legal requirements regarding the use and/or disposal of State land near major transit stations to facilitate the development of TOD. The State should revise its processes for disposing of excess State lands in order to facilitate the implementation of TOD by local agencies and groups. In addition, the State should also allow the use of State-owned park-and-ride lots and other underutilized State land for TOD if they are located within one-fourth to one-third mile of major transit stations.

Background

The Department of Transportation and other State agencies own 'excess' and/or underutilized land located near transit stations that could potentially be used as sites for TOD. There is interest by some local governments and transit operators in accessing State land for TOD purposes. Some of these parcels are 'excess' and may be sold. Other State parcels may be under-utilized as storage or surface parking lots; this land potentially could be more effectively used for TODs.

Regarding excess parcels:

State land disposition laws require State agencies to offer the property for sale and sell it to the highest competitive bidder (except in certain cases, as described below). This policy, however, can become a barrier to TOD implementation if a parcel is sold to a buyer who is not interested in developing it in a transit-supportive way. Local zoning for many sites near major transit stations often allows auto-oriented retail uses that are not consistent with efficient transit use, such as 'big box' retail outlets surrounded by large surface parking lots, fences, and other barriers.

Current State law provides an exception to the requirement that excess parcels be sold through competitive bid, as follows: if a local jurisdiction or agency (in which a parcel is located) wishes to use a State-owned parcel for creating affordable housing, parks, or several other specific purposes, they must be given the opportunity to purchase the parcel.[LXXXIV]

Regarding underutilized parcels:

The State Department of Transportation manages a number of State-owned surface park-and-ride lots, some of which are near major transit stations. Some of these are not being used to their full capacity, and may be better used for TOD. Heavily-used

[LXXXIV] Section 16.03.05.00 of the California Department of Transportation's "Right-of-Way Manual," states: "Before any excess real property, except surplus residential property, is offered for sale to the public, it must be offered for sale or lease to local public agencies, housing authorities, or redevelopment agencies within whose jurisdiction the property is located. (per California Government Code Sections 54220, et. seq.)

parking lots would be more efficient for TOD if they were converted to structured parking. This would also reduce the barriers that large expanses of surface parking create for pedestrians.

Specific Actions
In this strategy, the State would implement the following:

- Establish a policy and process to prioritize the use and disposition of excess and/or underutilized State-owned land for TOD if it is within one-fourth to one-third mile of an existing or planned major bus, rail, and/or ferry station.
- Inventory State parcels, including park-and-ride lots and excess right-of-way that are located within one-fourth to one-third mile of existing or planned major bus, rail, and/or ferry stations. Establish a process for consultation with local governments and transit districts on the future use of that land for TOD.
- Propose legislation to change current State law (Government Code Sections 54220, et seq.) to require State departments to first offer State land that is located within one-fourth to one-third mile of an existing or proposed major bus, rail, and/or ferry transit station to local agencies before advertising to bidders on the open market. Ensure that such a revision complements the law's existing priority for affordable housing and parks in the disposition of State land.
- Consider offering local agencies flexible options for paying for land that is purchased under this strategy, recognizing that they may not have sufficient funds available at the time the parcel is offered for sale.

Strengths
- State-owned land near major transit stations can be a valuable resource for TOD and/or for transit-related structured parking.
- Many TOD projects today require some form of public agency participation to make them financially viable.
- The value of this sizable existing State land can be leveraged without requiring additional legislative budget authority.

Issues
- Laws, rules, and procedures for the disposition of State lands are complex.
- The active cooperation and involvement of local governments will be required to make this strategy effective.
- The State may not be willing to relinquish the use of certain parcels because the land may be needed for other important purposes.
- Converting surface parking lots to structures can be very expensive.

Policy Steering Committee's ratings regarding the implementation of this strategy:

How great a benefit or impact may result from this strategy?	**Medium**
What is the practical feasibility of implementing this strategy?	**Medium**
What is the timeframe for implementing this strategy?	**2-3 years**

STRATEGY 1C: Facilitate local review and approval processes.

Strategy 1C(1) - CEQA processes in relation to TOD

Coordinate a study of California Environmental Quality Act (CEQA) processes and requirements in relation to TOD.

Brief Description of Strategy
This strategy involves convening a task force to explore potential impacts of CEQA on the implementation of TOD. This task force would develop and recommend strategies, if any, to appropriately reduce barriers in a manner that is consistent with the intent of CEQA for full assessment, disclosure, and public participation.

In addition, the State would obtain examples of instances in which effective and accurate CEQA analyses were prepared for TODs that included community-wide and regional benefits and impacts in addition to site-specific impacts. The State would share such information with consultants, developers and public agencies.

Background
When compared to conventional 'sprawl' development, TOD can significantly increase environmental benefits within a community or region. However, local development review processes typically do not accurately account for those benefits when assessing individual projects (please see discussion regarding Strategy 1C(2) below).

The California Environmental Quality Act (CEQA) requires that the potential impacts of proposed developments be assessed and reported, and that opportunities be provided for public participation in this process. In relation to transit-oriented development, some perceive that CEQA procedures are often a barrier to implementing TOD. One of the main reasons for this perception is that CEQA can provide an opportunity for legal challenges that can delay or even stop TOD projects. This is complicated by the fact that many TODs are proposed within areas that are surrounded by already-established communities. Residents within these neighborhoods often oppose new development projects, especially if they involve densities that are somewhat higher or are of different design compared to existing land uses.

However, it is not clear that CEQA is a primary barrier to TOD implementation, or whether there are other factors involved that could be mitigated without changing CEQA. In particular, some believe that the CEQA process has served as an unintended barrier to the implementation of TOD because the analysis required by CEQA often does not accurately account for the benefits of TOD. Procedural changes to CEQA would be both technically and politically difficult; therefore, this issue would need to be

studied carefully prior to taking any action. It would also be essential that any changes to CEQA safeguard citizen participation opportunities in the development process as well as enhance, rather than compromise, environmental protection.

During this study, both of the advisory committees have discussed this issue in depth. A variety of approaches and strategies have been considered as possible options for addressing concerns about possible impacts of CEQA on TOD. In every instance, there was strong support for CEQA's importance in assessing potential impacts from projects and for the public input that CEQA requires in local development decisions. Both committees agreed that conducting an objective study of CEQA processes to determine what, if any, changes may be indicated is the preferred way to address this issue. Therefore, a study of this type is suggested, with the clear understanding that it would be an objective analysis, include a representative group of stakeholders, and have no pre-determined conclusions that either the procedures or standards in CEQA should necessarily be changed.

Actions

- The State would convene a broadly representative task force to further study the issue. Such a task force would be comprised of public agencies, citizens, members of the development industry, and environmentalists to conduct a comprehensive assessment of how CEQA currently affects TOD.
- This would be an objective analysis, with no pre-determination that the procedures or standards required by CEQA should necessarily be changed.

Strengths

- Changing CEQA requirements or processes could increase the efficiency and certainty of local land use entitlement process, which could increase the rate of implementation of TODs in California.

Issues

- Changing CEQA in regard to TOD could potentially reduce citizen participation in local land use entitlement processes.
- Changing CEQA for TOD could also be perceived as setting a precedent for avoiding the requirements of the State's environmental law, which could open the door for other "loop holes" to be created.

Policy Steering Committee's ratings regarding the implementation of this strategy:

How great a benefit or impact may result from this strategy?	**Medium**
What is the practical feasibility of implementing this strategy?	**Medium**
What is the timeframe for implementing this strategy?	**2-3 years**

Strategy 1C(2) - Improved models and analysis tools

Encourage the development and use of analysis and decision-making tools that more accurately account for the benefits and effects of TOD in local land use review and approval processes.

Brief Description of Strategy

This strategy targets State involvement in the development and use of improved land use, transportation, and economic analysis and decision-making tools to assess benefits and impacts of TODs. The State should encourage the use of improved data in various types of analysis and decision-making tools, including those used to analyze individual projects, community-level analysis tools, and regional-scale models. And, the State should also help disseminate information about the availability of improved tools and encourage their adoption and use.

Background

Cities, counties, and consultants typically analyze the transportation, economic, and environmental effects of proposed land use and transportation projects using local and regional transportation models and other analysis tools. The accuracy of such tools is important, since the estimates they produce typically become the basis for complying with CEQA, assessing vehicle traffic impact fees, and identifying other project-related mitigation measures.

Typically, analyses are based on site-specific impacts rather than accounting for community-wide benefits. Such analyses often indicate that a specific TOD may increase automobile traffic levels in a site above what would be created by lower density development. However, there are potentially significant environmental and social benefits on community-wide and regional scales that can result from a network of concentrated activity centers that are connected by transit. These benefits, such as reduction in overall automobile travel and air pollution, are not taken into account during site-specific project analyses.

Moderate and high-density and mixed-use development (such as are typical in TOD) can result in higher levels of localized vehicle traffic within the immediate area (because there are more housing units, employees, or services in a smaller area). However, the analyses conducted during local project approval processes often do not appropriately credit the potentially significant benefits of TOD, such as: better access to transit service, improved pedestrian facilities, the ability to walk from one activity to another, as well as the overall benefits of TOD on a community-wide or regional level. As a result, TOD project proponents are often required to pay vehicle traffic mitigation fees and other offsets at the same rates as projects that do

not contribute similar benefits.

Models and other analysis tools that are currently in common use do not accurately account for the benefits of TOD in reducing rates of automobile use, and therefore improved tools need to be developed. Most of the analysis tools and models currently in use do not contain up-to-date or accurate data that accounts for the benefits and impacts that both TOD and infill development have in shifting travel away from automobiles to transit and pedestrian travel. In addition, there is also a lack of solid data on TOD and infill development in economic analysis tools.

The goal of this strategy, therefore, is to update or create analytical and decision-making tools that are capable of more accurately assessing site-specific as well as community-wide benefits and impacts of proposed projects. Data for these analysis tools must be based on more up-to-date, accepted research regarding the travel, air quality, infrastructure, and other impacts and benefits associated with TOD. (Please refer to strategy 1C(3) below.)

Planning tools: In recent years, several new computer-based planning tools have been developed or are under development. Several of these use Geographic Information System (GIS) technology to produce maps and information that graphically describe and quantify various impacts that different proposed land uses and development proposals and scenarios may have. Several of these also display visual images of different development alternatives in order to help planners and citizens visualize the possibilities that are being considered, and to better understand the impacts and benefits that projects may have on the community.[LXXXV]

Actions

- Survey and assess transportation models and land use analysis tools that are currently in use.
- Identify significant gaps in the features of available tools that should be filled, or sub-optimal assumptions or methodologies used.
- Promote and fund activities to address these deficiencies.
- Develop guidelines to help local communities select analysis tools that are the most credible and useful.
- Determine the range of potential uses for such tools and develop methods, where appropriate, to integrate them into existing processes.

[LXXXV] Two recently-developed planning tools that are being used in several communities in California include: "INDEX" and "PLACE3s" ("Planning for Community Energy, Economic and Environmental Sustainability"). These tools are described in more detail in the Appendix Volume to this report. Other efforts to develop GIS-based land use analysis and planning tools are also underway, including programs at the University of California at Davis and Berkeley, as well as the Mineta Transportation institute at San Jose University.

(Examples include CEQA review, General Plan updates, and the development of station area specific plans and community plans.)
- Disseminate information about available tools and encourage local communities to use them. Also, examine the use of Internet technology as a means of cost-effective information dissemination.

Strengths
- This strategy would improve the accuracy of assessing the impacts and benefits of TOD as part of local approval processes.
- Could result in easier review of TOD projects, and may also result in reduced traffic mitigation fees for TOD implementers due to more accurate data regarding travel effects.
- Would improve the quality and also potentially reduce the timeframe of local citizen involvement and land use approval processes.

Issues
- Dependable and accepted data on TOD impacts and benefits is currently limited; additional data collection and research are needed.
- Funding and time to conduct that research is necessary before more reliable data can be developed to improve analysis tools.
- Time, effort and funding are needed to improve or develop new analysis tools.

Policy Steering Committee's ratings regarding the implementation of this strategy:

How great a benefit or impact may result from this strategy?	**Medium to High**
What is the practical feasibility of implementing this strategy?	**Medium to High**
What is the timeframe for implementing this strategy?	**2-3 years**

Strategy 1C(3) - Improved data on effects and benefits of TOD

Fund and disseminate research to develop reliable data on the effects and benefits of TOD, especially regarding transportation and economic changes. These data should be incorporated into analysis and decision-making tools.

Brief Description of Strategy

In coordination with universities, transit agencies, local governments, and other interested parties, the State should define and fund up-to-date research that explores the benefits and impacts of TOD. Physical impacts (e.g. travel behavior) and economic impacts (e.g. costs, market performance) are of special priority.

It is now possible to obtain more reliable data on these effects compared to the past because of the recent construction of additional TODs in California. The State should also encourage the incorporation of this improved data into local and regional analysis and decision-making tools that are used to assess impacts and benefits of development. In this way, these tools would be able to more accurately account for the transportation and economic effects of TOD.

Background

In order for a new practice such as TOD to become a 'mainstream' product, credible information on its performance is needed. The State's leadership in developing and disseminating information about the practice and performance of TODs is critical to obtain comprehensive, objective, and credible information that is needed for accurate assessment and implementation of proposed TOD projects in California.

There is wide agreement in the academic literature and among practicing professionals regarding the need for more up-to-date and dependable information about the effects and benefits of TOD. As was discussed in Chapter 3 ("How Does TOD Affect Travel and Transit Use?"), research conducted in the past has, unfortunately, not been as conclusive as desired regarding the effects of TOD on travel behavior, transit use, market opportunities and costs, and other related effects. Therefore, in order to be of practical use, new research is needed to produce data that are both accurate and in a form that allows it to be accepted and implemented.

One of the main reasons that transportation analysis tools and models do

not contain more accurate data on the benefits and impacts of TOD is a current lack of widely accepted or up-to-date data. One barrier in particular is the lack of specific 'trip generation rates' for TOD in the Institute of Transportation Engineers' *Trip Generation Manual*, the reference source commonly used to estimate vehicle trip generation rates of various types of land uses in travel models. There is also a need for more accurate and recent data on the economic costs and benefits of TOD.

One of the main reasons for this lack of good data is that, until recently, there have been few TODs to study in California. However, there are currently a number of recently developed TODs that can be studied, so it is now much more feasible to conduct such research in a more accurate and conclusive manner.

Some of the specific information on TOD that is needed to understand the benefits and impacts of proposed projects includes:

- How do TODs function regarding travel and economic effects in different types of areas, such as urban centers, growing suburbs, or small rural communities? Are there differences in these settings?
- What are the trip generation, energy, and environmental benefits and impacts of TOD at local, community, and regional levels?
- What are the costs of building TOD; and what has been the market performance (i.e. absorption rates, lease rates)?
- How much and what type of public funding may be needed to effectively promote TOD?

Actions

- Secure State funding sources to collect data on travel, economic, and environmental performance of TODs in California.
- Identify and prioritize a specific list of data that is needed.
- Develop a program to provide this data in a credible way.
- Design a process for effectively disseminating the data, and to include it in analysis tools (per Strategy 1.C(2) above)

Strengths

- A research and model improvement program is essential to the successful implementation of TOD in California.
- The State can provide leadership in developing and disseminating more objective information about the performance of TOD, including costs, benefits, and impacts, to help with local and regional decision-making processes.
- It is now be possible to obtain data compared to the past, due to the recent construction of TODs in California that can be studied.

Issues

- Reliable and conclusive data will not be easy to obtain on the performance of specific aspects of TOD. Obtaining accurate financial information about private development projects is also difficult because some of the information is often 'proprietary'.
- In order to be useful, research must be designed and conducted in such a way that the results will be accepted and implemented.
- It is important to involve a cross-section of interested parties in the design and execution of a research program.

Policy Steering Committee's ratings regarding the implementation of this strategy:

How great a benefit or impact may result from this strategy?	**Medium to High**
What is the practical feasibility of implementing this strategy?	**Medium to High**
What is the timeframe for implementing this strategy?	**<2 years**

LANI

Parsons Brinckerhoff and the California Department of Transportation

The NoHo (North Hollywood) bus TOD has promoted economic development, increased pedestrian activity, and improved the general attractiveness of the area

STRATEGY 1D - Technical assistance and information

Develop and disseminate practical information and technical assistance on TOD statewide, including:

- **i) Create and fund a statewide information "clearinghouse" on TOD implementation.**
- **ii) Sponsor conferences, courses, and other outreach efforts.**
- **iii) Fund 'circuit riders' to provide technical assistance to local agencies and developers regarding the specifics of TOD implementation.**

Brief Description of Strategy

This strategy is concerned with the development and dissemination of practical information to various stakeholders involved in planning and building TOD, including: local officials, transportation and planning professionals, private citizens, property owners, developers, lenders, and others. The strategies for disseminating information should be diverse in order to meet the unique needs of each audience.

Background

Many observers agree that there is a significant need for more information on various practical aspects of implementing TOD. Among those who were interviewed for this study, there was a strong desire for more and better-quality information about how to implement TOD, such as: design strategies; development costs; sources of funding and financing; local government approvals; project delivery; and 'lessons learned' from others.

In order for a new practice (such as TOD) to become a mainstream product, credible information must be available from qualified, dependable sources. The State is capable of providing comprehensive, objective, and credible information needed to assess and implement TOD at the local and regional levels.

Actions

This strategy involves some or all of the following specific activities:

i) Create and fund a statewide information "clearinghouse" on TOD implementation.

The State would develop an information "clearinghouse" designed to serve the diverse needs of the multiple stakeholders involved in TOD. The clearinghouse could make use of practices that would enable it to effectively disseminate information (including the use of the Internet, etc). Another of the major needs identified in this study to overcome TOD implementation barriers is the development and use of analytical modeling tools that can more accurately assess the benefits and impacts of various types of proposed land use development projects. These tools could also be distributed via a statewide "clearinghouse".

ii) Sponsor conferences, courses, and other outreach efforts

Building on the results of this TOD Study and related efforts, the State would partner with organizations that have credibility with various stakeholders to offer conferences, workshops, and courses on topics, including TOD. The State would also coordinate the development and distribution of information, including articles in journals, presentations at conferences and conventions, and through other venues. Trade organizations for TOD builders and lenders, as well as local government and transit agency associations, are examples of prospective partners in this effort.

iii) Fund 'circuit riders' to provide technical assistance to local agencies and developers regarding TOD implementation

Staff of local governments, transit agencies, and land use developers often lack the practical experience necessary to successfully develop and implement complex TOD and transit 'joint development' projects. There is a need for experienced and knowledgeable technical experts to provide assistance to facilitate the implementation of TOD at the local level. This program involves establishing a "TOD Circuit Rider Program" administered by the State to provide targeted expertise to local governments and developers for TOD implementation.

Policy Steering Committee's ratings regarding the implementation of this strategy:

How great a benefit or impact may result from this strategy?	**Medium to High**
What is the practical feasibility of implementing this strategy?	**Medium to High**
What is the timeframe for implementing this strategy?	**<2 years**

State TOD Strategy Area #2: FUNDING for PLANNING and IMPLEMENTATION

STRATEGY 2A – Funding for local agencies to plan and implement TOD

Strategy 2A(1) - Funding for local TOD planning

Develop and provide funding to local jurisdictions to create plans near major transit stations, and to remove existing barriers to TOD implementation in local codes. Such funding would be based on the coordination of land use, transit, housing, jobs, and services in local plans and programs.

Brief Description of Strategy
This strategy provides State funding and technical assistance to local agencies to support the development, adoption, and implementation of transit-supportive plans and implementation programs. Funding would be based on whether localities are coordinating land use, housing, and transportation in their plans and programs, and that there is consistency among various elements of local General Plans.

Background
For a successful program, it is important that transit-supportive policies and standards be included at all levels of planning. Local governments typically develop plans and programs that pertain to TOD, including: General Plans, community and station area plans, zoning and subdivision codes, specific plans, master plans, special planning districts, etc. General Plans (required by State law) establish the amount, type, and location of land use development. Zoning and subdivision codes set forth the details about how land may be used. 'Specific plans' and community plans focus on particular areas within a community.

The changes this strategy supports would help remove local barriers to TOD implementation, which can be challenging. To be successful, TOD requires the ability to mix land uses, to include moderate and higher densities, and to reduce the number of parking spaces and/or provide structured parking garages. In addition, within TODs there is typically an orientation of buildings and public areas to focus on pedestrian and transit use. Addressing the unique challenges of TOD at the local level will help reduce barriers and help expedite local development entitlement processes.

TOD specific plans, master plans, special planning districts, and transit overlay

zones are some of the more sophisticated planning tools that local agencies can use for areas around transit stations. While all of these techniques are important, the creation of specific or community plans for transit station areas can be particularly beneficial for implementing TOD. These planning tools focus information, resources, and citizen input where it can be most effective and useful - during the early stages of the land use planning process. However, all these tools require a large amount of technical and community resources to develop, adopt, and implement - which is costly for local jurisdictions. Once they are in place, these tools can substantially improve the efficiency and certainty of local development review and permitting processes for TOD implementation.

Actions

- Identify appropriate source(s) of State funding.
- Determine eligible planning activities and applicants for assistance.
- Determine the most effective and efficient way to deliver the program, including how it relates to existing State grant programs that promote 'livable communities' strategies.
- Coordinate design of the program with appropriate State departments, regional agencies, transit agencies, and local governments.

Strengths

- This program would directly address a major barrier to TOD development.
- State funding assistance will be an incentive for TOD implementation at the local level.
- Effective TOD planning can be effective in streamlining local review and approval processes, which lowers uncertainty and costs for TOD.

Issues

- State involvement in local TOD planning must be conducted with care to avoid the appearance of interference with local land use control.
- A program such as this is likely to achieve substantial local interest.
- It is important to design and implement the program to obtain maximum benefit from limited available State resources.

Policy Steering Committee's ratings regarding the implementation of this strategy:

How great a benefit or impact may result from this strategy?	**High**
What is the practical feasibility of implementing this strategy?	**Medium**
What is the timeframe for implementing this strategy?	**2-3 years**

Strategy 2A(2) - Funding for local agency TOD implementation

Develop and provide funding to local agencies for TOD implementation and to provide development incentives. Funding would be based on local adoption and implementation of transit-supportive planning, zoning, and/or other programs.

Brief Description of Strategy

This strategy involves developing and providing State funding to local agencies for TOD implementation, such as for infrastructure improvements, parking structures, and similar costs. The State would also establish a funding program to reimburse local agencies for a portion of their costs incurred to encourage the implementation of TOD through incentives, such as: reducing typical local development fees, charges, taxes, and infrastructure costs. State funding would be targeted to local areas that already have TOD plans and programs in place.

Background

Depending on local conditions, TOD typically involves features that can increase development costs, compared to conventional low-density development, such as: typically complex and lengthy local government entitlement processes; higher-cost structured parking; and infrastructure that can be more costly in infill locations. Alternatively, in some ways, TOD can decrease costs and/or enhance economic return through potentially lower parking requirements, providing more leasable space due to higher densities, and making better use of existing infrastructure capacity.

Regardless of whether the financial aspects of a particular project are a net “plus” or “minus” for TOD as compared to ‘sprawl’ development, many banks and developers perceive TOD to be a riskier and more innovative investment than conventional development. This means that banks and developers often require a higher rate of return on their investment in order to be willing to take this “risk”. Therefore, public financial assistance of some sort is often necessary to finance TOD projects. This is particularly true when a project is among the first TODs within a community or station area dominated by more conventional development patterns.

There are several mechanisms that local agencies can implement to help make the economics of a TOD project more attractive to builders and financial institutions. These may include (but are not limited to): reductions in property tax for a specified amount of time; reductions in typical local development permit fees and charges; assistance in paying

for infrastructure impacts (e.g. roads, traffic signals, water system upgrades); and assistance in providing for parking. Incentives in any of these areas could positively influence a prospective developer or financial institution to invest in TOD.

Actions

- Identify and allocate State funding and staff to develop and manage a local TOD implementation funding program.
- Determine an appropriate approach for allocating the State's resources.
- In cooperation with local agencies and stakeholders, design a program that provides the necessary flexibility to significantly affect local development processes.
- Develop program requirements and criteria to ensure that the State's resources effectively result in TODs that would not otherwise be built.

Strengths

- Public funding participation is important and effective in implementing TOD on a broader scale.
- A cooperative approach among State departments, regional agencies, local governments, transit districts, developers, and other interested groups is necessary to design and implement a functional and effective program.

Issues

- The program will require funding at a time when State discretionary resources are scarce.
- Program criteria should provide incentives for desirable TOD projects that would not otherwise be developed without State assistance.
- Local demand for this program may exceed State resources, making it essential to develop a fair and practical system of allocating available funding based on effective criteria.

Policy Steering Committee's ratings regarding the implementation of this strategy:

How great a benefit or impact may result from this strategy?	**High**
What is the practical feasibility of implementing this strategy?	**Medium**
What is the timeframe for implementing this strategy?	**2-3 years**

Strategy 2A(3) - Funding for TOD Demonstration Projects

Fund TOD demonstration projects that 'showcase' certain innovative features (such as particular design characteristics; mixed land uses; projects in rural communities; use of innovative financing; coordination among local groups; etc.)

Brief Description of Strategy

This strategy involves developing and providing State funding for TOD projects that demonstrate innovative, effective implementation strategies. Such a program would help develop and test methods for implementing TOD, and for overcoming barriers. The program would also include evaluations to measure the benefits of the demonstration projects and to establish 'best practices' that could be applied to other areas.

Background

Examples of the types of TOD demonstration projects that might be funded include:

- TODs with innovative design features, such as: quality pedestrian facilities, squares and other gathering places, kiosks, and user-friendly transit information;
- Development of TOD in rural communities;
- The provision of social and other public services in coordination with transit, such as child care facilities, public libraries, government services offices, etc.;
- The use of innovative financing, funding sources or techniques that have not been previously used; and/or
- Coordination of land use development with new types of transit service, such as Bus Rapid Transit, car sharing programs, etc.

Actions

This strategy would include the following activities:

- Identify and allocate a funding source for the program.
- Establish application and project selection criteria, considering factors such as:
  - Demonstration of new models for development;
  - Building partnerships (e.g. with transit agencies, TOD developers, local governments, regional agencies, etc.); and
  - Replicating the practice demonstrated in other locations without the need for additional subsidy.
- Coordinate among State departments, as well as with local jurisdictions, transit agencies, and other public and private groups to leverage available funding, information, and staff resources.
- Develop and implement methodologies and procedures for monitoring and reporting on the performance of projects.

Strengths

- This program would provide the State with an important way to encourage innovation and creativity, and to resolve identified barriers to TOD by providing funding and reducing risks for program participants.
- Documenting and disseminating successful examples is one of the most effective ways of overcoming barriers to innovation.

Issues

- Demonstrating and objectively documenting the performance of new strategies takes time; it will be a several years before demonstrated results will be available.
- This program should be integrated with other State TOD implementation strategies, especially those that provide financial assistance for TOD, to add value rather than duplicate activities.
- All types of areas in the state should be included in the demonstration program, including urban, suburban, and rural areas.

Policy Steering Committee's ratings regarding the implementation of this strategy:

How great a benefit or impact may result from this strategy?	**Medium to High**
What is the practical feasibility of implementing this strategy?	**Medium**
What is the timeframe for implementing this strategy?	**2-3 years**

Lennertz and Coyle Associates/Seth Harry

Concept illustration for phase II of the Pleasant Hill TOD

Strategy 2A(4) - State "Housing Incentive Program"

Create and fund a State-level 'Housing Incentive Program' to encourage the development of moderate to higher-density housing near major transit stations.

Brief Description of Strategy
This strategy would provide incentives to local governments for locating and implementing medium to high-density housing within easy walking distance of existing or planned major transit stations. (The housing could be built by private developers, non-profit housing agencies, or others.) Specific criteria for awarding the funds would be developed in coordination with local and regional groups and agencies. Linking transportation and land use decisions in this way with housing can help maximize public investments in transit infrastructure and increase transit use, while at the same time helping to address California's housing shortage.

Background
The model for this strategy is the 'Housing Incentive Program' (HIP) that the S.F. Bay Area's Metropolitan Transportation Commission (MTC) initiated early in 2001. This program is funded by State and Federal transportation programs.[LXXXVI]

MTC's HIP program, in turn, was based on a program previously developed by the County of San Mateo, the 'Transit-Oriented Development Incentive Program'. The MTC program grants $1,500 per bedroom to local governments as an incentive for allowing the construction of new housing located near quality public transit. The housing must have a minimum density of 25 units per acre or more. In the short time that the MTC's HIP program has been available, demand for funds has far outstripped available resources. MTC announced the availability of $9 million early in 2001, and received $46 million in requests in its first solicitation. As a result, in 2002, MTC significantly increased the funding available for this program. (See chapter 7 for more information.)

At the State level, a 'Jobs-Housing Balance Program' is also intended to spur housing construction by providing incentives to local agencies. The California Department of Housing and Community Development (HCD) started granting funds for this program in 2002. It also provides financial grants to local jurisdictions for allowing new multi-family housing units, affordable housing, and infill development. Jurisdictions in counties with the highest job growth rates in the state, such as the S.F. Bay Area,

[LXXXVI] Primarily, Federal Congestion Management Air Quality (CMAQ) and Surface Transportation (STP) funds.

Southern California, San Diego, and Sacramento, would receive the largest portions of funding.

Actions

- Determine the level of funding required for a State-level program modeled after MTC's Housing Incentive Program.
- Identify an ongoing source of funds for the program.
- Set up an administrative process to allocate the funds, or identify an existing process that could be used.

Strengths

- This program directly links transportation, land use, and local incentives for higher-density housing within TODs.
- It is modeled on successful local and regional programs

Issues

- Grants may not be sufficient incentive to encourage local governments to allow construction of higher-density housing near transit stations.
- These grants are one-time funding allocations, which would not cover annual costs of providing ongoing city services.
- Demand for a statewide funding program of this type could exceed available resources.

Policy Steering Committee's ratings regarding the implementation of this strategy:

How great a benefit or impact may result from this strategy?	**Medium to High**
What is the practical feasibility of implementing this strategy?	**Medium**
What is the timeframe for implementing this strategy?	**2-3 years**

STRATEGY 2B - Targeted 'tax-increment financing' for TOD

Adopt legislation to allow local jurisdictions and agencies to create special districts around major transit stations (outside established redevelopment areas) that have tax-increment financing powers to implement TOD.[LXXXVII]

Brief Description of Strategy
This strategy would provide significant local funding for TOD implementation by amending current State statutes or by creating a new statute to allow the creation of 'spot tax-increment districts' near existing or planned major transit stations. These districts would be located outside designated redevelopment areas. They would not have 'eminent domain' land acquisition authority.

Background
Redevelopment agencies have played important roles in the implementation of TOD in California, especially in downtowns and within inner city areas. Redevelopment agencies have provided significant financial support and also (in some areas) assembled property for TOD. However, many major bus, rail, and ferry transit stations are located outside the boundaries of designated redevelopment areas. Currently, tax-increment financing authority is only available within established redevelopment agency boundaries, which are allowed only in "blighted" areas.

Legislative change is needed to allow the formation of "TOD tax-increment financing districts" outside designated redevelopment areas. State statutes affecting the establishment of redevelopment districts limit their formation to so-called "blighted" areas - a condition that is not present at all major transit stations. This limits the ability to use tax-increment financing for development around many transit stops.

However, changing existing State redevelopment law is complex. The advisory committees to this study recommend that - before any specific legislative approach is drafted - a statewide task force representing involved stakeholders would be established to discuss related issues and develop recommendations regarding specific implementation details. The membership, timing, composition, and staffing of such a task force would need to be considered and provided.

As recommended, this strategy does not include a key power that redevelopment districts typically have: the power of eminent domain (which is the legal ability of a public agency to require a property owner to sell property at "fair market value" if it

[LXXXVII] Tax-increment financing allows local agencies to spend the amount of the difference between property taxes on land before and after it is redeveloped (when its value is much higher than before) within the redevelopment district. This 'tax-increment' is often a substantial amount of money.

is needed for a public purpose. However, the use of eminent domain by public agencies in the past has been a highly political and controversial issue.

Actions

Establish a task force to examine possible legislative approaches regarding tax-increment financing authority outside established redevelopment districts for TOD implementation. This task force would investigate the potential "pros" and "cons" of providing a variety of authorities to local TOD Special Districts, including:

1. Allowing tax-increment financing authority;
2. 'Splitting' the tax-increment funds that result from development (through increased property tax revenues) with local jurisdictions so they also will directly benefit from the program; and
3. Enabling land purchase by transit agencies for TOD purposes that do not currently have this authority (but not through the use of 'eminent domain' powers).

Strengths

- Would not require direct State agency involvement in funding specific projects.
- Builds on and augments the 1994 Transit Village Act.
- Provides significant new local resources needed for TOD implementation.
- Delays immediate action by suggesting the involvement of a task force.
- Includes stakeholders in the process.

Issues

- This strategy requires new legislation.
- It involves a cost to the State due to the reduction of local tax funding for schools.
- Tax-increment financing for TOD may decrease local funding for other types of local services, such as police and fire protection, etc.
- Allowing tax-increment financing outside established redevelopment agencies may have a negative impact on those agencies.
- Assurances should be given to local agencies that they would receive a portion of any additional taxes generated by the program.

Policy Steering Committee's ratings regarding the implementation of this strategy:

How great a benefit or impact may result from this strategy?	**Medium to High**
What is the practical feasibility of implementing this strategy?	**Medium**
What is the timeframe for implementing this strategy?	**2-3 years**

STRATEGY 2C - Financing for private sector development of TOD

Implement a State financing program to facilitate the private sector development of TOD, including:

a) a capitalized revolving loan fund to provide 'gap financing' for TOD implementation; and/or,

b) a loan guarantee or mortgage insurance fund to increase the ability of mixed-use projects to obtain private financing.

Brief Description of Strategy

The State would select among several options to provide financial assistance to encourage the broader implementation of transit-oriented development by the private sector. Such development would be consistent with the definition of TOD provided by this study, and be located no farther than one-quarter to one-third mile from a planned or existing major bus, rail, and/or ferry transit station. Funding would be focused on the implementation of TODs that would not otherwise be built due to lack of sufficient available funding.

Two types of State TOD financing options may include:

1. A TOD revolving loan fund targeted to fill financing gaps for TOD implementation. Principal and interest payments to the revolving loan fund would be used to recapitalize the fund so that additional loans could be provided.

2. A TOD loan guarantee and/or mortgage insurance fund to encourage the private-sector financing of TODs, in which the State would provide credit enhancements for qualified private loans to finance economically sound projects.

Background

One of the barriers to implementing TOD is the difficulty that developers often have in obtaining financing for mixed-use projects. One reason for this difficulty is that established lending guidelines tend to be oriented toward single-use, auto-oriented land uses. Lenders are often reluctant to issue loans for mixed-use, transit-oriented projects whose risk profiles are challenging to evaluate because of their innovative features or locations.

Depending on local conditions, some features of the design or location of TOD can increase development costs, as compared to conventional low-density, single-use projects. These include: typically complex and lengthy local government entitlement processes; the need to provide expensive structured parking; higher costs of land if located within an existing urban area; and infrastructure that can be more costly for developers to provide, especially within older central city locations.

Regardless of whether the economics of a particular project are a net "plus" or "minus", TOD is widely perceived as a riskier investment than conventional development patterns. Therefore, banks and developers often need a higher return on their investment for taking this risk. Public financial assistance of some sort is often necessary to finance TOD projects, particularly when they are among the first TODs to be built within a community or a station area that is otherwise dominated by conventional development.

1. A State loan guarantee program would encourage private financial institutions to provide money for TODs by 'securing' those investments and reducing lender risk. This would have the added advantage of increasing the number and amount of loans that can be made because State funds would be highly leveraged by private investment. A loan guarantee program would require setting aside sufficient State funding to enable private financial institutions to issue loans, and may require additional funding if demand for loans exceeds minimum reserve amounts.

2. Establishing a direct State TOD revolving loan fund would require an initial capitalization as well as subsequent additions of funds, at least until the stream of principal and interest repayment becomes sufficient to support ongoing lending activity. Funds could possibly be provided by a combination of sources, including State transportation funds and/or other State or local revenue sources as available, eligible, and appropriate.

Actions

Specifics of this strategy that require further consideration include:

- Identify sources of funding and initial funding level;
- Identify a State entity to establish and administer the loan and/or loan guarantee programs;
- Establish administrative guidelines and procedures for a revolving loan and/or loan guarantee program, including:
  - Total amount that may be loaned annually;
  - Types and locations of TOD that would qualify for the program.
  - Equity contribution and minimum qualification requirements for borrowers;
  - Interest rate levels; and
  - Repayment terms, conditions, and requirements.

Strengths

- This strategy would directly target a major barrier to TOD implementation by providing State funds to finance the private sector development of TOD;
- Repayments to a revolving loan program would enable additional leveraging of new projects (as compared to grant programs);
- Establishing a loan guarantee program would allow even greater leveraging of available funds;
- A loan guarantee program could reduce administrative costs and risk, since actual loans would be made by private financial institutions.

Issues

- The number of jurisdictions with adopted TOD plans and ordinances may limit the range of funding eligibility;
- This program requires State funding, establishing an administrative process within State government, and on-going management of the program;
- State staff with experience making complex loans or loan guarantees would need to be identified and made available to manage the program.
- It may not be possible to use State transportation funds for a loan guarantee program without the enactment of enabling legislation.
- It may not be possible for the State to provide funding directly to private entities without the adoption of enabling legislation. Alternatively, State funds could be provided to local jurisdictions for distribution to private entities.

Policy Steering Committee's ratings regarding the implementation of this strategy:

How great a benefit or impact may result from this strategy?	**Medium to High**
What is the practical feasibility of implementing this strategy?	**Medium**
What is the timeframe for implementing this strategy?	**2-3 years**

STRATEGY 2D - State transportation funds for TOD

Allow greater flexibility in the use of State transportation funds to implement TOD.

Brief Description of Strategy
Several of the strategies recommended in this report require additional funding, and State transportation programs could be a potentially significant funding source for TOD implementation. This strategy proposes to increase the availability and use of State transportation funds to support the planning and implementation of TOD, consistent with eligibility.

Currently, it is difficult or impossible to use certain State transportation funding programs for TOD due to existing State law. In this strategy, the State would identify transportation funds that can potentially be used for TOD, and make them available for implementation. Changes to State law may also be needed to expand the ability to use State funds. In addition, the State would provide technical assistance to regional and local agencies regarding use of applicable funding programs.

Background
At the Federal level, there are now several types of Federal transportation funds that can be used for TOD and transit 'joint development' projects (several are summarized in Chapter 7). However, most of these require State and/or local matching funds, and currently it is not possible or very difficult to use many types of State transportation funds for TOD and/or transit joint development projects.

To help overcome obstacles to using State transportation funds for TOD, it would be useful to establish a State policy clarifying that TOD qualifies as a 'transportation purpose' to enable TOD implementation projects to receive eligible transportation funds, as has been done in several other states.

Two major ways to increase funding for TOD are:
1) Utilize existing discretionary authorities to fund more TOD through the use of existing transportation funding sources;
2) Create new sources of funding for TOD implementation.

Brief history:
The 1994 California 'Transit Villages Development Act' provides that: "A city or county establishing a district and preparing a plan pursuant to this article shall be eligible for available transportation funding."[211] However, this legislation did not make any specific transportation funding available for TOD implementation.

In 1997, the Federal Transit Administration (FTA) published a policy stating that transit 'joint development projects'[LXXXVIII] are considered 'mass transportation projects' which are eligible for funding under FTA capital programs, as long as they generate a payment or revenue stream for transit use and are located within 1,500 feet of a transit station.[212] This policy also states that: "FTA encourages transit systems to undertake joint development projects at and around transit stations, bus terminals, intermodal facilities and other transit properties."

Overview of Transportation Funding:
Increasing the amount and type of transportation funding for TOD planning and implementation requires identifying funds that are appropriate for TOD, and also providing qualifying matching funds. These considerations are reviewed below.

There are many types of transportation funding sources, each with specific limitations regarding the types of projects they can be used to implement. State and Federal eligibility requirements for transportation funds are quite complex.[LXXXIX] In some instances, projects that will help to implement TOD are eligible, but most are not.

Increasing the amount and type of transportation funding for TOD planning and implementation requires identifying funds that are appropriate for TOD, and also providing qualifying matching funds. Some of the main parameters that affect the ability to fund TOD using California transportation funds include:

- Similar to several other states, California has a constitutional limitation on the use of the State excise gas tax revenues, or the 'gas tax'. Article XIX of the State constitution limits use of gas tax revenues in the State Highway Account (SHA) to "…State highways, local roads, and fixed guideway facilities." [XC]

[LXXXVIII] According to FTA, 'transit joint development projects' are those that: "include a transit element; enhance urban economic development or incorporate private investment, such as office, commercial or residential uses; enhance the effectiveness of a mass transit project and the non-transit element is physically or functionally related to the mass transit project; or it creates new or enhanced coordination between public transit and other forms of transportation, or it includes non-vehicular capital improvements that result in increased transit usage in corridors supporting fixed guideway systems."

[LXXXIX] For a more complete discussion of transportation finance in California see *California Travels: Financing Our Transportation*, Legislative Analyst's Office, May 2000 http://www.lao.ca.gov/051100_cal_travels/051100_cal_travels_intro.html

[XC] The California State Constitution (Article XIX) restricts the use of state gasoline excise tax revenues for certain purposes. These funds may only be used to plan, construct, maintain, and operate public streets and highways; and to plan, construct, and maintain mass transit tracks and related fixed facilities (such as stations). The gasoline tax revenues *cannot* be used to operate or maintain mass transit systems or to purchase or maintain rolling stock (trains, buses, or ferries). http://www.lao.ca.gov/051100_cal_travels/051100_cal_travels_finance.html

- Governor Davis' 'Transportation Congestion Relief Program of 2000' (TCRP) provides significant additional new funds for transportation through 2007-2008. Some of the funding for the TCRP is provided by State sales tax on the sale of gasoline (as opposed to 'gas tax' revenue), and therefore is not subject to the limitations of Article XIX of California's Constitution. About 60 percent of the TCRP funds are allocated to specific transit projects, including several parking structures for TODs near major transit stations.
- The passage of Proposition 42 in March 2002, added a new State Constitutional provision (Article XIX B) that directs the use of all sales tax on gasoline towards transportation starting in 2008-2009. Under Article XIX B, 20 percent of the sales tax on gasoline will go towards public transportation, and could potentially be used for TOD implementation.
- It is currently possible to use State Public Transportation Account (PTA) funds for certain types of TOD implementation activities, such as planning and parking structures, if they are consistent with State law.[XCI] Other activities, such as providing grants to local governments for TOD implementation, may also be eligible for PTA funds.

Use of State Transportation Improvement Program Funds:
The State of California allocates transportation funds in several ways, including through the 'State Transportation Improvement Program' (STIP). The STIP is funded through a number of Federal and State revenue sources, and is implemented through a variety of programs. In some regions of California, STIP funds have been used to build several parking structures at existing and proposed transit-oriented developments, primarily through regional transportation planning (RTP) processes. Building parking structures with transportation funds is very useful, since the high cost of providing structured parking is one of the major obstacles identified in this study to TOD implementation.

Criteria regarding use of STIP funds include:

- Under current law, 75 percent of STIP funds are designated for the Regional Transportation Improvement Program (RTIP) for local and regional programs. The remaining 25 percent of STIP funds are allocated to the State for use in the Interregional Transportation Improvement Program (ITIP).[XCII] Because the largest portion of STIP funding goes to regional agencies, the greatest

[XCI] The use of PTA funds is not as limited as 'gas tax' revenues. According to state statute: PTA funds "shall be available, when appropriated by the Legislature, only for transportation planning and mass transportation purposes, as specified by the Legislature." - Public Utilities Code section 99310.5, subdivision (b). One-half of the PTA fund is allocated directly to local agencies and transit operators; the other half goes to the state and is used to fund intercity passenger rail, certain bus services, transit capital improvement projects, planning activities, research and training, and other transit-related activities.

[XCII] Chapter 622, Statutes of 1997 (SB 45, Kopp) created the current structure for decision-making and distributing STIP funds.

opportunities for using transportation funds for TOD through the STIP may be at the regional level. (Projects may also be jointly funded by the ITIP and the RTIP, and may also involve other funding sources.)

- Section 11 of the California Transportation Commission's STIP Guidelines (July 19, 2000) sets forth the broad standard that: "the Commission supports implementation and application for transportation management systems improvements to address highway congestion and to manage transportation systems…" As previously stated, TOD creates direct benefits in these areas, so its implementation would be consistent with this guideline.
- Section 19 of the STIP Guidelines establishes performance criteria for RTIPs, and some of the goals can be achieved in part by implementing transit-supportive development. These include changes in: vehicle and system operating costs; access to jobs, markets and commerce; the frequency and reliability of rail/transit service; and vehicle air pollution emissions.

Federal funding for TOD:
The Federal government had designated certain types of TOD infrastructure and planning activities eligible for the use of several Federal transportation funds, including: Transportation Enhancement (TE), Congestion Management/ Air Quality (CMAQ), and Surface Transportation Program (STP) funds. However, using these funds typically requires at least 20 percent project 'matching' funds from State or local sources, which can sometimes be difficult to provide.

In California, 100 percent of the CMAQ and STP funds are allocated directly to the regions. And, 75 percent of the State's available Transportation Enhancement allocation goes directly to regions for distribution. Currently, sixteen counties in California are implementing an optional local sales tax for transportation purposes, which is one potential source of matching funds for TOD. State sales tax revenues on gasoline (such as through Proposition 42) may also be a potential source of match funding.

Actions

- Establish a State policy clarifying that, due to its transportation benefits, transit-oriented development qualifies as a 'transportation purpose'. This is an important step to allow the use of various types of State transportation funding for TOD implementation.
- Consistent with funding eligibility, increase the use of existing transportation funding for TOD in State and regional Transportation Improvement Plans and Programs (RTIPs and STIP), and other State transportation programs.
- Provide information to local jurisdictions and transit agencies on how to obtain and use transportation funds to implement TOD.
- Track other innovative funding mechanisms that could be used to create new funding for TOD.

Strengths

- Providing transportation funding to implement TOD makes sense because of the increase in the efficiency and effectiveness of the State's multi-billion dollar investment in bus and rail services and facilities.
- Some Federal funds and certain State and local funds may already be legally eligible for TOD implementation.
- Providing additional State transportation funds for TOD allows the State to 'lead by example' by increasing funding commitments to TOD, and to provide required "match" for available Federal funds.
- The greatest opportunities for using transportation funds for TOD implementation may be at the regional level, since 75 percent of Transportation Enhancements and STIP funds are allocated to California's regions, as well as 100 percent of Federal CMAQ and STP funds.
- Many areas have adopted special local transportation sales taxes that could be used to provide required matching funds.

Issues

- If Federal funds are used to implement TOD, National Environment Protection Act (NEPA) analyses must often be conducted in addition to CEQA assessments. Also, Federal prevailing wage rates must be paid on construction, and other requirements also apply which can delay implementation and increase costs.
- Shifting transportation funds to TOD could reduce the amount of money available for other transit projects.

Policy Steering Committee's ratings regarding the implementation of this strategy:

How great a benefit or impact may result from this strategy?	**Medium to High**
What is the practical feasibility of implementing this strategy?	**Medium**
What is the timeframe for implementing this strategy?	**2-3 years**

STRATEGY 2E - Expand 'Location Efficient Mortgage' Program

Consider assisting the expansion of an existing private-sector 'Location Efficient Mortgage Program' outside Southern California and the S.F. Bay Area.

Brief Description of Strategy

This strategy involves expanding an existing 'Location Efficient Mortgage Program' program that several private banks are currently operating in the Los Angeles and San Francisco metropolitan areas (the only two areas where it is currently available in California) to other locations. In order to expand this program, it would be necessary to enlarge a database containing extensive land use, transportation, and demographic data for the additional areas in which the program would operate.

State involvement in this strategy, if implemented, would be intended to:

- Promote homeownership at locations that are accessible to bus or rail transit facilities;
- Increase housing opportunities and choices by qualifying a broader range of homebuyers for housing located near transit;
- Increase confidence in TOD investment by providing an attractive mortgage product available only in transit-supportive communities.

Background

The Location Efficient Mortgage (LEM) is an innovative private sector mortgage product recently developed by 'Fannie Mae' (a national secondary mortgage program) and the Natural Resources Defense Fund (NRDC, a national environmental organization). This program provides extra home purchasing power in areas located near high-quality transit. It is intended to enhance the ability of prospective homebuyers to purchase a home within a TOD or urban infill area.

In California, Countrywide Homeloan Co. is currently implementing the program in 14 counties within the metropolitan Los Angeles and San Francisco areas as part of a market test. In addition, the program is also being provided in Chicago, Illinois, and Seattle, Washington. However, so far, fewer than 100 LEMs have been underwritten nationwide, and the majority of these loans have been in Chicago. To date, very few LEMs in California have been underwritten.

Challenges with expanding the LEM program in California include:

- The maximum loan amount on a LEM is $275,000, which is not enough money in many regions of the State where the median price of homes is much higher than that;

- There have been no strong or coordinated efforts to market the LEM program to consumers. (Banks typically provide 70+ mortgage instruments and rarely market a single instrument like the LEM); and
- Because there are so few LEMs, there is no 'track record' to indicate whether consumers who use LEMs have a higher risk of defaulting on their mortgages. The lack of a track record may limit the interests of other banks that could offer LEMs[213].

Actions

State involvement in this strategy, if implemented, would be directed at expanding the pilot program outside the Los Angeles and San Francisco areas.

It could include the following activities:

1. Sponsor expanded data collection efforts (such as the detailed land use and transportation database that was compiled by the NRDC for the existing program) to enable more areas of California to participate in LEM programs;
2. Undertake a statewide marketing program regarding LEMs; and,
3. Create a State "LEM loan guarantee program" in which the State could guarantee a portion of a qualified loan over $275,000.

Strengths

- The program currently operates in the free market financial arena, rather than as a State-subsidized mortgage program.
- Options 1 and 2 (above) would not require a substantial State financial investment. State funding would be limited to program marketing and development of an expanded LEM database.

Issues

- Fundamentals of the LEM program have not yet been broadly tested.
- The risks of a LEM loan guarantee program are unclear.
- To date, this program has not proven to be particularly popular in California.
- The benefits of implementing a LEM program may not justify its costs.

Policy Steering Committee's ratings regarding the implementation of this strategy:

How great a benefit or impact may result from this strategy?	**Low to Medium**
What is the practical feasibility of implementing this strategy?	**Low to Medium**
What is the timeframe for implementing this strategy?	**2-3 years**

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