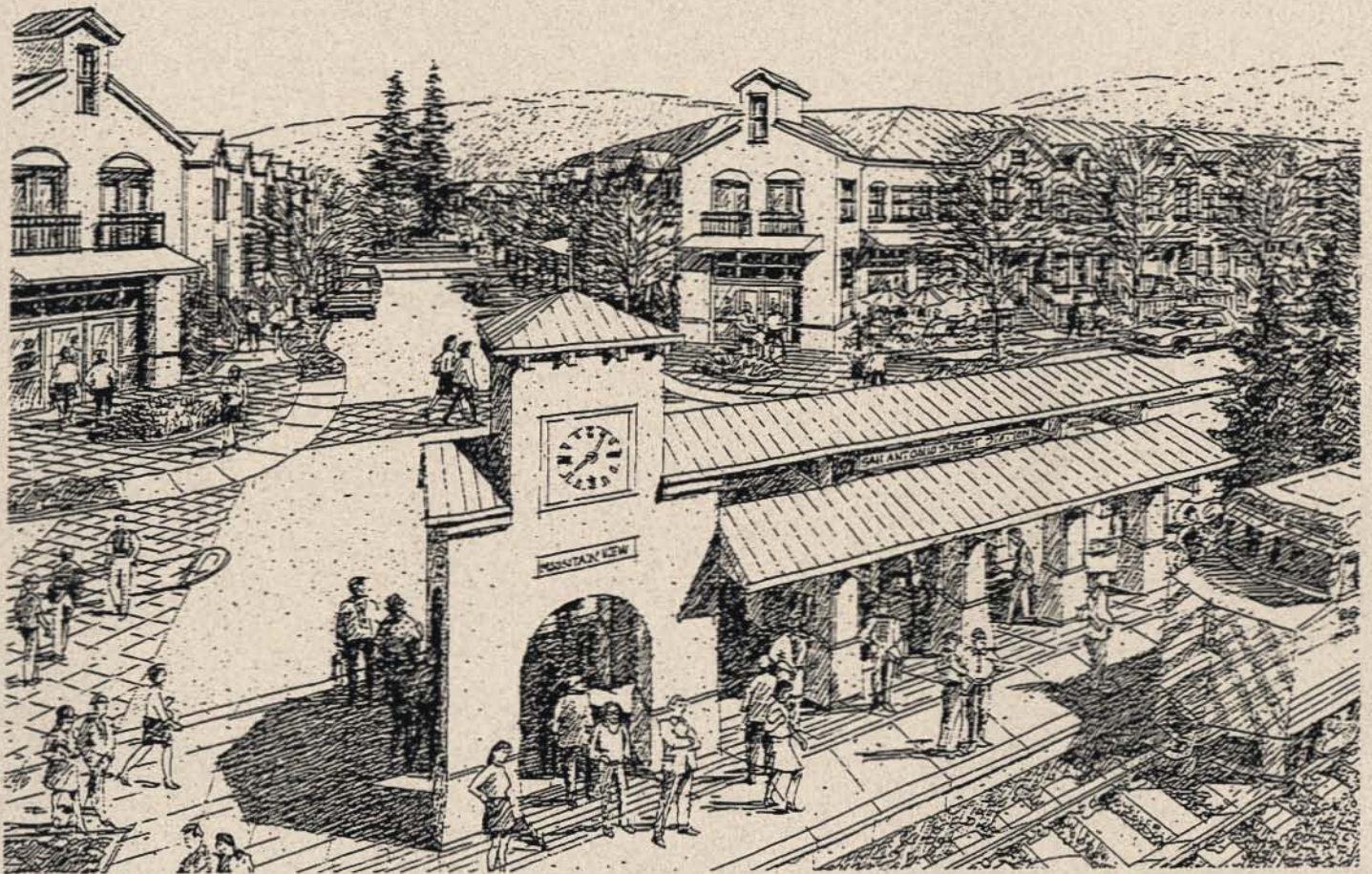


# Tools for Reducing Vehicle Trips Through Land Use Design



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**Increasing Bicycling, Walking, and Transit Use  
in the San Diego Region**



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**San Diego Air Pollution Control District**





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# Tools for Reducing Vehicle Trips through Land Use Design

Prepared by

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## CHAPTER 1 Introduction

### I. Introduction and Purpose

Environmental quality in San Diego County stands at a crossroads. San Diego's unique geography - hemmed in by an international border to the south, the Pacific Ocean to the west, Camp Pendleton Marine Base to the north, and mountains to the east - limits future expansion. Quite literally, San Diego is running out of land on which to build. The San Diego Association of Governments (SANDAG) estimates that no urban residential land will remain available - at currently planned densities - after 2010. There is little doubt development patterns in the region will change. However, the *way* they change will greatly influence environmental quality, including air quality, for all future inhabitants.

*Tools for Reducing Vehicle Trips Through Land Use Design (Tools)* is a guidance document and resource for municipalities, citizen groups, and planning practitioners to use in reducing vehicle trips - and preserve other scarce resources - through the land use planning process. The Tools include strategies, examples, and resources to make land uses more accessible to walking, bicycling and transit. In the process, land, energy, building materials, public resources, and natural habitats can also be conserved. *Use of this document is voluntary and the degree to which municipalities employ any of the strategies discussed is discretionary.*

### The Land Use - Transportation - Air Quality Link

During the last 50 years, new land uses have been arranged in a low-density pattern, fostering almost complete dependence on automobiles for transportation. This pattern has afforded many personal benefits: quieter residential neighborhoods with greater space, privacy and security. Unfortunately, these benefits have come at great cost including the erosion of the benefits themselves:

- High infrastructure investments required to serve thinly settled areas inefficiently consume personal and public resources and raise home prices.
- Land, energy and personal time spent behind the wheel of a car are consumed in unprecedented quantities.



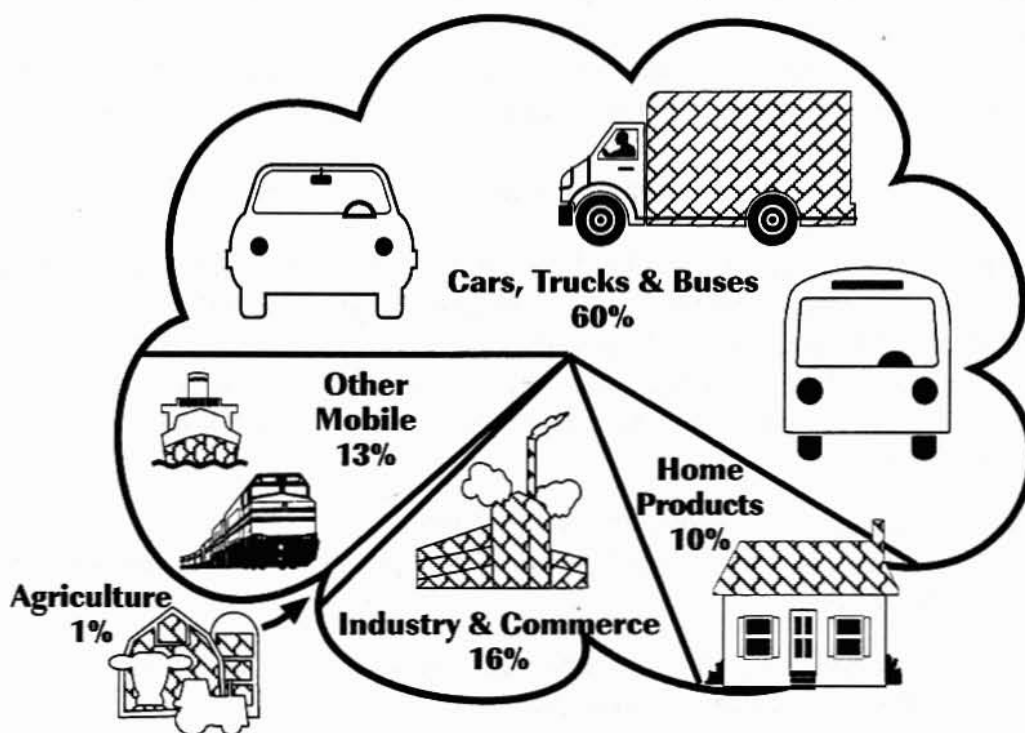
- Those unable to drive or to afford a car including seniors, children, low-income groups, and the disabled have lost considerable mobility.
- Traffic congestion remains a problem throughout much of the county.

Most important to this discussion, air quality problems remain despite advances in air pollution control technology. Indeed, *unless radically different, low-polluting automobile technologies come into common use, ever-increasing automobile travel is expected to reverse decades of progress in improving air quality.* How this will eventually affect San Diego's compliance with federal air quality standards isn't known, but it doesn't bode well.

### Emissions from Motor Vehicles

Currently, air quality in San Diego County does not meet state and federal health standards for ozone (smog) nor the state standard for particulate matter. On-road motor vehicles (cars, trucks, and busses) are responsible for 60 percent of regional smog-forming emissions (Figure 1-1).<sup>1</sup>

**FIGURE 1-1**  
Emission Sources in San Diego County



<sup>1</sup>Air Pollution Control District 1995 Annual Report



Since 1976, vehicle travel within the county has grown faster than the rate of population growth.<sup>2</sup> This phenomenon is observed nationally and is attributed to several factors including population demographics, more women in the workforce, travel preferences, tax policies, land markets, and other forces. The outcome of these forces is the prevailing low-density development pattern and strict separation of land uses seen in most modern U.S. suburbs, which result in more vehicle trips and longer trip distances.<sup>3</sup> *Because motor vehicles are the predominant source of air pollutants, measures to reduce the number of vehicle trips constitute one of the few remaining opportunities for large emission reductions.*

The state and federal governments have recognized these problems and have placed stronger emphasis on programs to change travel behavior. For example, since 1991, more state and federal funding has been designated for pedestrian and bicycle facilities. States have been given discretion to use certain federal highway funds for pedestrian, bicycle, and transit facilities. The 1990 Federal Clean Air Act Amendments required employer-based ridesharing, though these were later repealed as cost-ineffective. At the local level, municipal governments, acting through the San Diego Association of Governments (SANDAG), have created a regional system to address eroding “quality of life factors” including air quality and traffic congestion.

### Coordination With Other Regional Initiatives

Land use and transportation strategies suggested in the next chapter are consistent with or build on initiatives pursued jointly by the region’s 19 jurisdictions through the San Diego Association of Governments (SANDAG):

- **Land Use Distribution Element**  
A 1988 ballot initiative called for development of a Regional Growth Management Strategy (RGMS) to reduce the impacts of growth. The Land Use Distribution Element of the RGMS, adopted in 1995, addresses the SANDAG finding that population growth by 2010 cannot be accommodated under current zoning and infrastructure plans. As discussed further below, the Element recommends 11 policies encouraging compact growth around transit stops, transportation facilities accommodating bicycle and pedestrian travel, and better access to transit.
- **Congestion Management Plan and Congestion Management System**  
Responding to state and federal law, respectively, these two programs seek to slow the growth of traffic congestion in the region.

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<sup>2</sup>San Diego Association of Governments 1996

<sup>3</sup>Kenworthy and Newman 1993



The 1996 Congestion Management Plan relies primarily on local adoption of the Land Use Distribution Element policies to shift projected future vehicle trips to transit, bicycle, and pedestrian trips.

- **Regional Energy Plan**

As part of the RGMS, the Energy Plan seeks to reduce dependence on outside energy sources, which supply 99 percent of the region's energy needs, and increase operating efficiency for all energy users. The plan calls for more efficient land use and transportation practices including implementation of the Land Use Distribution Element.

## II. Why Vehicle Trips?

Measures which aim merely to reduce the number of miles driven but don't reduce actual vehicle *trips* have little effect on air quality. Examining the different sources of vehicle emissions shows why. These sources include:

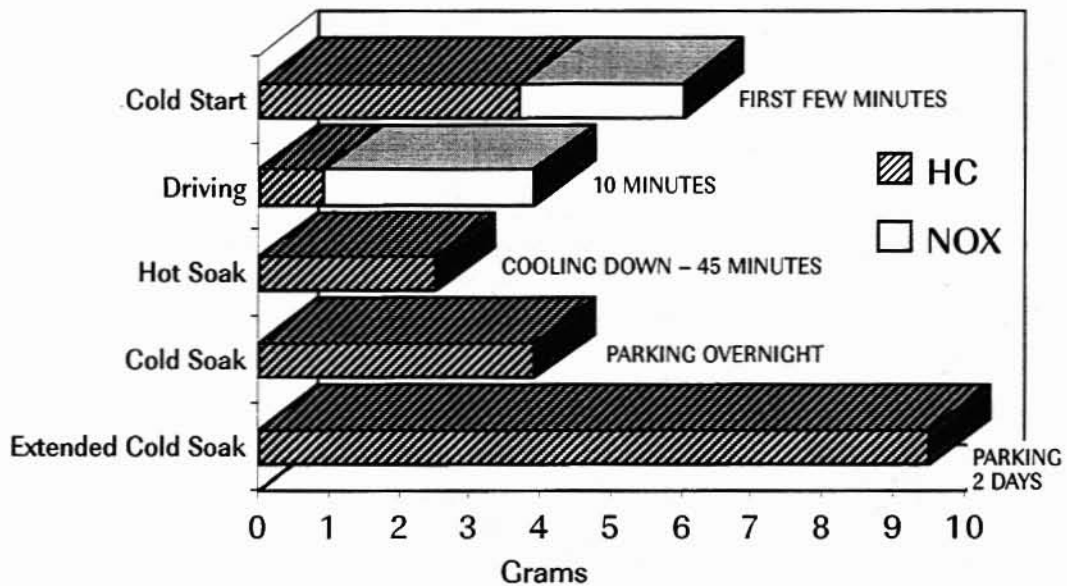
- **Cold Start Emissions** - Tailpipe emissions which occur during the first few minutes of driving while the vehicle's pollution control equipment reaches its required operating temperature; substantial for most vehicles.
- **Driving Emissions** - Tailpipe emissions occurring once the vehicle reaches optimum temperature; generally small for newer vehicles.
- **Hot Soak Emissions** - Evaporative emissions from various parts of the engine which occur once a vehicle is turned off but before it has cooled to ambient temperature; generally large for most vehicles.
- **Cold Soak Emissions** - Evaporative emissions from the engine as a vehicle sits turned off; increases with ambient temperature.

As Figure 1-2 shows, cold start plus hot soak emissions constitute most of the emissions from a typical vehicle trip. For this reason, measures such as designating bicycle routes, encouraging telecommuting, or building new transit lines can have widely different effects on vehicle emissions, depending on how they are implemented. For example, accessing transit by driving to a nearby parking lot or driving to a carpool pick-up point would reduce driving emissions but not cold start, hot soak, or cold soak emissions.

Because vehicles pollute significantly even while parked, *the most effective way to reduce vehicle emissions is to provide land use and transportation arrangements that reduce the need for vehicle ownership.* For example, a two-worker household might only need one car if one or both workers can commute by walking to transit and conduct mid-day errands on foot. This would save the household around \$4000 per year on average, minus transit and/or taxi fares.



**FIGURE 1-2**  
**Vehicle Emissions for a 5-Mile Trip**  
 (1992 vehicle meeting 49-state emission standards)



Source: Federal Highway Administration 1996

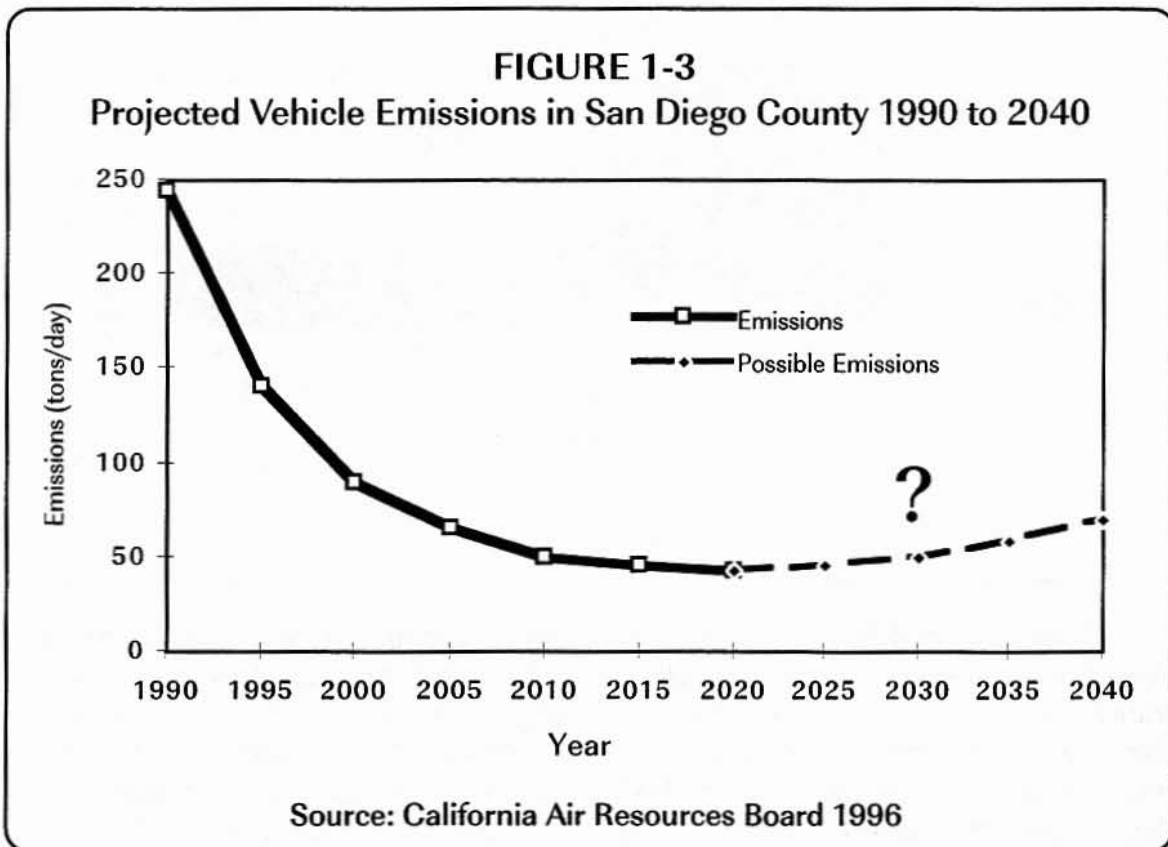
Many households in older neighborhoods enjoying frequent transit service already exhibit lower rates of vehicle ownership. Residents in these areas use transit, walk, or bicycle to reach work, shopping, and entertainment. Occasionally, they may take a taxi or rent a car, as the need arises. Perhaps this lifestyle is not one that most San Diegans would choose. However, current land use practices deny this lifestyle choice to virtually all inhabitants of new development. Homebuyers looking for a new house in a mixed-use neighborhood with good transit access find few offerings. Day by day, in the unnoticed ebb and flow of real estate transactions, opportunities to reduce future vehicle trips are being missed.

### Reason for Addressing Vehicle Trips Locally

Many measures to reduce motor vehicle use are best implemented locally under the jurisdiction of cities and counties. This is because municipal governments control factors critical in transportation mode choice such as the land use pattern, site design, and transportation infrastructure.



During the past 20 years, air quality has improved despite growth in vehicle travel, because vehicle emission rates have been greatly reduced. That is, new vehicles are much cleaner; high-polluting older vehicles are being replaced. However, when most of the older vehicles are gone, we will reach a point where the increasing number of new vehicles will cause emissions to rise again. Projections by the California Air Resources Board show this will occur some time early in the next century (Figure 1-3). Controlling that increase to prevent new violations of air quality standards will require reducing the rate of growth in vehicle trips.



The region is expected to meet the federal one-hour ozone standard by 1999.<sup>4</sup> However, the federal Environmental Protection Agency (EPA) recently adopted more stringent standards for both ozone and particulate matter. Of greatest importance to San Diego is the new ozone standard, which will take effect following attainment of the current standard in 1999. California has even more restrictive standards for both ozone and particulate matter. No schedules for meeting the state standards have been set, but the District is required to implement "all feasible measures" until the state ozone standard is attained.<sup>5</sup>

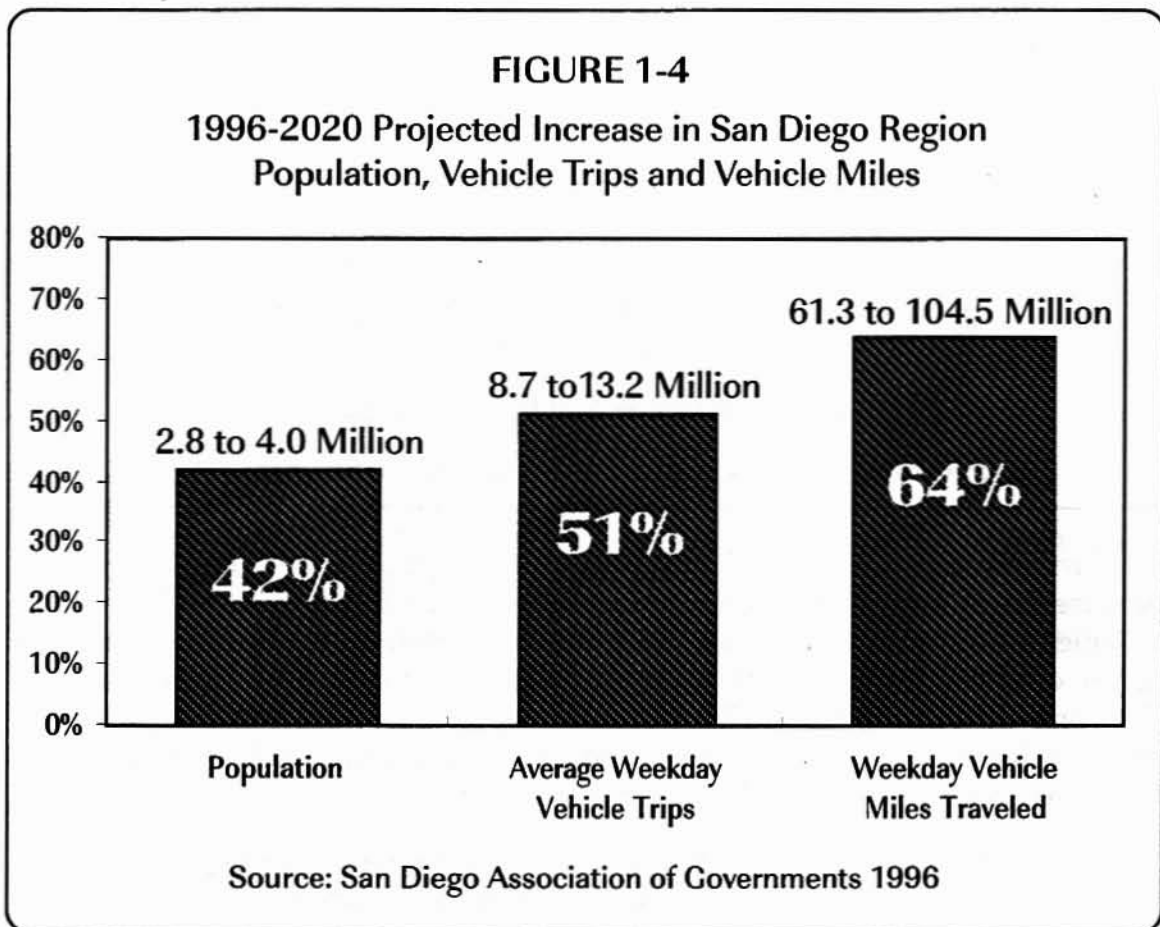
<sup>4</sup>San Diego Air Pollution Control District 1994

<sup>5</sup>California Health and Safety Code §40914



### Freeway Congestion: Prepare to Stop

Nationally, traffic congestion is responsible for 4 percent of gasoline consumption, resulting in higher emissions. A study examining 1993 data placed San Diego among the top ten regions in severity of congestion.<sup>6</sup> Although more freeway lane-miles have been built, congestion continues to worsen, especially during commuting hours. Given the high growth rate of vehicle travel (Figure 1-4), and the high cost of road construction, the situation threatens to get much worse.



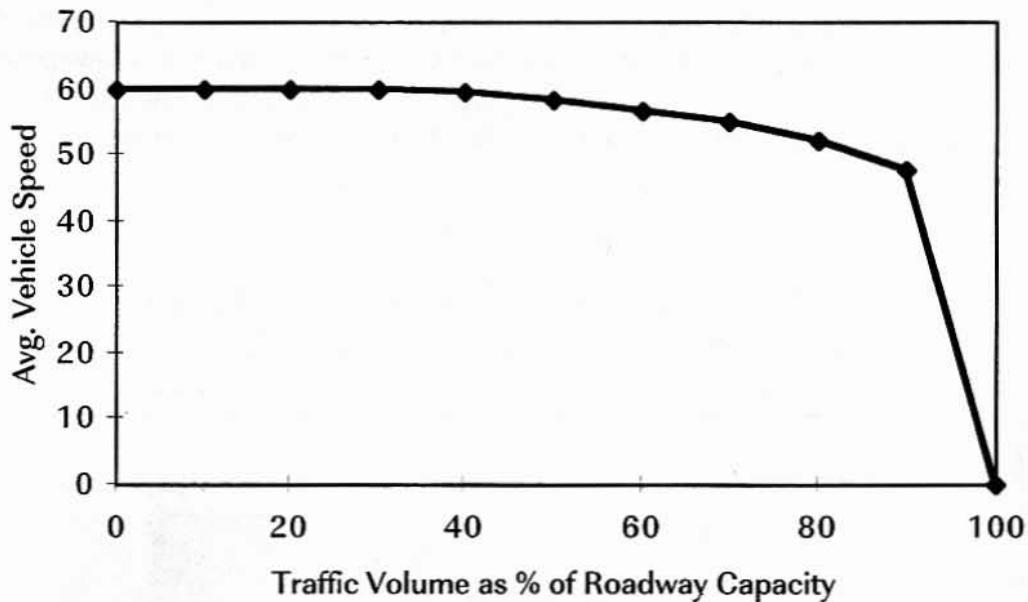
Freeway congestion is, of course, related to traffic volume, but in a way that makes congestion seem to appear almost overnight. Figure 1-5 shows that as the volume of vehicles approaches a freeway segment's capacity, average vehicle speed remains fairly high until about 90 percent of capacity is reached. Adding a few additional vehicles to the roadway then causes average speed to plummet, and severe congestion sets in, usually permanently. This phenomenon allows congestion to "sneak up" on transportation planners and the public.

<sup>6</sup>Texas Transportation Institute 1996



FIGURE 1-5

Vehicle Speed Vs. Traffic Volume on a Freeway Segment



Source: Modified from Institute of Transportation Engineers 1985

Freeway widening may alleviate the problem but only temporarily. This is because the pattern of auto-dependent development which feeds ever higher volumes onto the freeway system is allowed to continue. One cause of this is the nature of environmental impact assessments, required under the California Environmental Quality Act (CEQA). Under the law, transportation impacts of new development must be examined and mitigated, if found to be serious. However, this does not include impacts on freeways.

To avoid congestion on local streets, new developments are kept low density, and land uses are spread apart. *By design*, this increases the number of cars on regional arterials and freeways. Congestion management measures, also required by state law, have, at best, postponed the inevitable gridlock, and, at worst, have exacerbated the problem by further spreading developments apart.

Some California municipalities have addressed these problems by passing anti-growth or slow growth ordinances, limiting the building rate or total number of housing units. The effects are predictable — growth limited by one area appears in another area, farther away. Freeways joining these areas then become even more congested. *The Tools strategies offer a very different approach — accepting that growth will occur, and building in a way that current and future residents can make some of their trips by means other than automobile.*

### III. Origin and Content of the Tools

The 1988 California Clean Air Act requires Air Pollution Control Districts with serious, severe, or moderate air pollution levels to include in their regional attainment plans provisions to develop indirect source controls.<sup>7</sup> (Indirect sources are land uses which attract vehicle trips.) In response, the San Diego Air Pollution Control Board's 1991 Regional Air Quality Strategy and 1995 Strategy Update commit to encouraging cities and the County to adopt General Plan policies and strategies to reduce vehicle emissions. The Tools, in conjunction with a technical assistance program to aid their implementation, are designed to help fulfill that commitment.

#### The Technical Assistance Program

In addition to the Tools, the San Diego Air Pollution Control District offers free technical assistance in the following areas, as staffing allows:

- Determining the most effective ways to implement strategies contained in this document;
- Assisting municipalities wishing to revise planning documents, such as the Zoning Ordinance (see Chapter 3), to implement selected strategies;
- Reviewing local plans, policies, and ordinances for future impacts on pedestrian, bicycle, and transit access;
- Informally reviewing development or transportation projects to offer design suggestions for increasing access by pedestrians, bicycles, and transit; and
- Locating appropriate examples or case studies of design guidelines, zoning ordinances, pedestrian-oriented development, etc.

#### Objective of the Tools

The Tools were designed as a resource for public officials, community planning groups, developers, lenders, industry, businesses and the public. Strategies suggested in this document can benefit everyone. The public will benefit from a more pedestrian-oriented, mixed-use community, reduced traffic congestion, and better air quality. Developers, businesses and municipalities will realize efficiencies through reduced infrastructure costs. These benefits are discussed more fully in Chapter 2.

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<sup>7</sup>California Health and Safety Code §40918(d)





This document was adapted from the 1994 *Air Quality Guidelines for General Plans* by the San Joaquin Valley Unified Air Pollution Control District, which received an award from the California Chapter of the American Planning Association for their efforts. The background, strategies and examples contained in the San Joaquin Guidelines have been updated for use by municipalities and community planning groups in the San Diego region.

## Document Contents

The remainder of Chapter 1 discusses the urgency of modifying land use and transportation planning in San Diego County, and the personal and public benefits of doing so. Health effects of major air pollutants are also described. Chapter 2 presents the recommended strategies and possible implementation options. It also contains examples of where each strategy has been implemented, and additional resources and contacts for obtaining more information. Chapter 3 discusses the tools and resources necessary to implement the strategies in Chapter 2. It also describes how to overcome barriers to implementation and provides background information on the financing and fiscal review process for development projects. Chapter 4 contains an analysis of current General Plans in the region.

### **IV. Air Pollutants, Health Effects, and New Federal Standards**

Of the six air pollutants regulated by the federal Environmental Protection Agency and eight regulated by the California Air Resources Board, only ozone (smog) and particulate matter occur in concentrations sufficient to violate either federal or state standards in San Diego County.

#### Ozone

Because the associated standards are not yet attained, the pollutant receiving the most attention in San Diego County is ground-level ozone. Known to most people as smog, ozone results from a complex chemical reaction involving reactive organic gases (ROG) and nitrogen oxides (NO<sub>x</sub>). These chemicals are emitted from such sources as motor vehicles, commercial operations, and consumer products such as paint and cleaning solvents. In 1996, ozone concentrations in San Diego exceeded federal standards on two days, compared with 12 days in 1995.<sup>8</sup> The stricter state standard was exceeded on 51 days, a decrease from 96 days in 1995. No health advisories, which warn sensitive members of the population to avoid outdoor activity, were issued in 1996, compared with three days in 1995.

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<sup>8</sup>San Diego Air Pollution Control District 1997

Unhealthful levels of smog can cause coughing, stinging eyes and discomfort when taking a deep breath. Studies have identified a link between smog and increased risk of lung cancer. Hospitals and physicians also report significant increases in asthma attacks on days with high levels of smog.

Everyone faces some health risk from smog, but more than 1 million residents – about half of the total population of the county – are more vulnerable to its effects according to the American Lung Association.<sup>9</sup> They include 495,000 pre-teenagers whose lungs are still developing, 273,000 senior citizens whose immune systems are weakening, and 247,000 people with asthma and chronic lung disease.

### The New Ozone Standard

The ozone standard was revised by EPA in 1997. Ozone nonattainment areas, like San Diego, will now be subject to a tighter standard once the previous standard has been met. The previous standard of 12 parts per million (ppm) measured during a one-hour period, is expected to be met by 1999. Once this occurs, the District will be subject to a standard of 8 ppm measured over eight hours. The tighter standard reflects research suggesting significant health effects from longer exposure to lower ozone concentrations.

### Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas formed when fuels are burned. It robs the body of oxygen carrying capacity and is deadly at high concentrations. Primarily from motor vehicle exhaust, the highest concentrations are found in areas with congested or high volumes of traffic and during the winter months. Since 1990, San Diego has not violated the federal or state CO standards.

### Particulate Matter

Invisible, microscopic particles can cause serious health effects. In a 7-year national study, researchers from Brigham Young University and Harvard University reported a 17 percent increase in deaths from respiratory and heart disease in polluted cities compared to clean-air cities.<sup>10</sup> Each year, an estimated 60,000 U.S. residents die prematurely from exposure to particulate air pollution.

Depending on their size, these particles affect different parts of the respiratory tract. Particles 2.5 to 10 microns tend to collect in the upper portion of the respiratory system whereas those 2.5 microns and smaller can penetrate deeper into the lungs and damage lung tissue. San Diego's air quality currently meets the federal standard for particulate matter but exceeds the stricter state standard.

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<sup>9</sup>American Lung Association 1994

<sup>10</sup>Dockery et. al. 1993



Particulate matter is formed in two ways: from direct emissions, such as road dust, construction, wood smoke, vehicle exhaust, and other combustion processes, and from the condensation and chemical reaction of sulfur dioxide (SO<sub>x</sub>), nitrogen dioxide (NO<sub>x</sub>), and hydrocarbons in the atmosphere. As with other pollutants, particulate pollution has been reduced significantly by new technologies.

### The New PM Standard

The 1997 revisions to the federal standards for particulate matter maintain the 10 micron standards and add new standards addressing the 2.5 micron fraction (PM<sub>2.5</sub>). Since PM<sub>2.5</sub> monitors will not be available until 1998 at the earliest, the extent of controls needed to address the PM<sub>2.5</sub> standards in San Diego County is unknown. However, based on current low PM<sub>10</sub> concentrations, chances are good we will meet the PM<sub>2.5</sub> standards without additional controls or with minimal new controls. This won't be known for several years.

## V. Managing Growth

Year after year, San Diego remains a high growth region. Cities throughout the county struggle with the impacts of growth, including air pollution. At the regional level, SANDAG is responsible for coordinating transportation planning and addressing growth management issues. In accordance with federal law, SANDAG produces regular long-range forecasts of growth in population, housing, employment, transportation, and other indicators.

### Regional Growth Forecast: Running Out of Room

In May 1995, SANDAG approved the most recent regional growth forecast, known as Series 8. The Series 8 forecast projects the region will add nearly one million residents between 1990 and 2015, an increase of 49 percent.<sup>11</sup> The development pattern of the resulting housing and other development will determine their contribution to future vehicle emissions.

The Series 8 forecast predicts that, under current low-density zoning, *all residential land zoned for more than one unit per acre will be exhausted between 2005 and 2010*. The problem is not a lack of land, but a lack of density. To many, this prediction represents an alarm signaling the need for new growth forms that will reduce the environmental impact of development, including air emissions, and leave room for future growth. One response to this challenge is SANDAG's Land Use Distribution Element of the Regional Growth Management Strategy.

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<sup>11</sup> San Diego Association of Governments 1995



## The Land Use Distribution Element

In 1988, voters approved an advisory initiative calling for a regional strategy to reduce the unwanted effects of growth. In response, SANDAG – made up of all 19 jurisdictions – developed the Regional Growth Management Strategy. A key part of the strategy is the Land Use Distribution Element, approved by SANDAG in February 1995.

The Land Use Distribution Element proposes to simultaneously maintain living standards and accommodate future growth by creating transit-oriented, moderate-density development nodes along major transit corridors (Figure 1-6). It proposes that city and county officials implement 11 land use and transportation policies allowing greater use of non-automobile transportation modes (Table 1-1). (These policies are reiterated in Chapter 2 where similar or related strategies appear.)

**TABLE 1-1**  
**SANDAG's Land Use Distribution Element Policies**

1. Transportation facilities should be designed to meet the needs of pedestrians and bicycle riders as well as automobile drivers.
2. Higher land use intensities should be located in transit access areas.
3. Mixed-use development should be encouraged in community center areas, including the areas surrounding rail transit stations and within the bus transit corridors.
4. A mix of housing types and prices should be provided within walking distance of transit stations and in transit corridors.
5. More intensively used public facilities should be located near transit stations and stops, within walking or biking distance of the communities they serve.
6. Parking requirements should be reduced within transit focus areas with on-street parking provided in the mixed-use community core areas, whenever possible.
7. Residential uses should be incorporated into existing employment areas that are located outside of the transit focus areas.
8. Public facility needs in transit station areas, regional bus corridors and major employment centers should receive a high priority if the plans for these areas meet the objectives of the Land Use Distribution Element.
9. A higher priority for the implementation of a high level of transit service should be given to corridors where land use plans support transit services.
10. Design guidelines should be used to encourage the development of transit- and pedestrian-friendly communities.
11. Lower land use intensities should be located in areas with low levels of transit services or no transit services.



The Land Use Distribution Element embodies a regional commitment to more efficient and environmentally sustainable land use and transportation planning. This document was created under a mandate separate from the Land Use Distribution Element but, in part, provides a "menu" of strategies for fulfilling that commitment. Development of this document was coordinated with SANDAG.

### **VI. Potential Benefits of Implementing the Tools**

#### **Air Quality Benefits**

Adoption and implementation of the Tools will reduce current vehicle emissions to only a limited degree. However, their application to new and existing development can reduce the *growth* in vehicle miles traveled and vehicle trips. Resulting emission reductions would depend on numerous variables, including automobile technology, the availability of developable land, population growth rate, population demographics, household income, and household size.

Despite the uncertainties involved, computer models and case studies of other metropolitan areas successfully employing strategies similar to the Tools have been used to project future vehicle travel and emissions. Neighborhoods oriented around transit stations have been shown to generate about 20 percent fewer vehicle trips than conventional suburban development.<sup>12</sup> This finding is consistent across a variety of development types and residential populations. Several such neighborhoods within a region may produce a lower but still significant regional reduction in vehicle travel.

SANDAG found that modest densification of land uses in a pedestrian-oriented configuration within one-quarter mile of the transit stations depicted in Figure 1-6 would reduce regional vehicle travel by 4.3 percent or 4.0 million vehicle miles traveled in 2015.<sup>13</sup> Higher density development around these stations would reduce travel by 10.5 percent in 2010.<sup>14</sup> The latter scenario requires residential densities of 30 units per acre, which may be unacceptably high for most residents of this region. However, these studies do not account for possible application of the Tools in locations other than the transit focus areas, which would further reduce vehicle travel.

A study of the Portland, Oregon, area employing a similar transit-oriented strategy projected a 14 percent reduction in vehicle miles traveled and an 8 percent reduction in vehicle trips. Although similar in many ways to the San Diego area, Portland has a more extensive transit system and has concentrated development

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<sup>12</sup> California Air Resources Board 1995

<sup>13</sup> San Diego Association of Governments 1993

<sup>14</sup> San Diego Association of Governments 1994





in urban core areas to a greater degree. As a model, the Portland example is certainly attainable in San Diego but would require greater investment in regional transit lines and a commitment to land use strategies supportive of walking, bicycling, and transit.

*By 2015 application of the Tools in the San Diego region to areas both close and farther away from transit stations could be expected to reduce regional travel on the order of 5-15 percent from that expected under existing plans. Even larger reductions could be realized with each succeeding year as new development incorporates the Tools strategies and as alternatives to the automobile become more feasible in existing urbanized areas.*

According to the California Air Resources Board's current motor vehicle emissions model (BURDEN7F), in 2015, under current land use policies, emissions from personal vehicles in San Diego County will likely emit more than 39 tons per day of ROG, 47 tons of NO<sub>x</sub>, and 355 tons of CO. A 5 percent reduction in personal vehicle travel would provide emission reductions in 2015 of nearly 2.0 tons per day of ROG, 2.4 tons of NO<sub>x</sub>, and 17.8 tons of CO.

To put these numbers in perspective, a large stationary source such as a plastics manufacturing plant with modern emission controls would emit about 1 ton of ROG per day. The region's electric power plants emit about 8.5 tons per day of NO<sub>x</sub>, and 3 tons of CO. These and most other stationary sources have made major investments in emission controls. Reductions achieved with the implementation of the Tools strategies may help relieve some of the burden on stationary sources and contribute to economic growth in San Diego County.

### Additional Benefits of Applying the Tools

The measures recommended in this document are not new and have been adopted in various other forums with names such as Smart Growth, Sustainable Development, and Livable Communities. Their growing popularity stems from their numerous benefits in addition to improved air quality. For many people, these other benefits, outlined in Table 1-2, are the prime motivation for adopting more efficient land use and transportation policies.

Recent market studies show American home buyers' preferences are turning from homogeneous suburbs to communities oriented around a town center. Master-planned communities featuring meeting places, shared activities, bike-walk paths and natural open space are preferred over unplanned subdivisions.<sup>15</sup> Many of the features homebuyers say they want are consistent with more efficient land use and transportation planning. The sooner strategies are implemented to make these types of communities easier to build, the sooner benefits of all kinds can be realized.

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<sup>15</sup> Warrick and Alexander 1997

TABLE 1-2

Secondary Benefits of Applying the Land Use Design Tools

<p><b>Safety and Crime Prevention</b></p> <ul style="list-style-type: none"> <li>• Streets are generally designed to accommodate speeders traveling 15 miles per hour faster than the posted speed limit.<sup>1</sup> A typical neighborhood street in the region is 40 feet wide, and encourages speeding. A narrower, pedestrian-oriented street can discourage speeding while accommodating emergency vehicles.</li> <li>• "Traffic calming" measures such as speed humps, and intersection planters slow traffic and may deter crime by preventing a quick get-away.<sup>2</sup></li> <li>• Pedestrian-oriented design principles place windows, porches, or storefronts, rather than blank walls or garage doors, facing the street. Studies show these "eyes on the street" can reduce property crimes.<sup>3</sup></li> </ul>	<p><b>Energy Savings</b></p> <ul style="list-style-type: none"> <li>• The San Diego region annually spends \$3 billion on energy resources, 99% of which is imported.<sup>9</sup> Half the energy consumed is for transportation. Reducing vehicle trips benefits the region economically.</li> <li>• Compact, mixed-use neighborhoods save energy by reducing vehicle trips up to 30%.<sup>10</sup> Street trees provided for pedestrians can decrease the ambient temperature 10°, reducing cooling requirements.<sup>11</sup></li> <li>• Computer modeling of three development scenarios (Existing Zoning, Moderate Pedestrian Focus, and Aggressive Pedestrian Focus) shows energy savings by 2010 could be between 10% and 62% depending on the availability of development parcels.</li> </ul>
<p><b>Reduced Infrastructure Costs</b></p> <ul style="list-style-type: none"> <li>• Developers of new subdivisions usually provide streets, utilities, police, and fire protection. Allowing narrower streets, clustered dwellings, and a mix of compatible uses can help reduce these costs.</li> <li>• A Florida study showed that providing infrastructure cost \$24,000 at 12 residential units/acre and \$48,000 at 3 units/acre.<sup>4</sup></li> <li>• Many older, pedestrian-oriented areas such as Coronado and Mission Hills require less asphalt, land, and utility expenditures per unit while offering a high quality living environment. If proposed today, these areas would be illegal in most communities.</li> </ul>	<p><b>Increased Mobility for Non-Drivers</b></p> <ul style="list-style-type: none"> <li>• Seniors who no longer drive can maintain independence in communities where stores and services are within easy walking distance, and the pedestrian environment is safe and pleasant.</li> <li>• Children in auto-oriented communities must be driven to school, shopping, sports activities, and friends' homes. More compact neighborhoods allow children to walk or bike safely, reducing trips.</li> <li>• Disabled citizens rely heavily on transit and pedestrian access. Compact, mixed-use communities provide opportunities for all citizens to leave their cars behind, temporarily or permanently.</li> </ul>
<p><b>Reduced Traffic Congestion</b></p> <ul style="list-style-type: none"> <li>• A 1989 study placed San Diego among the nation's 10 most congested metro areas.<sup>5</sup> Despite continued highway construction, the number of miles of highway bearing "heavy congestion" has increased 15% since that time.<sup>6</sup></li> <li>• A proposed mixed-use, transit-oriented neighborhood in San Diego is expected to generate 19% fewer vehicle trips,<sup>7</sup> typical for such developments.</li> <li>• Widespread implementation of transit-oriented design principles was projected to reduce regional Portland traffic 8% by 2010.<sup>8</sup></li> </ul>	<p><b>Open Space Preservation</b></p> <ul style="list-style-type: none"> <li>• San Diego County's diverse habitats support the largest number of species - and the most endangered species - in the continental U.S. The proposed Multiple Species Conservation Plan would preserve an estimated 164,000 acres in 10 jurisdictions to meet federal law.</li> <li>• A popular trend toward "down-zoning" (reducing allowable building density) is putting further development pressure on sensitive habitats and open space. Promoting pedestrian-accessible development in already developed areas can reduce this pressure.</li> <li>• According to SANDAG growth forecasts, the region is running out of vacant land.<sup>12</sup> Inevitably, compact, well-designed development will be a necessary option.</li> </ul>

<sup>1</sup>Vanessa Hangin Brustlin, Inc. 1994

<sup>2</sup>Swartz 1985

<sup>3</sup>Brown and Altman 1983

<sup>4</sup>Kassowski 1992

<sup>5</sup>Schrank et al. 1990

<sup>6</sup>SANDAG 1990, 1994, 1996

<sup>7</sup>City of San Diego 1994

<sup>8</sup>Cambridge Systematics et al. 1992

<sup>9</sup>San Diego Association of Governments. 1994

<sup>10</sup>California Air Resources Board. 1995

<sup>11</sup>California Energy Commission. 1993

<sup>12</sup>San Diego Association of Governments. 1995



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## CHAPTER 2

# Suggested Land Use and Transportation Strategies

### Introduction

This chapter addresses a range of planning and air quality issues involving land uses and transportation in San Diego County. It presents strategies having direct and indirect air quality benefits. The list of strategies reflects the most current research on minimizing automobile trips as well as the Land Use Distribution Element of SANDAG's Regional Growth Management Strategy.

Local governments and neighborhood planning groups are encouraged to incorporate them into appropriate planning documents as discussed in Chapter 3. However, the strategies are in no way mandatory. The suggested strategies should be viewed as a flexible resource upon which to justify and implement planning goals. Naturally, they should be considered in the context of infrastructure, public safety, economic, and other public policy issues particular to a given situation or community.

This chapter is divided into land use and transportation strategies. The supporting information accompanying each strategy is provided under four headings:

- (1) **Implementation Options** - actions which may be taken to carry out a strategy.
- (2) **Discussion** - explanation of the intent of the strategy, issues of implementation, or the potential benefits. This information has been culled from technical reports, studies, surveys, and data published by various public agencies and private researchers. No original research was conducted for this report.
- (3) **Programs in Operation** - examples of existing programs including contacts, addresses, and phone numbers for obtaining more information.
- (4) **Resources or Additional Resources** - documents containing useful information on implementing the strategy.<sup>1</sup>

Appendix A provides a separate list of each strategy.

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<sup>1</sup>See especially Metropolitan Transportation Commission 1996



## The Importance of "Buy In" by All Municipal Departments

Implementation of any of the recommended strategies can bring up unforeseen conflicts between city departments with differing mandates and practices. As with any change, local government staff who must implement the strategy, or accommodate it in other programs, should be consulted early in the planning process. Conflicts with existing policies or practices are best addressed at this stage, rather than during implementation. The experience of cities whose programs are cited in this chapter suggest that *commitment to a new approach to land use and/or transportation planning must include ensuring all city departments have "bought into" the new direction.* Otherwise, each project proponent affected by the new program can find himself acting as a mediator between departments. The result is incomplete or inconsistent strategy implementation.


### Principles for Land Use Planning for Improved Air Quality

- ⇒ Plan land use patterns that will encourage people to walk, bicycle, or use public transit for a significant number of their daily trips.
  - Use comprehensive community plans and specific plans to ensure development is cohesive and well connected by alternative transportation modes.
  - Adopt transit-oriented or pedestrian-oriented design guidelines and designate areas appropriate for these designs in the General Plan.
  - Encourage higher density development in proximity to frequently used services and transportation facilities.
- ⇒ Develop areas in a compact, efficient form to minimize vehicle miles traveled and to improve the effectiveness of alternatives to the automobile.
  - Use the control of public infrastructure to direct growth to the most appropriate locations.
  - Encourage infill of vacant urban land.
- ⇒ Promote project site designs and subdivision street and lot designs that encourage walking, bicycling, and transit use.
  - Adopt design guidelines and standards promoting designs that encourage alternative transportation modes.
  - Require certain sites to be designed to allow convenient access by transit, bicycle, and walking.

## Land Use Strategies

### Integrated Planning: Public Education

Virtually all of the planners, developers, transit providers, and others reviewing this document emphasized the need for more public education regarding the consequences of planning choices. Without the understanding, support, and involvement of the general public, efforts to create more efficient land use and transportation patterns may not be as successful. Programs to educate the public on the link between transportation, land use, and air quality should always accompany any comprehensive land use and/or transportation planning process.

 *Work to educate the public on the link between transportation, land use, and air quality.*

#### Implementation Options

- ⇨ Hold public forums and address community meetings to familiarize neighborhood groups, developers, and lenders with transit-oriented design (TOD) and pedestrian-oriented design (POD) principles.
- ⇨ Participate in local and regional programs, such as SANDAG's Regional Growth Management Strategy, that can reduce motor vehicle trips and vehicle miles traveled (VMT).
- ⇨ Provide developers, engineers, architects, schools, colleges, and utilities with information that illustrates the community's commitment to transit, pedestrian, and bicycle friendly designs.
- ⇨ To keep abreast of educational tools, planning agencies can participate in the professional development programs of associations such as the California Council of Civil Engineers, the American Planning Association, and the Building Industry Association.

#### Discussion

Many California cities conduct educational workshops centered on particular planning problems. When significant planning issues are being debated, the opportunity exists to provide information to the community on the air quality and transportation consequences of alternative proposals.





### Programs in Operation

In the past few years, SANDAG has teamed with cities and neighborhoods in the region to sponsor seminars and workshops such as "Building Livable Communities." Similar workshops are held on an occasional basis by the League of Women Voters and the San Diego Section of the American Planning Association.

### Resources

California Air Resources Board, 1996 *The Land Use-Air Quality Linkage, How Land Use and Transportation Affect Air Quality*. Concise presentation of data and concepts appropriate to lay audiences.

The following organizations make available books, videos, studies and other information on a variety of planning subjects:

- Local Government Commission, May 1995, 909 12th Street, Suite 205, Sacramento, CA 95814, (916)448-1198.
- George Franck or Susan Baldwin, San Diego Association of Governments, 401 B Street, San Diego, CA 92101, (619)595-5300.
- League of Women Voters, (619)693-0903.
- Chris Morrow, Director, American Planning Association (APA), San Diego Chapter, P.O. Box 1289, San Diego, CA 92112, (619)222-1871.
- APA Planners Book Service, 122 S. Michigan Avenue, Suite 1600, Chicago, IL 60603, (312)786-6344. (E-mail: BookService@planning.org.)
- Urban Land Institute, 625 Indiana Avenue, N.W., Washington, D.C. 20004-2930, (800)321-5011.
- California Energy Commission, 1516 Ninth Street, Sacramento, CA 95814-5512, (916)654-3948.

## INTEGRATED PLANNING: PUBLIC PARTICIPATION

In the past, many transportation and land use planning decisions were made without public input. This eventually led to citizen revolts against infrastructure projects and to an appreciation by planning officials for the necessity and value of involving the public early in project planning.



*Actively involve the public in all comprehensive planning processes involving transportation infrastructure and land use.*

### Implementation Options

- ⇒ For a major planning initiative such as a multi-block revitalization project, General Plan update, or Regional Transportation Plan submittal, hold a well-publicized series of community workshops inviting participants to offer and critique potential visions.
- ⇒ For each planning process, alternative scenarios should be presented that include the consequences for the community and region as a whole.
- ⇒ Planning agencies should keep abreast of available educational tools, methods, and planning concepts by consulting the Local Government Commission, SANDAG, and the District.

### Discussion

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1990 mandates public participation for all federally-funded transportation projects and encourages inclusive planning processes for local projects as well. Two popular techniques for stimulating ideas and illustrating the tradeoffs inherent in any planning decision are **community visioning** and the **visual preference survey**.

In a **community visioning** exercise, workshop participants are asked to describe or sketch ideas for a planning area. Typically, photos of the area with adjacent uses shown are distributed with a transparent overlay for sketching ideas. Sophisticated computer programs utilizing near photographic-quality images are available to demonstrate quickly how a particular idea would appear in context. A strong proponent of the technique, architect/planner Ron Morgan, reports community consensus can be reached in a matter of hours, where previously, months of meetings yielded no agreement. Consultants are generally hired to apply this technique. (Contact: Ron Morgan, 2019 Dilworth Road East, Charlotte, NC (704)342-2510 or 169 El Camino Real, Berkeley, CA (510)601-1520.)

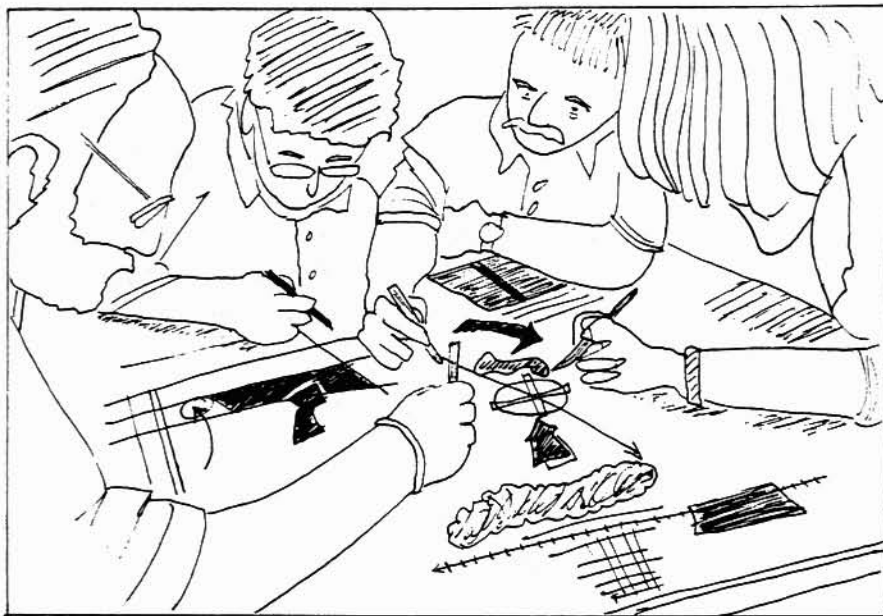
Another technique, the **visual preference survey**, helps establish design principles prior to considering possible scenarios. A series of photographs from throughout the community are shown, and participants are asked to rate the desirability or appropriateness of land use arrangement and transportation facilities shown. The results are tabulated and discussed, and reasons for preferences are examined. Community groups who participate in this exercise or community visioning usually favor pedestrian-oriented streets and compact neighborhoods rather than automobile-oriented sprawl



required by local zoning codes. (For information or assistance in creating a visual preference survey, contact the Local Government Commission, 909 12th Street, Suite 205, Sacramento, CA 95814, (916)448-1198.)

Including the public in the planning process from the beginning requires more time and may require funding for an outside facilitator. However, cities taking this approach have reported that planning decisions meet more of the community's needs.

**FIGURE 2-1**



**Active participation by the community often results in a better land use plan.**

Source: Adapted from Studio E Architects

### **Programs in Operation**

The City of Oceanside conducted a series of community visioning workshops to determine uses for a city-acquired 445-acre site formerly used for sand mining. Participants were asked to offer potential uses for the site, known as El Corazon, and a team of consultants and city staff helped shape suggested ideas into a proposed plan. The plan was submitted to the City Council for approval. (Contact: Elizabeth Graff, City of Oceanside Planning Department, 300 N. Coast Highway, Oceanside, CA 92054, (760)966-4772.)

### Additional Resources

*Participation Tools for Better Land-Use Planning: Techniques and Case Studies*, Local Government Commission, May 1995, 909 12th Street, Suite 205, Sacramento, CA 95814, (916)448-1198.

### Land Use: Project Planning and Review

In the past, transportation planning emphasized the construction of new roadway capacity to reduce congestion and to meet the needs of planned development. Since the late 1980's, both federal and state air quality legislation has mandated that all transportation plans consider air quality in a meaningful way. To facilitate both mobility and air quality improvements, land use and transportation plans should create patterns of development and transportation infrastructure that reduce the need for new capacity and improve air quality.

**STRATEGY 3** → *Consider ways to increase non-automobile travel when planning land uses or considering changes to the land use pattern of the community.*

### Implementation Options

- ⇒ Develop coordinated land use and transportation plans to improve opportunities for non-automobile travel.
- ⇒ Ensure that land uses proposed in General Plan updates and General Plan amendments are supported by a multi-modal transportation system and that the land uses themselves support the development of the transportation system.
- ⇒ Identify areas best suited to development in terms of transportation efficiency and provide incentives for development in those areas.
- ⇒ Require an air quality/transportation design analysis for projects exceeding a specified threshold (such as 10 tons/year for ROG and NO<sub>x</sub>).
- ⇒ Require developers of large projects such as a new subdivision or regional sports facility to submit a design analysis with the commercial site plan or subdivision map. The analysis would describe the design measures proposed for the site.
- ⇒ Consult with transit providers, SANDAG, and the District during General Plan or Community Plan updates to maximize opportunities for non-automobile travel.





## Discussion

Integrated planning leads to transportation systems that support all modes of transportation and land use patterns that encourage the use of alternative modes. Effective implementation of a fully integrated plan can achieve trip reductions on the order of 10 to 23 percent<sup>2</sup> and commensurate air quality benefits.

In addition to planning the community as a whole, special attention should be given to large projects which, by themselves, can change the development pattern of a community. As discussed in other policies, design details of such projects determine the modes by which patrons or residents will reach a new subdivision, sports arena, or other large development. A design analysis is, therefore, critical.

The design analysis should be prepared by a civil engineer, architect, or urban designer familiar with design measures that can reduce trips. It could be part of the traffic study normally required for large development projects. Review could be expedited for projects consistent with adopted design guidelines or with a previously reviewed specific plan or community plan.

## Programs in Operation

The State of Oregon Land, Conservation and Development Commission adopted a Transportation Planning Rule that mandates that local governments consider air quality and mobility in land use decisions. This rule requires local jurisdictions to adopt ordinances to make new development more bicycle, pedestrian, and transit friendly.<sup>3</sup> California has relied on a voluntary strategy to achieve the same aims. (Contact: Bob Cortright, Oregon Department of Land Conservation and Development, 1175 Court Street NE, Salem, OR, 97310, (503)373-0084.)

As part of the San Diego Air Pollution Control Board's Indirect Source Program, jurisdictions are invited to request informal District review of significant transportation or development projects. Staff will be available, as time allows, to comment on the accessibility of new facilities and developments in early concept stages to walking, bicycling, and transit use. This review will not be regulatory in nature and will not increase the time necessary to complete development review. (Contact: Andy Hamilton, San Diego Air Pollution Control District, 9150 Chesapeake Drive, San Diego CA, 92123, (619) 694-8965.)

<sup>2</sup>California Air Resources Board 1993

<sup>3</sup>American Planning Association 1993

**STRATEGY 4** → *Ensure all local government submittals of transportation projects to be included in regional transportation improvement programs are consistent with local air quality goals and policies.*

### **Implementation Options**

- ⇨ Analyze transportation project submittals for consistency with the General Plan. Examples of inconsistent projects are a road widening project that does not consider transit, bicycling, and pedestrian needs or an intersection signalization project that does not involve the installation of signal actuators that can be activated by bicyclists or pedestrians.

### **Discussion**

Strategy 4 attempts to tie the regional transportation planning process back to the General Plan. The concept behind this strategy is that projects funded by the biennial Regional Transportation Improvement Program managed by SANDAG have a profound impact on where development will take place and what its composition will be.

## **LAND USE: DEVELOPMENT PATTERN**

Existing land use patterns in most urban areas in San Diego County are not conducive to walking, cycling, and transit use. Many office developments have low employment densities and are often isolated from commercial services, forcing employees to drive to eat lunch or complete errands. High-density residential projects (apartments or condominiums) often have little, if any, commercial development nearby. Others discourage pedestrian access to commercial uses with block walls, large parking lots, or lack of clear or interesting pedestrian routes.

The most common single family lot size of 6,000 to 10,000 square feet leads to population densities too low to support frequent and direct transit service. The predominant suburban development patterns force all local trips onto the arterial street system. This leads to ever wider, more congested arterial streets which in turn discourage people from walking or cycling to even nearby destinations. Infrastructure to support this land use pattern is expensive to build and maintain.

**STRATEGY 5** → *Encourage greater mixing of land uses to reduce vehicle trips.*



### **Implementation Options**

- ⇒ Provide materials on successful mixed-use developments to project applicants in areas designated for commercial land uses.
- ⇒ Amend the Zoning Ordinance to allow greater flexibility to mix land uses, and housing types and prices. One example is allowing accessory dwelling units (Strategy 10).
- ⇒ Amend the Zoning Ordinance to grant density bonuses or reductions in required parking for mixed-use development.
- ⇒ Zone for mixed use development near transit stations and urban and suburban centers.
- ⇒ Zone for ground-level retail/office at new multi-story office and residential developments.
- ⇒ Integrate housing into existing and planned commercial developments by encouraging residential units alongside or above shops and offices.
- ⇒ Provide density bonuses to office and commercial projects that include housing.
- ⇒ Encourage new and expanding office development to include commercial uses such as restaurants, banking, dry cleaners, or post offices to reduce mid-day trips.
- ⇒ Facilitate the conversion of suitable under-utilized industrial or commercial areas to residential or live/work uses, provided that surrounding uses do not pose health or nuisance threats.
- ⇒ Zone for walkable neighborhoods and commercial centers connected to each other by pedestrian paths and transit.
- ⇒ Encourage neighborhood retail and service uses within walking distance of residential areas.
- ⇒ Encourage neighborhood work centers within residential areas.
- ⇒ Encourage home-based work.
- ⇒ Encourage school districts to integrate schools with parks, transit services, health services, and other community uses when choosing new locations.

### **Discussion**

The original impetus for zoning codes, which first appeared in the 1920's, was to separate highly noxious uses from residences. Some view modern suburbs as the outcome of this sound planning

concept taken too far. Indeed, virtually any mixing of land uses is strictly forbidden by most zoning codes in newly developing areas. This has resulted in extreme dependence on automobiles.

Greater mixing of land uses can reduce vehicle trips by allowing walking and bicycling to nearby complementary uses. A review of studies of existing communities by the California Air Resources Board showed that providing a mix of uses in a suburban activity center can reduce vehicle trips by 8 percent, while reducing trips in a central business core by up to 61 percent.<sup>4</sup> The study also concluded mixed-use and higher density strategies can achieve a 20 to 50 percent reduction in travel between neighborhoods and 4 to 11 percent regionally. The wide range of these results is due to the large number of factors that can affect travel mode choice at individual sites.

Conventional zoning creates separate zones for different land use categories such as commercial, high-density residential, low-density residential, or industrial. An alternative approach is to separate uses on the basis of their compatibility with each other and with pedestrian movement. For example, small scale office, commercial, and residential uses could be arranged together, while zones for industrial uses, regional retail outlets, and other large volume uses could be placed in automobile-oriented zones. The resulting development pattern would allow a larger percentage of residents to walk to work, shopping, school, and other destinations.

This document advocates three forms of mixed use development: moderately dense, walkable neighborhoods (Strategy 6); higher density business cores or "activity centers" (Strategy 7); and mixed-uses concentrated linearly in transit corridors (Strategy 8). Examples of each form can be found within the county and constitute some of our most celebrated areas such as Mission Hills, the Gaslamp Quarter, and La Jolla Village. Wider use of these forms should reduce the rate of growth in vehicle travel.

For this approach to work, various municipal departments must agree on practices and design philosophies to maintain pedestrian-orientation in mixed-use areas. To help smooth the process, this intention should be stated explicitly in the General Plan, Community Plan, and other planning documents.

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<sup>4</sup>California Air Resources Board 1995





## Programs in Operation

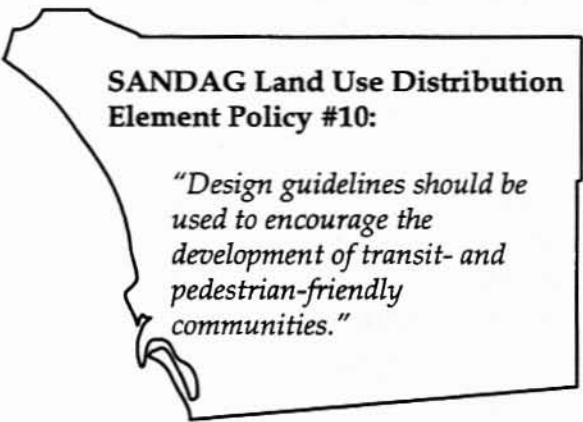
In the 1970's, the suburban city of Bellevue, Washington, decided to change the growth pattern of its central business core from strip-commercial to more compact, pedestrian-oriented and mixed use. Today, downtown Bellevue is an attractive area commanding premium rents. It also enjoys a relatively high share of transit trips (7 percent vs. 1 percent for comparable areas) and mid-day walk trips (25 percent vs. 16 percent).<sup>5</sup>



*Encourage the development of pedestrian-oriented communities, both within and outside transit focus areas.*

## Implementation Options

- ⇒ Develop transit/pedestrian-oriented design guidelines. Identify and designate appropriate sites for this development pattern during General Plan or Community Plan updates and when developers propose General Plan amendments.
- ⇒ Incorporate design guidelines into an overlay zoning designation such as "Transit Village" or "Pedestrian Pocket" that may be invoked by a developer in proposing a transit or pedestrian-oriented project.
- ⇒ Prepare a specific plan or community plan for new development areas. Incorporate design guidelines and standards into the specific plan. Streamline discretionary permit approvals if these are met.
- ⇒ Designate particular areas as Transit Focus Areas and specify design features, densities, and uses for these areas while allowing flexibility in other characteristics.



### SANDAG Land Use Distribution Element Policy #10:

*"Design guidelines should be used to encourage the development of transit- and pedestrian-friendly communities."*

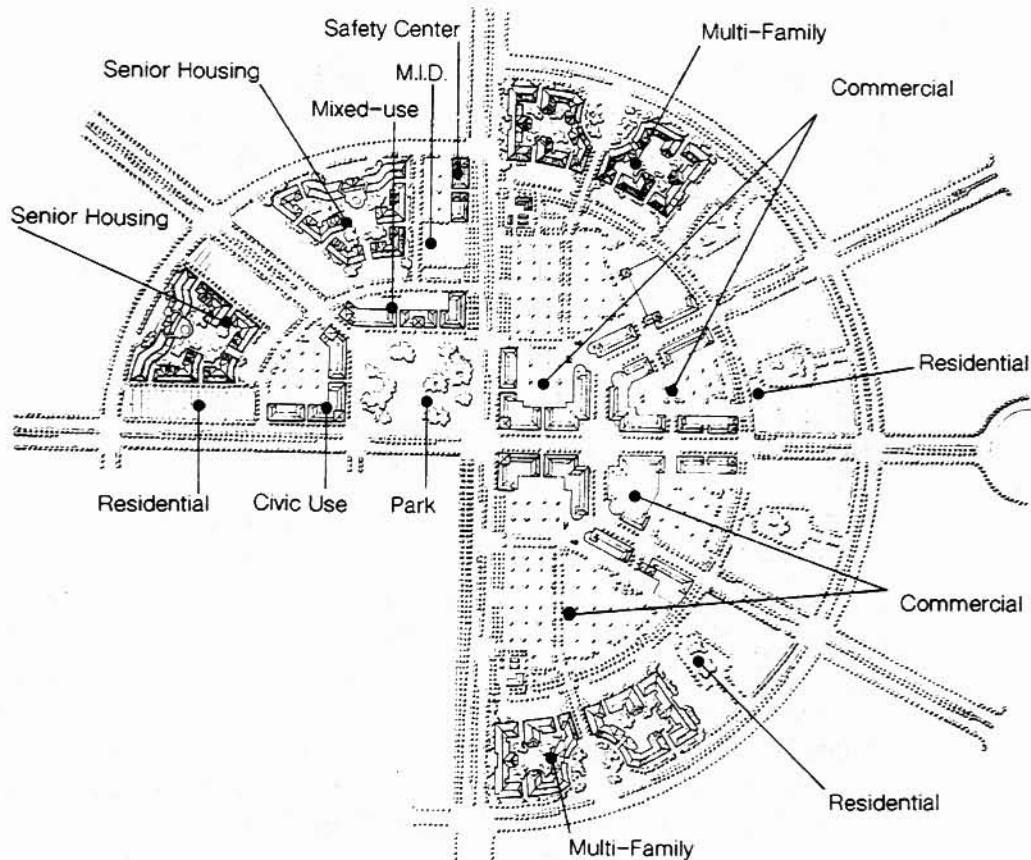
## Discussion

Implementation of Strategy 6 would require actively planning the build-out of a neighborhood, community, or city, rather than reacting to unrelated, developer-initiated proposals and piecemeal requests to amend the General Plan. This strategy would be a major part of a comprehensive land use, transportation, and air quality strategy implemented in a coordinated fashion by several municipal departments. Most of the following land use policies support the concepts and principles of transit and pedestrian-oriented design.

<sup>5</sup>JHK & Associates and Hooper 1989

A village center (Figure 2-2) can be the focus of community activity, providing a variety of complimentary destinations within walking or cycling distance of village residences, reducing vehicle trips. For example, trip reductions of 30 percent were estimated in a Kern County new town project utilizing the village concept. However, early results of small-scale commercial uses incorporated in new transit-oriented developments such as San Diego's Uptown District have shown some stores to be extremely successful while other businesses are not. Care should be taken to encourage the appropriate mix of businesses for the village center.

**FIGURE 2-2**



**Modesto's Village One Specific Plan includes a Village Center comprised of high-density housing, institutional uses, parks, and retail shops.**

Source: City of Modesto 1990



SANDAG estimates full implementation of the modest Land Use Distribution Element of the Regional Growth Management Strategy (20 dwelling units per acre around transit stations) would yield a 4 percent regionwide reduction in vehicle miles traveled in 2015 compared to a more traditional growth pattern.<sup>6</sup> More intensive development (30 units per acre) around transit stations would yield a 10.5 percent reduction by 2010.<sup>7</sup>

Neighborhood developments of this type have taken various names: urban village, livable neighborhood, new urbanism, transit-oriented development, and neotraditional town planning. The concept has resonated well with many homebuyers<sup>8</sup> and can now be found among off-the-shelf design catalogues for residences, businesses, and subdivision layouts.<sup>9</sup>

### **Programs in Operation**

The cities of San Diego, Sacramento, and Portland, Oregon, have all prepared transit-oriented design guidelines that encourage and enhance transit, pedestrian, and bicycle travel. The guidelines provide design specifications for both land uses and transportation infrastructure around a major transit node. (See Figure 2-3.) To promote use of its guidelines, *Transit-Oriented Development Design Guidelines*, the City of San Diego has identified Transit Area Overlay Zones suitable for their application and incorporated the guidelines into other city development policies and standards. (Contact: Community and Economic Development Department, 202 "C" Street, MS 5A, San Diego, CA 92101, (619)235-7195.)

The City of San Diego also included in its 1995 Draft Zoning Code Update a "floating" Urban Village Overlay Zone by which project proponents may propose to apply TOD principles to any site adjacent to a planned or existing transit station. It may also be applied where recommended by a community plan. The zone supersedes existing zoning and specifies minimum percentages of land devoted to a mixed-use core (10 percent), residential use (20 percent), and public use (10 percent). Density bonuses are granted for employing the Urban Village Zone. (Contact: Kelly Broughton, City of San Diego Development Services Department, 1222 First Avenue, San Diego, CA 92101, (619)236-5932.)

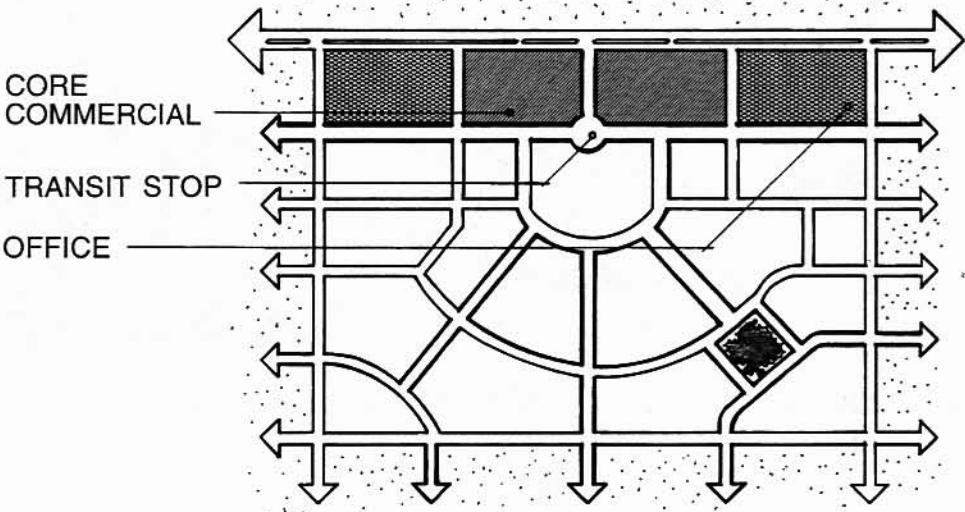
<sup>6</sup>San Diego Association of Governments 1993

<sup>7</sup>San Diego Association of Governments 1994

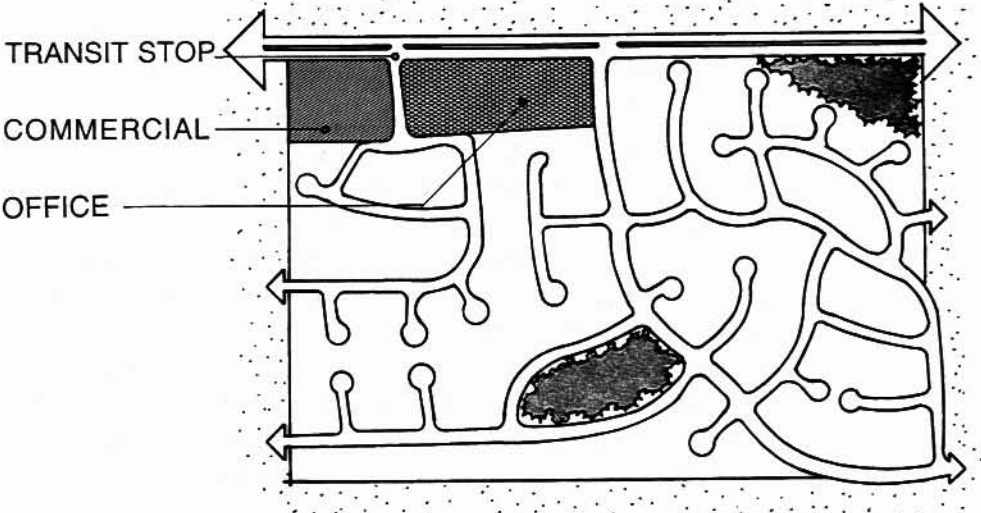
<sup>8</sup>Warrick and Alexander 1997

<sup>9</sup>Knack 1997

**FIGURE 2-3**  
**Transit-oriented Design vs. Traditional Neighborhood Design**



**Integrated**



**Isolated**

Source: Galthorpe Associates, City of San Diego





FIGURE 2-4



San Diego's Uptown District integrates commercial and residential uses and emphasizes the pedestrian environment.

Source: Oliver McMillan Development

The Uptown District development in the Hillcrest neighborhood of San Diego is a pedestrian-oriented, mixed use development that combines 320 attached multi-family residential units, 140,000 square foot retail/office center, and a 3,000 square foot community center (Figure 2-4). A Ralph's supermarket located at the site features underground parking and is among the highest grossing stores in the company's chain.

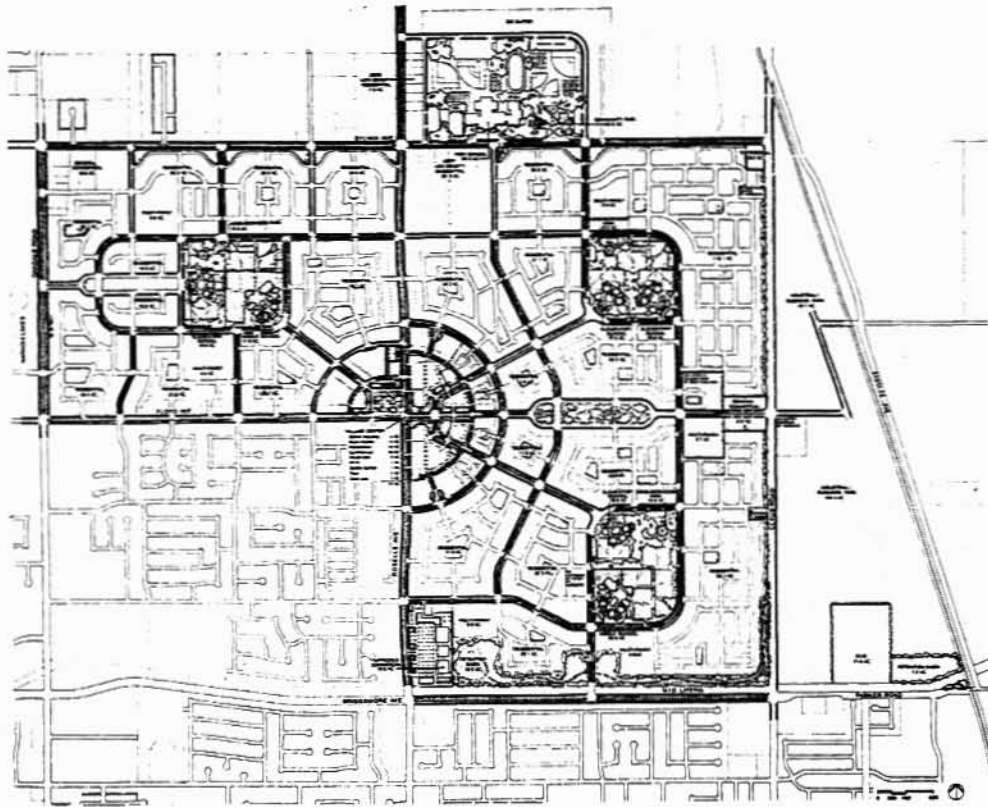
Village Homes in Davis, California, provides an example of a bicycle and pedestrian-oriented subdivision. Street access is narrow and somewhat limited, and bicycle and pedestrian paths offer the shortest routes to neighborhood destinations such as the school and community center. Many of the houses face bike paths. This provides a sense of safety for the riders and keeps the public spaces in view of the community to prevent crime and vandalism.<sup>10</sup> (Contact: Judy Corbett, Local Government Commission, 1414 K Street, Suite 250, Sacramento, CA 95814, (916)448-1198.)

The City of Modesto's Village One Specific Plan (Figure 2-5) specifies a pedestrian-oriented, mixed use village focusing on community life. Overall project density is 8.5 units per acre.<sup>11</sup> This award-winning plan covers approximately 1,780 acres of rural land and will provide about 7,400 dwelling units at buildout. The plan provides

<sup>10</sup>Weissman 1992

<sup>11</sup>California Energy Commission 1992

**FIGURE 2-5**  
**Modesto Village One Plan**



Source: City of Modesto 1990

goals, policies, design guidelines, and a detailed implementation plan. (Contact: John Mayer, City of Modesto, Planning and Community Development Department, 801 11th Street, Modesto, CA 95353, (209)577-5269.)

Otay Ranch, a developer-initiated pedestrian and transit-oriented development, is proposed for eastern Chula Vista and the unincorporated area of San Diego County. If completed as envisioned, the development will include up to 24,224 residential units grouped in 11 villages and nine planning areas. Each village will be supported by a pedestrian-accessible community/retail center. In several respects, the developer was required to compromise pedestrian qualities of the project. However, the approved design includes two proposed trolley stations, a major retail center, and a possible university, to which convenient automobile, pedestrian and bicycle access will be provided. (Contact: Richard Rosaler, City of Chula Vista Planning Department, (619)422-7314.)



## Additional Resources

*New Urban News* is a bimonthly newsletter reporting on neo-traditional, pedestrian-oriented development. \$69/yr. New Urban News, P.O. Box 6515, Ithaca, NY 14851, (670)275-3087.

*Moving Toward More Community-Oriented Transportation Strategies for The San Francisco Bay Area: A Resource Guide*, Metropolitan Transportation Commission (MTC), December 1996. Annotated resource list of model development codes, case studies, design guides, and other documents related to this strategy. MTC, Joseph P. Bort MetroCenter, 101 Eighth Street, Oakland, CA 94607-4700.

*Transit-Oriented Development Design Guidelines*, Sacramento County Planning and Community Development Department, 827 Seventh Street, Room 240, Sacramento, CA 95814.

County of San Bernardino, *Land Use, Transportation and Air Quality, A Manual for Planning Practitioners, San Bernardino Air Quality Plan*, Provides design examples and development principles for reducing mobile source emissions, organized by development density. \$50. The Planning Center, 1300 Dove Street, Suite 100, Newport Beach, CA 92660, (714)851-9444.

*Mixed-use Development Handbook*, Urban Land Institute, 1987. Provides examples of mixed-use developments and discusses a full range of development issues. ULI, 625 Indiana Avenue, N.W., Washington, D.C. 20004-2930, (800)321-5011.

*Planning and Design for Transit*, March 1993, Tri-County Metropolitan Transit District of Oregon (TRI-MET). A comprehensive guide to designs and land use patterns supportive of transit. \$10. TRI-MET, 4012 S.E. 17th Avenue, Portland, OR 97202, (503)238-4891.

*Planning and Design for Transit Handbook*, January 1996. Provides more specific guidance for land use and transportation plans, site designs, and transit facility designs. \$10. TRI-MET, 4012 S.E. 17th Avenue, Portland, OR 97202, (503)238-4891.

*Energy Aware Planning Guide*, January 1993, California Energy Commission. Contains extensive sections on design measures to reduce vehicle trips, miles traveled, and energy consumption. CEC, 1516 Ninth Street, Sacramento, CA 95814-5512, (916)654-3948.

*Land Use Strategies for More Livable Places*, Local Government Commission, 1992, funded in part by the San Diego Air Pollution Control Board. Contains numerous examples of design principles discussed above. \$19.75 Local Government Commission, 1414 K Street, Suite 250, Sacramento, CA 95814, (916)448-1198.

*Designing For Transit*, San Diego Metropolitan Development Board, 1993. Contains illustrated principles for designing new communities and retrofitting existing suburbs for transit use. An accompanying video, *Cities in the Balance: Creating the Transit-Friendly Environment*, provides implementation examples. MTDB, 1255 Imperial Avenue, Suite 1000, San Diego, CA 92101, (619)231-1466.

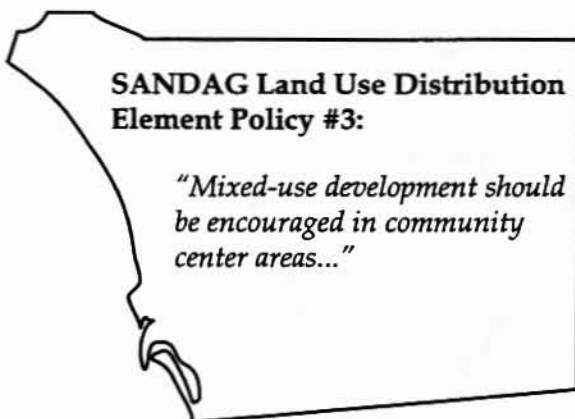
*Transportation-Efficient Development*, Lane Council of Governments (Oregon), May 1996, describes new livable communities projects including the cost of each project, how it was financed, its special features, and lessons learned. (Contact: Peter Watt, (541)687-4283).

### STRATEGY 7

*Establish one or more central business cores for high-density and mixed-use development.*

#### Implementation Options

- ⇒ Provide financial incentives and density bonuses to encourage development within the designated central core(s) of the city.
- ⇒ Encourage residential development in existing employment areas, except where industrial emissions or other safety or nuisance concerns exist.



#### Discussion

A healthy downtown or satellite business district provides a concentration of activities that increase potential transit use for commute trips and, in many cases, shopping trips. By making the center walkable, transit riders do not need an automobile. Thus, high employment densities help support retail and service businesses, allowing people working in an activity center to walk for daytime errands and lunch trips.

A survey of suburban office workers found that about half left their building during the day. In an area with mixed-use high-density development and pedestrian facilities, 25 percent of the trips were made on foot, compared to 6 percent in a more homogenous, sprawling area.<sup>12</sup>

Today's automobile-oriented suburbs could include areas developed on the activity center model to reduce vehicle trips, fulfill "fair share" affordable housing requirements in an attractive

<sup>12</sup>California Energy Commission 1993





way, and reduce infrastructure costs. However, such areas must achieve minimum density to support frequent transit services.

The Institute of Transportation Engineers (ITE) suggests that residential densities of at least seven to eight dwelling units per acre and eight to 20 million square feet of non-residential development are needed to support transit service of one bus every half hour.<sup>13</sup> However, one researcher found that transit use drops off below 15 dwelling units per acre and 75 employees per acre (roughly 23,000 square feet of employment development per acre).<sup>14</sup>

### **Programs in Operation**

Horton Plaza, a super-regional shopping center located in downtown San Diego, served as an anchor for restoring the Gaslamp Quarter National Historic District. A 1993 Air Resources Board study comparing mode shares at five California regional shopping centers showed 65 percent of the patrons to Horton Plaza arrived by modes other than automobile.<sup>15</sup> Office workers made up a substantial portion of the patrons. Eighty-six percent of this group arrived on foot. (Contact: Terry Parker, California Air Resources Board, 2020 L Street, P.O. Box 2815, Sacramento, CA 95812, (916)323-6987.)

The village concept was the basis of the recently approved San Emidio New Town Specific Plan in Kern County. The plan provides electric golf carts with each residence and separate paths leading from residences to the village center. Roadways are designed to be shared with bicyclists. Traffic studies for the project estimate about a 30 percent reduction in trips over conventional development, although it is not yet known how reliable these estimates are. (Contact: Kern County Department of Planning and Development Services, 2700 "M" Street, Suite 100, Bakersfield, CA 93301, (805)861-2615.)

The Metropolitan Bakersfield 2010 General Plan promotes a centers concept with downtown as the primary center and several suburban centers anchored by educational institutions and large businesses.

The City of Sacramento has plans to recycle an outmoded industrial area adjacent to downtown with new office, commercial, and public facilities. The area will be served by light rail.

<sup>13</sup>California Air Resources Board 1993

<sup>14</sup>Frank 1994

<sup>15</sup>California Air Resources Board 1993

### Additional Resources

*Putting the Urb in the Suburbs: Many Places Are Deciding They Need A Real Center After All, Planning, June 1997.*

STRATEGY 8

*Encourage the location of large employment or shopping centers in major bus transit corridors and within walking distance of planned or existing transit stations.*

### Implementation Options

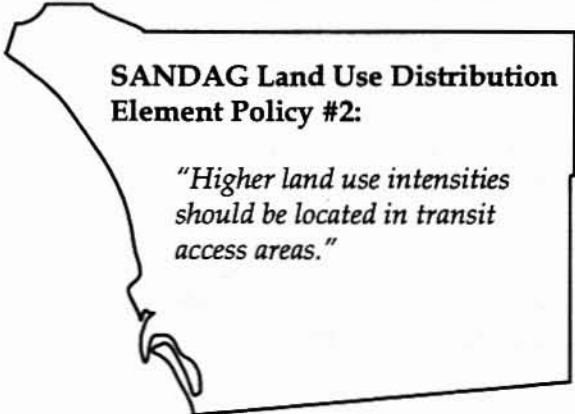
- ⇒ To the extent appropriate sites are available, encourage location of regional shopping malls/centers at sites capable of support by a full range of transportation options and work with developers to optimize access by all modes.
- ⇒ Identify sites with access by freeway or major arterial and with potential for light rail access.
- ⇒ Zone for higher densities in transit corridors.
- ⇒ Decrease parking requirements along major transit corridors.
- ⇒ Consult with transit providers to determine which transit corridors should be emphasized in planning surrounding land uses.
- ⇒ Promote transit-accessible sites to potential employers whose workers lack affordable housing options in the immediate area.

### Discussion

Regional centers are retail uses that draw most of their customers on a community wide or regional basis as opposed to drawing them from the immediate surrounding neighborhoods. Regional malls and centers are major traffic generators. Every effort must be made to identify sites with good motor vehicle access to avoid traffic congestion and with good transit, bicycle, and pedestrian access to reduce total vehicle trips.

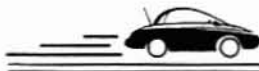
Appropriate sites should be identified in the General Plan or Community Plan.

To increase transit use and attract tax-generating businesses, transit accessible sites may be advertised and promoted to potential developers. Large employers (e.g. those employing 100 or more employees) should be steered toward sites accessible to transit. In some cities, good transit availability can offset the lack of local affordable housing.



**SANDAG Land Use Distribution  
Element Policy #2:**

*"Higher land use intensities  
should be located in transit  
access areas."*



It is important to schedule regular consultation with transit providers regarding future development plans. At little or no cost to the jurisdiction or developers, plans can be modified to accommodate and encourage future transit ridership.

### **Programs in Operation**

The Metropolitan Transit Development Board (MTDB) recently released a full-color brochure describing major projects developed jointly by MTDB and real estate ventures. A companion brochure describes sites available for development near transit stations including details of location, zoning, and potential transit-oriented uses. (Contact: Nancy Bragado, MTDB, 1255 Imperial Avenue, Suite 1000, San Diego, CA 92101, (619)557-4533.)

San Diego's Horton Plaza is the region's best example of a regional mall providing adequate access by all modes. Several factors contribute to the mall's success, including the construction of two parking structures operated to favor short-term parking and its location near major transit lines, office buildings, and entertainment. As a result of these factors, 65 percent of patrons travel to the site by modes other than automobile.<sup>16</sup>

The Bay Area Rapid Transit's (BART) Pleasant Hill station in Walnut Creek was planned for high density mixed-use office and residential uses. Developers quickly saw the benefits of locating in the area. Half of the residents living near the station use transit to commute to work. Apartments in the area command 12 percent higher rent than comparable apartments elsewhere.<sup>17</sup>



*Preserve and enhance existing neighborhoods and commercial districts having transit- and pedestrian-oriented designs.*

### **Implementation Options**

- ⇔ Modify the Zoning Ordinance to distinguish between auto-oriented and transit/pedestrian-oriented commercial zone districts. Define uses that are appropriate for these areas.
- ⇔ Designate neighborhood commercial and major/regional commercial zone districts at appropriate locations.
- ⇔ Locate competing commercial uses, especially in automobile-oriented strip malls, more than one mile from the pedestrian or transit-oriented commercial area.

<sup>16</sup>California Air Resources Board 1994

<sup>17</sup>Cervero 1994

- ⇒ Locate drive-through services in automobile-oriented areas.
- ⇒ Establish narrow street design standards in pedestrian areas and allow future “calming” (Strategy 32) of existing neighborhood streets to improve the security and comfort of pedestrians.
- ⇒ Pursue revitalization projects to improve the image of existing pedestrian-oriented neighborhoods and shopping districts (pedestrian amenities, street trees, transit facilities, etc.).
- ⇒ Establish a “Main Street Program” through the National Main Street Center to enhance an older but declining commercial district.
- ⇒ Cities with declining downtown areas should consider recycling underutilized and abandoned uses with new uses that compliment the area.
- ⇒ Offer incentives for quick rehabilitation of declining or boarded up residential and commercial properties in older, pedestrian-oriented neighborhoods.
- ⇒ Enhance downtown retail establishments by funding an established marketing consultant. Such services are routinely provided to shopping mall tenants.
- ⇒ Increase pedestrian activity in existing downtowns through the following measures:
  - Create special districts such as arts and entertainment districts or historic shopping districts which can create a vibrant downtown area.
  - Develop vending programs establishing guidelines for vending cart design and location and add newsstands in the central core.
  - Establish indoor or outdoor public markets, offering local products and presenting opportunities for public interaction.
  - Restaurants, cafes, specialty shops, educational facilities, and commercial areas all encourage use of the town center.
  - Create usable, inviting public spaces using seating, lighting, public art, landscaping, small parks, attractive waste receptacles, convenient phones, bicycle racks, and other street furniture.
  - Create transit amenities – clear, attractive, highly visible signage systems and bus shelters with good lighting, benches, protective canopies and easy visibility – to make transit use more attractive.



- Schedule special events. Cultural, social and recreational activities draw people to the center and enhance existing uses.
- Establish management programs to oversee the above components as well as security, sanitation, and other up-keep.

### **Discussion**

Many older neighborhoods and commercial areas in the San Diego region were developed when horses, streetcars, and walking were the primary modes of transportation. Maintaining these areas as desirable places to live, work, and shop can significantly reduce the average number of vehicle trips per household in the city as a whole.

A number of studies have found that a factor that leads to greater transit use is the proximity of both the residence and employment site to transit stations.<sup>18</sup> For this reason, maintaining dense areas served by transit is particularly valuable to the region, even to those people who never use them. The decline of these areas may push residents out to distant suburbs, further crowding congested highways and increasing emissions.

Since funds for local infrastructure projects are increasingly scarce, repair needs in many older developed areas have gone unmet, although these areas tend to exhibit much higher transit use, lower vehicle ownership rates, and fewer vehicle miles traveled.<sup>19</sup> In prioritizing capital projects, jurisdictions should consider the long-term consequences of foregoing reinvestment in older neighborhoods. Neglecting these areas encourages their abandonment and increases development on the urban fringe. This in turn increases vehicle emissions.

### **Programs in Operation**

As part of a long-term effort to revitalize its original downtown area, the City of Carlsbad established the Carlsbad Village Redevelopment Area and produced a *Carlsbad Village Master Plan and Design Manual* to guide redevelopment. Among many design goals, the manual addresses pedestrian circulation, particularly links between commercial, residential uses, and the commuter rail station. (Contact: Evan Becker or Debbie Fountain, Carlsbad Housing and Redevelopment Department, 2965 Roosevelt, Suite B, Carlsbad, CA 92008, (760)434-2810.)

<sup>18</sup>California Air Resources Board 1995

<sup>19</sup>Local Government Commission 1995

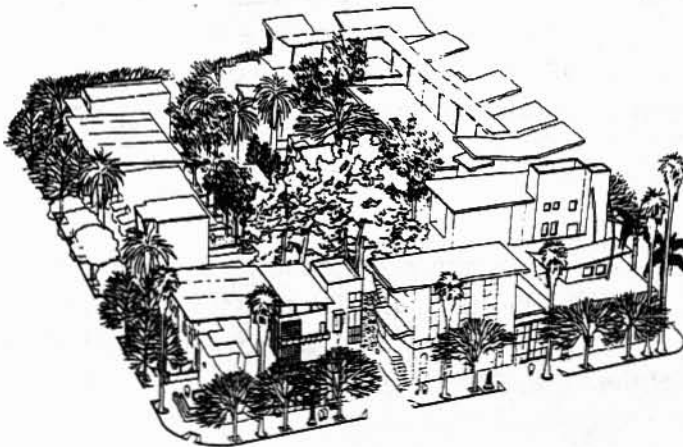


During the 1980's, the City of San Jose attracted reinvestment in its downtown through its own extensive upgrading of sidewalks, streets, street furnishings, and storefronts near a major trolley station. (Contact: Dennis Korabiak, The Redevelopment Agency of the City of San Jose, 50 W. San Fernando Street, #1500, San Jose, CA 95113, (408)277-4744.)

The cities of Encinitas, Coronado, Escondido, Vista, and San Diego have undertaken Main Street Projects through the National Main Street Center. These projects revitalize older commercial areas by capitalizing on attractive architecture and pedestrian accessibility typical of such areas. More than 3,000 communities in the U.S. have successfully applied the concept.

The Centre City Development Corporation of San Diego (CCDC) has helped finance numerous projects to encourage private reinvestment in areas well-served by transit. Since 1975, CCDC investments totaling \$219 million have leveraged \$1.76 billion in private investment. One recently approved project is in the Little Italy neighborhood just north of downtown San Diego. (Figure 2-6). (Contact CCDC, (619)235-2200.)

**FIGURE 2-6**



A forthcoming public-private project in San Diego's Little Italy neighborhood features rental units, condos, live/work spaces, and ground floor retail on a single block.

Source: Ted Smith

The City of San Diego's 1995 Draft Zoning Code Update recognizes auto-oriented and pedestrian-oriented areas and specifies uses, building setbacks, and other characteristics which reinforce these modes. For example, the Zoning Code cites heavily traveled bus routes and makes available a variety of overlay zones for both commercial and residential uses along the routes to continue supporting bus services. (Contact: Kelly Broughton, City of San Diego Development Services Department, (619)236-5932.)



The City of San Diego's Vacant Properties Task Force is overseeing implementation of measures to encourage rehabilitation or demolition of boarded up residential and commercial properties. Adopted measures include assistance in obtaining financing, referral to appropriate contractors and real estate agencies, and enforcement against continuing unattended properties. (Contact: Anita Welker, City Manager's Office, (619)236-5594.)

The Southern California Association of Governments (SCAG) and the Local Government Commission (LGC) brought together leaders from the building and real estate industries, environmental groups, universities, planners, architects, and others to form the Livable Communities Advisory Committee. The committee developed a definition of a livable community in Southern California and then recognized five neighborhoods as examples: Old Pasadena, Old Town Monrovia, Whittier Boulevard in East Los Angeles, downtown Redlands, and Huntington Beach. Each of the five had undergone a decline in the 50's, 60's, and 70's, but civic leaders and interested citizens worked to preserve and enhance the historical centers rather than demolishing and replacing them with other uses. (Contact: Nilon Seals at SCAG, (213)236-1810, or Rick Cole or Judy Corbett at the LGC, (916)448-1198.)

The City of Imperial Beach prohibits drive-through services "and other similar auto related business establishments" in areas zoned as Neighborhood Commercial. To promote walking, the General Plan also encourages the future narrowing of 80-foot wide streets not designated as major collectors. Narrowing would occur block by block as development occurs or when initiated by property owners.

### **Additional Resources**

National Main Street Center, a project of the National Trust for Historic Preservation, 1785 Massachusetts Avenue, N.W., Washington, D.C. 20036. Kennedy Smith, Director, (202) 673-4219. In California, also contact the Main Street Program, California Trade and Commerce Agency, (916)322-3520.

*New Uses for Obsolete Buildings.* Ideas, strategies and case studies of eight "adaptive re-use" projects. Urban Land Institute, \$64.95. (800)321-5011.

*Revitalizing Low-Income Neighborhoods.* Recommendations from the Urban Land Institute's (ULI) Advisory Services Panels that studied eight low-income neighborhoods. Stresses public/private/community partnerships. ULI, \$35.95. (800)321-5011.

FIGURE 2-7

BEFORE ►



AFTER ▼



Rehabilitation of storefronts in older commercial areas can maintain or increase transit usage.

Source: Studio E Architects



*What Main Street Can Learn From the Mall*, Steven Lagerfeld, Atlantic Monthly. November 1995. Discusses marketing principles that make shopping malls successful and how they can be used in older, street-oriented commercial districts.

Project for Public Spaces, a non-profit planning and design organization, works with communities throughout the country and internationally to improve the "livability" of urban and suburban environments through site designs, economic analysis, open space design, city management programs, transit improvements, etc. Project for Public Spaces, Inc., 153 Waverly Place, New York, NY 10014, (212)620-5660.

Also see Strategy 10.

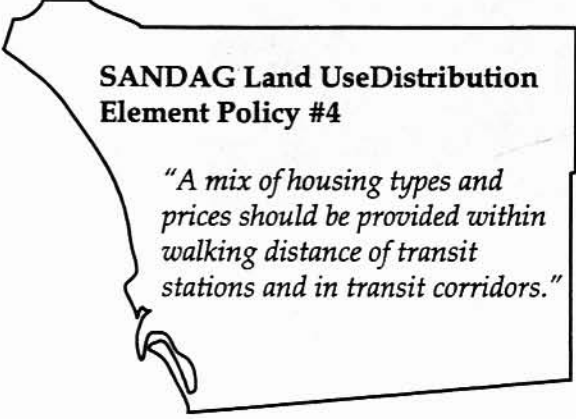


***Encourage infill and neighborhood revitalization projects within urban residential areas.***

#### **Implementation Options**

- ⇒ Encourage projects that increase pedestrian activity and provide a variety of destinations.
- ⇒ Encourage commercial uses that are complimentary to urban employment centers.
- ⇒ Encourage a mix of housing types and prices.
- ⇒ Amend the Zoning Ordinance to allow accessory dwelling units on existing residential lots.
- ⇒ Encourage higher density housing in the central business district and nearby areas where travel by transit, walking and biking tend to be higher.

- ⇒ Support projects that infill vacant areas and areas contiguous on at least one side to a developed area.
- ⇒ Create density bonus provisions in the Zoning Ordinance for underutilized infrastructure systems and revitalization areas.
- ⇒ Work with nearby residents to re-designate vacant or underutilized parcels suitable for higher densities or for transit/pedestrian-oriented developments during General Plan updates and periodic reviews.



#### **SANDAG Land Use Distribution Element Policy #4**

*"A mix of housing types and prices should be provided within walking distance of transit stations and in transit corridors."*

- ⇒ Whenever feasible, designate high- and medium-density housing at sites within walking distance of transit or neighborhood commercial services during General Plan updates and developer initiated General Plan amendments.
- ⇒ Establish minimum housing densities for areas around existing and planned transit nodes.
- ⇒ Reduce parking requirements for residential developments when it can be shown that fewer vehicle spaces are needed due to lower vehicle ownership for developments designed for transit and pedestrian access. (See Strategy 37.)
- ⇒ Adjust traffic Level of Service standards (see box) and/or provide trip reduction credits for infill projects that encourage walking, bicycling, and transit use.
- ⇒ Inventory abandoned or tax delinquent properties and work with neighborhood groups to create development guidelines and fee subsidies to encourage rehabilitation or rebuilding.
- ⇒ Work with non-profit housing corporations to build high-quality housing in appropriate infill areas.

### Discussion

Infill development takes advantage of existing urban systems and maintains the quality of living in urban core areas, which tend to be more dense than suburban areas. The density of a given neighborhood is a key determinant of the number of automobile trips taken by its residents. Rejuvenating older areas with strategic infill developments can reduce the growth of vehicle trips within the region.

A worldwide survey of travel patterns in 32 major cities found that gasoline consumption was reduced 25 to 30 percent for each doubling of population density.<sup>20</sup> Another study found that transit usage triples for each doubling in density.<sup>21</sup> Follow-up studies confirmed this finding, but a minimum threshold density is needed before transit use becomes viable.<sup>22</sup> For example, researchers found that increases in density from 1,300 to 2,700 person/square mile had no effect on travel behavior.<sup>23</sup>

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<sup>20</sup>Kenworthy and Newman 1990

<sup>21</sup>Pushkarev and Zupan 1977

<sup>22</sup>California Air Resources Board 1995

<sup>23</sup>Dunphy and Fisher 1994





In recent decades, density has become synonymous with urban decline. In fact, this perception is based more on stereotypes than reality. As discussed under Strategy 5, some of the region's most revered neighborhoods are also its most dense.

Whether deserved or not, high-density housing has gained a negative reputation as a breeding ground for crime. More important than density in determining crime levels, however, are

### Traffic Flow Standards: Unnecessary Obstacle to Infill?

One obstacle to infill development is a traffic flow or Level of Service standard. Level of Service categories range from "A" (free-flowing) to "F" (stop-and-go traffic). At Level of Service "C" (the regional standard), motorists can drive at least half their normal speed at all times. While this seems reasonable, insisting on minimal traffic delays even during commute hours can easily increase the length and number of vehicle trips by forcing development into low-density or fringe areas. Infill development is discouraged. The result, evident in San Diego County, is overburdened arterials, clogged highways, and limited transit coverage.

Level of Service standards are usually applied without acknowledgment of this risk or of the beneficial effect of congestion on transit use, pedestrian activity, and support of local businesses by nearby residents. Recognizing this problem, several U.S. cities have adopted alternative standards.<sup>24</sup> Montgomery County, Maryland, and the Florida Department of Transportation both relax Level of Service standards in areas oriented to pedestrians, bikes, or transit. For example, Dade County permits roads to serve 150 percent of planned capacity in corridors served by a rail line or express buses.

Other areas average Level of Service along a single arterial (Snohomish County, Washington), across parallel roadways (Brevard County, Florida; Orlando, Florida; and Montgomery County, Maryland), or within a defined district rather than measuring Level of Service only at individual intersections as is normally done. Still another approach has been to average Level of Service for person-trips across all travel modes (roads and transit) rather than simply examining vehicle trips (Pierce County, Washington).

Each of these methods seeks to balance traffic congestion reductions with other community goals, including air quality, pedestrian access, and lower taxes. By contrast, strict Level of Service standards inherently assume free flowing local traffic is worth any price necessary to achieve it, including greater congestion on arterials and highways.

<sup>24</sup>Savage 1993

the design and level of maintenance of a residential development. There are proven designs and layouts that can make higher densities safe and attractive. One way is to orient windows, doors and porches – rather than garages – to common areas and the street. A study of residential burglaries showed that houses within clear view of windows on adjacent houses are less likely to be burglarized.<sup>25</sup>

Strategies to increase residential density must be pursued in partnership with the immediate neighborhood. For example, apartment projects adjacent to existing residential development frequently arouse fierce neighborhood opposition. Although traffic generated per dwelling unit is significantly less, the greater number of units may still have adverse traffic impacts. The ability of public facilities to absorb increased demand for services must also be considered. Strong design and building standards for multi-family projects can help overcome neighborhood opposition. Requiring project designs that fit into the neighborhood and are attractive promotes acceptance.

An increasingly popular infill strategy is to allow accessory dwelling units (ADU) on existing residential lots. A recent American Planning Association report on ADU's states:<sup>26</sup>

*When zoning does not permit ADU's legally, their illegal installation in single-family zones, driven by unmet housing needs, is frequent and inevitable. Although many neighbors and their elected officials bristle at the thought of legally allowing ADU's in single-family zones, ADU's rarely have negative impacts on neighborhoods and offer many unusual benefits. In fact, after community officials and neighbors become familiar with ADU's by allowing them, they tend to loosen zoning restrictions to allow them under more circumstances.*

Most commonly, ADU ordinances restrict use of the units to relatives of the primary unit or allow their occupancy only if the owner lives in the primary unit.

### **Programs in Operation**

The Model Zoning Regulations for the Tri-County Metropolitan Transportation District of Oregon (Portland metropolitan region) provide good examples of zoning regulations that emphasize these planning principles. Also see Strategy 6.

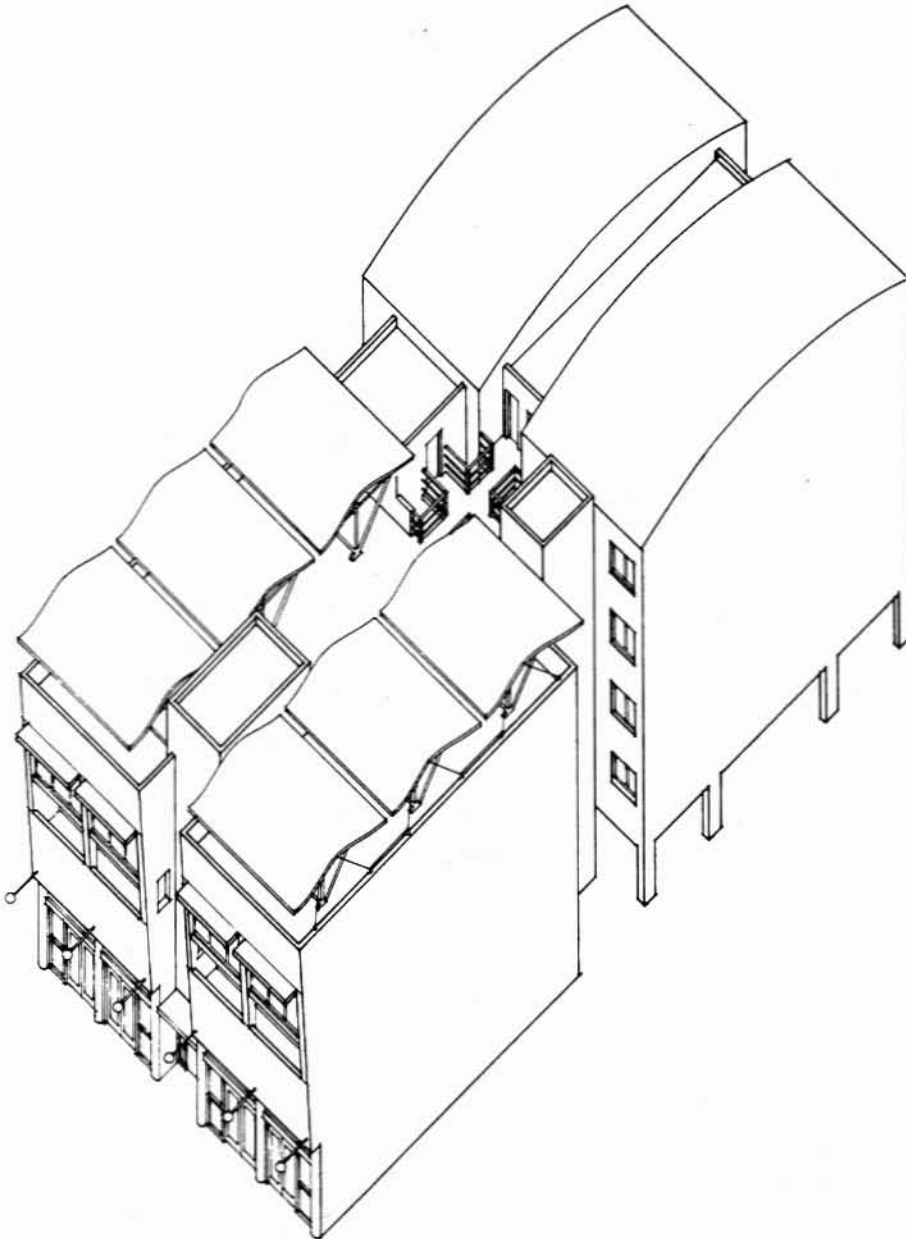
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<sup>25</sup>Brown and Altman 1983

<sup>26</sup>Cobb 1997



FIGURE 2-8

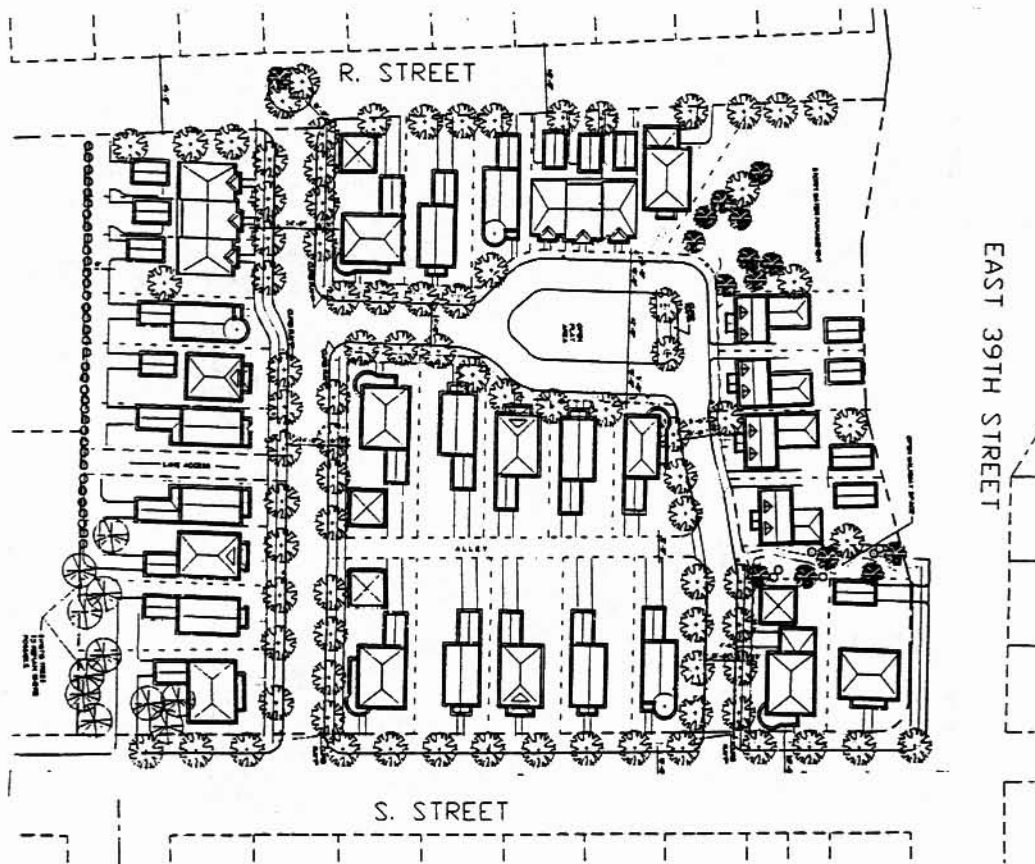


This infill project was designed for a narrow development site on a major bus corridor. It combines first floor retail with second floor office or residential units.

Source: Studio E Architects

In the Vancouver, Washington, suburb of Rosemere, citizens had blocked construction of a 20-unit residential infill development. A consultant hired by the city assessed the likes and fears of nearby residents, using visual images rather than focusing on density. Using input from residents, prospective buyers, and brokers, a draft site plan was then prepared (Figure 2-9). The new plan was accepted unanimously by the City Council even though it included 37 units rather than the original 20. (Contact: Tom Phillips of Community Planning & Research, 101 Stewart St., Suite 200, Seattle, WA 98101, (206)441-7579.)

**FIGURE 2-9**



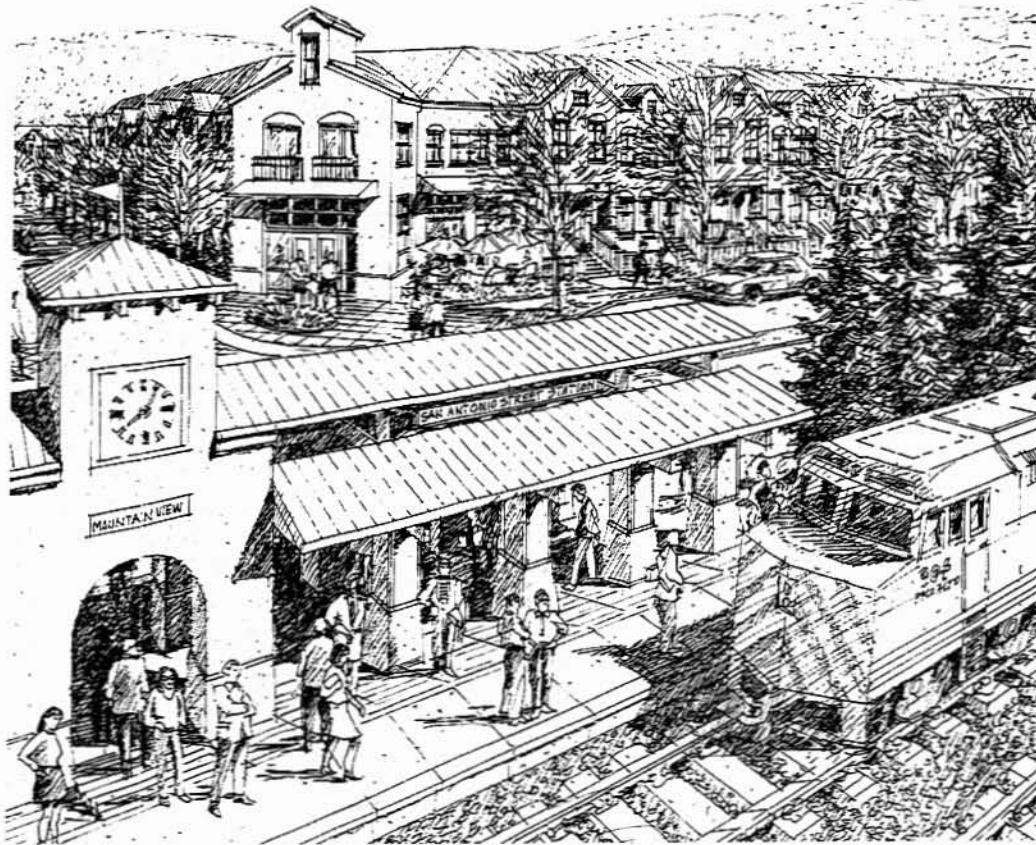
A community-negotiated infill project in Rosemere, Washington, features rear garages with alley access and front porches, several facing a common play area.

Source: Community Planning & Research, Seattle



The City of Mountain View, in Silicon Valley, effectively recycled a failed shopping mall by converting the site to compact infill residential development known as The Crossings (Figure 2-10). The new, 540-unit neighborhood, oriented to take advantage of adjacent commuter rail, was designed by the firm of Calthorpe Associates, authors of Transit Oriented Design Guidelines for the City of San Diego and other cities (Strategy 6). Housing types include small-lot single-family, townhouse, and apartments with an average net density of 30 units per acre. A strong pedestrian

FIGURE 2-10



The Crossings, a new 540-unit neighborhood with a strong pedestrian and transit orientation, replaced a 1960's auto-oriented shopping mall.

Source: Calthorpe Associates, Berkeley



orientation, parks, and selling prices at 80 percent of the city average helped sell out the project quickly. (Contact: Joe Scanga, Calthorpe Associates, 739 Allston Way, Berkeley, CA 94710, (510)548-6800.)

Many California cities allow accessory dwelling units to be developed on lots with existing units. These include the City of San Diego and San Diego County.

### **Additional Resources**

*Building Livable Communities: A Policymaker's Guide to Infill Development*, Local Government Commission, 1414 K Street, Suite 250, Sacramento, CA 95814, (916)448-1198. Suggests a number of methods, funding sources, and case examples for creating successful infill projects.

*Urban Affairs: Good News!* Alexander von Hoffman, Atlantic Monthly. January 1997. Discusses the success of non-profit housing corporations in supplying high-quality affordable housing.

## LAND USE: PUBLIC FACILITIES

Municipalities shape land use through two primary mechanisms: zoning and providing infrastructure/services (or not). To create more efficient development patterns, governments can expand infrastructure and development rights more strategically. The policies and strategies in this section can reduce development costs for cities, developers, and utility companies. They can also reduce the burden on taxpayers to supply essential services to residents and businesses.



*Provide public facilities and subsidize development fees to attract investment to older areas exhibiting high transit ridership.*

### **Implementation Options**

- ⇨ Give priority to transit focus areas and higher density areas when allocating funds for infrastructure improvements and public services.
- ⇨ Examine high density areas for infrastructure deficits and target improvements to encourage revitalization of older areas.
- ⇨ Locate public facilities in areas where infill development is desired. (See Strategy 10 for more discussion of infill development.)
- ⇨ Assume or share the cost of infrastructure improvements for desired projects.



- ⇒ Using community development grants or other funds, subsidize development fees for infill projects and transit-oriented projects. Alternatively, delay development fees until the developer sees a positive cash flow.
- ⇒ Make developers and real estate firms aware of buildable sites for which development fees are subsidized or delayed.

### **Discussion**

Among the tools municipalities have to influence development form are (1) strategically investing in new infrastructure and (2) subsidizing development fees to attract desired projects. These two strategies can be interrelated since development fees ostensibly go to pay for city services and infrastructure required by the new development.

Many cities have located new facilities such as police stations, office buildings, and high-quality public housing projects in areas needing new development. Public art, sidewalk, curb and gutter, median landscaping, and other improvements also help beautify an area. These in turn attract additional private development.

Subsidizing development fees is a more direct development incentive. Development fees are typically assessed to recover the costs of providing infrastructure, utilities, fire protection, and other services. However, these service costs can be quite low for development in areas already well-served by municipal service departments. A Florida study showed that providing infrastructure to a new residential area cost \$24,000 per unit at 12 units/acre close to the urban core and \$48,000 at 3 units/acre in a new suburb.<sup>27</sup> Development fees should be adjusted to reflect such differences in municipal expenses. However, to ensure the legality of differential development fees, it is important to measure actual costs of representative infrastructure projects and establish cost formulas for providing most types of infrastructure and municipal services.

### **Programs in Operation**

The California cities of Mountain View and Cathedral City have each invested millions of dollars in new facilities, redirected routine street enhancement funds to a single district and acquired private and federal grants to enhance their downtown areas. Private development has followed suit. (Contact for either project: Bruce Liedstrand, (415)428-1700.)

<sup>27</sup>Kassowski 1992

The cities of Sacramento and San Jose have adopted special infill site regulations that provide more flexibility than standard city zoning and offer incentives to attract infill development. One Sacramento housing complex paid no city water development fees, while a condominium project in downtown San Jose qualified for reduced building and park impact fees. (Contacts: Patricia Mendoza, City of Sacramento, (916)264-5381; Dennis Korabiak, Redevelopment Agency of San Jose, (408)277-4744.)

See also Strategy 10.

### Additional Resources

*Building Livable Communities: A Policymaker's Guide to Infill Development*, Local Government Commission, 1414 K Street, Suite 250, Sacramento, CA 95814, (916)448-1198. Suggests a number of methods, funding sources, and case examples for creating successful infill projects.



*Encourage subdivision designs that are integrated with existing or planned parks, libraries, schools, and other public facilities within walking distance of residential uses.*

### SANDAG Land Use Distribution Element Policy #8:

*"Public facility needs in transit station areas, regional bus corridors and major employment centers should receive a high priority if the plans for these areas meet the objectives of the Land Use Distribution Element."*

### Implementation Options

- ⇨ Designate park sites during General Plan updates and when processing large General Plan amendments.
  - ⇨ Prepare comprehensive community plans or specific plans designating community amenities at sites that are accessible by walking and bicycling.
  - ⇨ Adopt zoning overlays, specific plans, or other regulatory devices (see Chapter 3) to allow public amenities to be located in more pedestrian-accessible sites.
- ⇨ Coordinate with various local agencies, school districts, etc., to arrange joint use of facilities.

### Discussion

Locating public amenities within walking distance of one or more residential neighborhoods not only reduces automobile trips but increases social ties within the community, reducing recreational trips to destinations outside the community. An example is public parks.



Public parks are often the primary pedestrian amenity for a community or neighborhood. The foot traffic and socializing created by parks can carry over to nearby public and commercial uses. The design and location of the park is very important to its usefulness as a pedestrian destination and activity center. Parks should be visually and directly accessible from the neighborhood and frequently used to encourage a feeling of ownership.<sup>28</sup> Often, access to neighborhood parks is limited by adjacent dwellings or cul-de-sacs, imposing a circuitous walking route.

### **Programs in Operation**

Projects that follow pedestrian-oriented design principles include public facilities as important neighborhood amenities, reducing vehicle trips. (See Strategy 6.)

## **LAND USE: SITE DESIGNS**

Most places in the region are designed to provide the most direct and convenient access by car at the exclusion of other modes of transportation. It is possible to design sites in ways that encourage less polluting transportation modes and still support convenient access by motor vehicle.

For the purposes of this document, the term site design applies to individual subdivisions, multi-family developments, and commercial and industrial site plans. It also includes landscape and architectural features of buildings.

**STRATEGY 13** *Encourage developers to design project sites increasing the convenience, safety and comfort of people using transit, walking or bicycling.*

### **Implementation Options**

- ⇒ Adopt "pedestrian accessibility" standards and/or guidelines as part of the Zoning Ordinance, such as sidewalk widths, maximum building set-back, one entrance facing the sidewalk, and pedestrian accessibility between buildings within a multi-building complex.
- ⇒ Encourage the development and revitalization of transit, bicycling, and pedestrian friendly projects through commonly used planning documents described in Chapter 3.

<sup>28</sup>Weissman 1992

### Discussion

Design standards must be general enough to apply under all but the most unusual circumstances to avoid the need for numerous zoning variances and modifications. Some design measures like sidewalk widths, bicycle lanes, and landscaping requirements are very appropriate for design standards. Design measures dealing with parking lot designs and building facades may be better left as guidelines because of site-to-site differences, but the Zoning Ordinance should refer to these guidelines. Appropriate measures should apply to institutional (i.e., schools, municipal buildings, etc.) as well as private developments.

### Programs in Operation

The City of San Diego's 1995 Draft Zoning Code Update refers to the City's Transit-Oriented Design Guidelines, Street Design Manual, and other guidance documents to explain and illustrate specified design features.

Specific plans and other planning tools are used routinely to anticipate and plan mitigation of development impacts for a new neighborhood or subdivision. (See Chapter 3.) In the San Diego region, such documents generally propose to widen streets as mitigation for traffic impacts. An alternative is to arrange the proposed land uses to encourage walking, bicycling and transit. This avoids the capital and maintenance costs of the additional infrastructure.



*Encourage all development projects proposed within 2,000 feet of an existing or planned light rail transit, commuter rail, express bus, or transit corridor stop to incorporate site design measures that enhance access to the transit system.*

### Implementation Options

- ⇒ Identify future transit stations during General Plan updates and designate the surrounding area for pedestrian or transit-oriented development.
- ⇒ Set aside land areas as future growth nodes and designate some of these as transit-oriented development areas.
- ⇒ Identify all transit facilities on the Circulation Element Map, part of the General Plan. Analyze existing land use patterns and constraints around transit facilities to identify appropriate design measures.
- ⇒ Acquire right-of-way for transit lines through the project review process.





## Discussion

Transit's effectiveness in reducing vehicle trips and miles traveled is dependent on the level of commitment to a transit-oriented development strategy. A study conducted in the Portland, Oregon, metropolitan area estimates that individual transit-oriented developments will generate 21 percent fewer vehicle trips than conventional single-family developments and commercial uses.<sup>29</sup> This result depends on a high level of commitment to both the convenience of transit and the development of residential and commercial uses near transit stations.

This strategy may be applied to existing or planned station areas. For existing stations, pedestrian amenities can be added and desired densities created as development or revitalization occurs over time.

## Programs in Operation

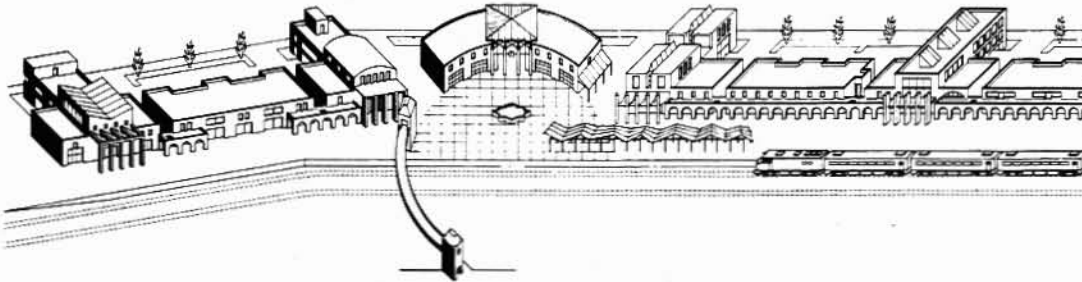
The City of Oceanside is conducting a public planning process for a potential pedestrian-oriented mixed-use development in the 10-block section of downtown adjacent to The Coaster Commuter Rail right-of-way. This process will also help plan six station areas along the planned Oceanside-to-Escondido rail corridor. The city received a Vehicle Registration Fund grant from the Air Pollution Control Board to inventory land uses, determine appropriate transit-oriented uses for each area, and amend the General Plan and Zoning Ordinance as necessary. (Contact: Elizabeth Graff, City of Oceanside Planning Department, 300 N. Coast Highway, Oceanside, CA 92054, (760)966-4772.)

The City of Chula Vista's General Plan calls for redeveloping the land around its two existing trolley stations for compact, pedestrian-oriented, and mixed-use. (Contact: Duane Bassel, Chula Vista Planning Department, 276 Fourth Avenue, Chula Vista, CA 91910, (619)691-5005.)

Dozens of potential transit station areas have been identified throughout the San Diego region (Figure 1-2). These are based on both existing and planned transit services. The City of San Diego has proposed making available an optional Transit Village Zone which could be implemented in an identified transit station area or elsewhere. (See Strategy 6.) The Transit Village Zone would supersede underlying zoning.

<sup>29</sup>1000 Friends 1993

FIGURE 2-11



New regional rail stations should include a mix of uses on adjacent parcels.

Source: Studio E Architects

STRATEGY 15

*Review all plans for subdivision streets and lots, commercial sites, public facilities, and multi-family residences to identify design changes to improve access by transit, bicycle, and walking.*

*Note: This strategy should be applied only to especially large and significant projects as defined by the municipality.*

**Implementation Options**

- ⇒ Modify design review procedures to cover features that affect street treatments, building access, and internal circulation by alternative transportation modes.
- ⇒ Develop design guidelines that illustrate preferred designs.

**Discussion**

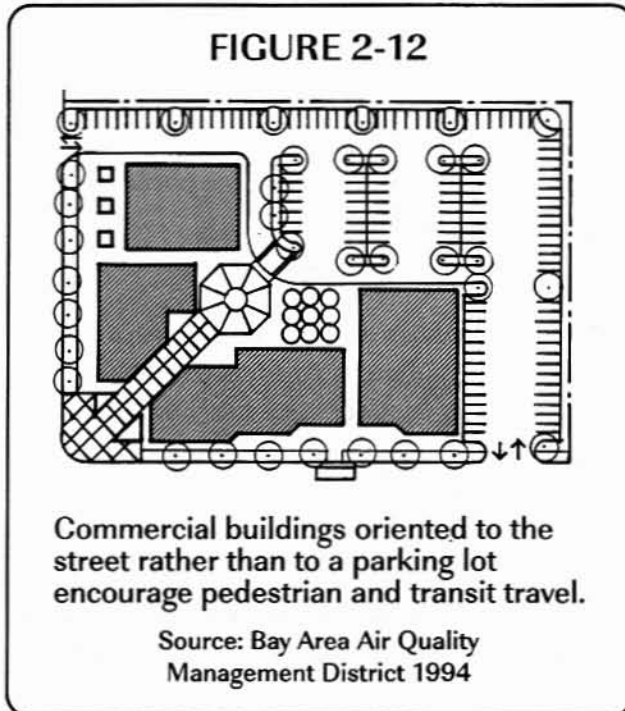
By providing destinations where people feel comfortable walking, where access to transit is convenient, and where bicycles can be safely ridden and parked, the effectiveness of all other programs to reduce trips and improve air quality will be much greater. The two mechanisms to ensure such destinations are created are design guidelines and a review process to ensure the guidelines are used. One planner has written, "Difficult as it is to have a review mechanism and no guidelines, it's worse to have guidelines and no review mechanism."<sup>30</sup> Other policies in this document advocate adoption of design guidelines, while this strategy promotes review of projects to ensure compliance with those guidelines. The strategy focuses on especially large projects to identify features that can enhance the use of alternative modes.

<sup>30</sup>Zotti 1991



Just a few examples of design measures that could be recommended during design review include:

- Intra-development designs that incorporate integrated street patterns rather than the “pod” design, which limits ingress and egress options to the development and funnels traffic to a limited number of congested arterials.



- Primary ground floor commercial building entrances orienting to plazas, parks, or pedestrian-oriented streets, not to interior blocks or parking lots (Figure 2-12).
- Use of trees and plantings in travelway landscaping and surrounding residences.
- Varied and articulated building facades to provide visual interest to pedestrians.
- Street trees spaced no further than 30 feet in planter strips or tree wells. Tree species selected to create a unified image for the street and provide a tree canopy.

- Sidewalks providing an unobstructed path at least five feet wide. Larger sidewalk dimensions, up to 10 feet, in core commercial areas where pedestrian activity will be greatest.

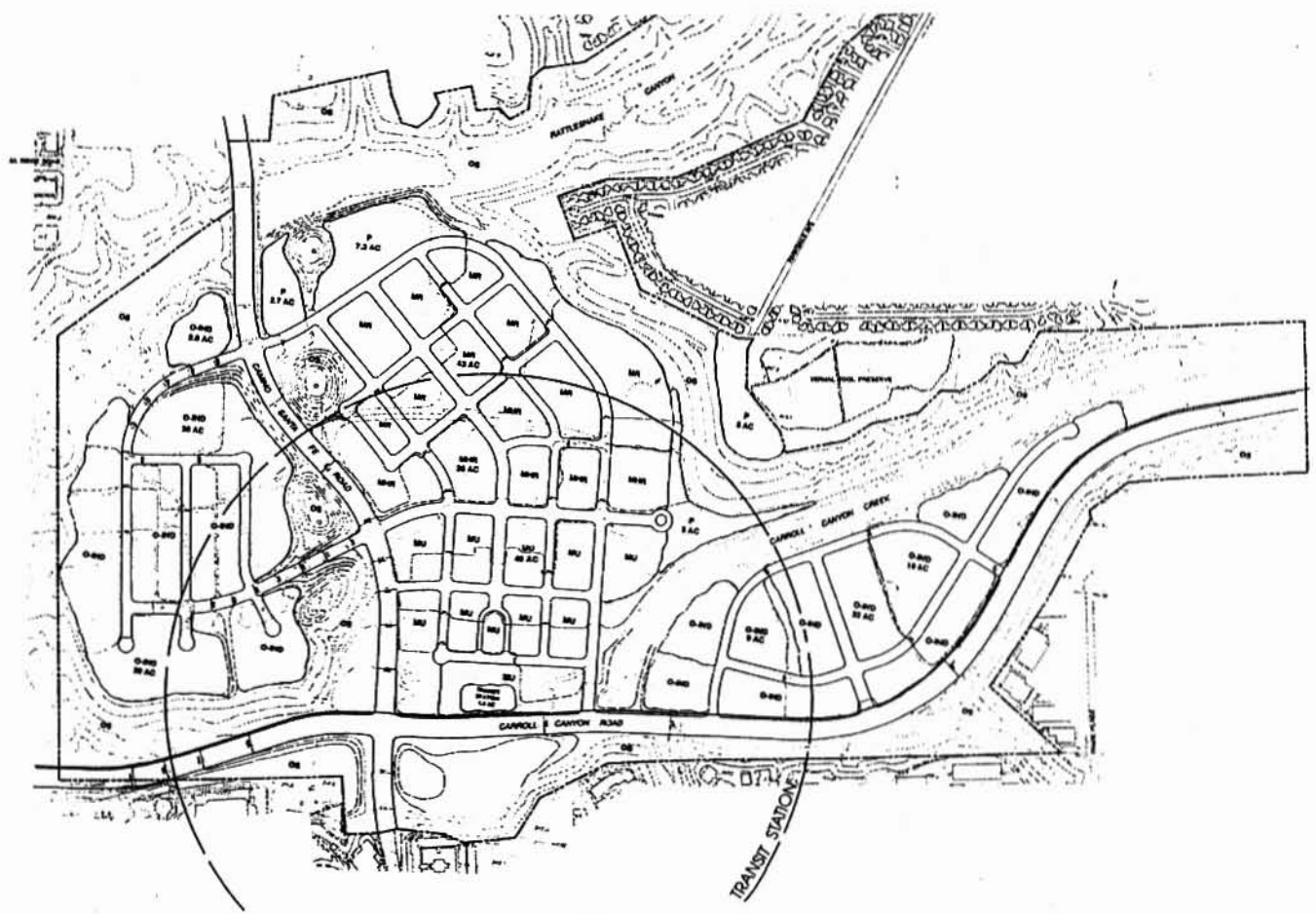
### Programs in Operation

A Community Plan amendment approved by the City of San Diego for the Carroll Canyon area of Mira Mesa follows the City's Transit-Oriented Design Guidelines. (See Strategy 6.) The planned street network, pedestrian/bicycle facilities, and mix of uses (Figure 2-13) is expected to reduce vehicle trips by 19 percent over a conventional development scheme. (Contact: Bernard Turgeon, City of San Diego Development Services Department, (619)235-5225.)



*Ensure, wherever possible, new commercial developments include convenient, comfortable, and safe pedestrian/bicycle connections to adjacent properties.*

FIGURE 2-13



The transit-oriented Carroll Canyon Community Plan will generate 19 percent fewer vehicle trips than conventional development.

Source: City of San Diego 1994.



### **Implementation Options**

- ⇨ Modify the Zoning Ordinance to require pedestrian/bicycle connections and illustrate building configurations that accommodate easy pedestrian access from adjacent properties and transit stops.
- ⇨ Emphasize entrances that front the street while providing automobile parking on the side or rear and bicycle parking in front.
- ⇨ Encourage barrier-protected walkways through large parking lots, where feasible.

### **Discussion**

In commercial "strip" developments, walking between adjacent commercial properties is often difficult and frequently dangerous. Sometimes, patrons must drive more than half a mile to reach a store that is well within walking distance. Planning pedestrian connections along an entire commercial street or within a shopping district, rather than project by project, can ensure that each new project begins to reverse the inaccessibility between adjacent commercial properties. Shared parking agreements may need to be negotiated so that shoppers can leave their cars in one store's parking lot while shopping at a neighboring store.

### **Programs in Operation**

Rio Vista West is a residential/commercial development located in San Diego's Mission Valley, adjacent to a planned trolley stop. The commercial portion includes a wide, barrier-protected, landscaped sidewalk running through the parking lot and connecting two anchor stores.



### TRANSPORTATION STRATEGIES

The strategies in this section provide ways to plan for the transportation needs of the community that can provide alternatives to automobile travel, improving air quality.

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#### Principles for Planning Transportation Systems for Improved Air Quality

- ⇒ Plan and construct an innovative, multi-modal transportation system to meet mobility needs and improve air quality.
  - ⇒ Plan for future transit connections to new developments not currently envisioned for transit.
  - ⇒ Design new communities with bicyclists and pedestrians in mind.
  - ⇒ Acquire appropriate rights-of-way for future light rail or other fixed guideway systems.
  - ⇒ Support further improvements to intercity and commuter rail service in the county.
- 

*Note: The type of transportation system is dependent on the size of the community. The above principles are directed at communities currently or projected to be of adequate size to support these systems.*

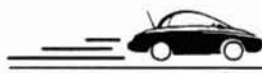
### TRANSPORTATION: MULTI-MODAL SYSTEM

The transportation infrastructure developed in San Diego County supports the automobile at the expense of other modes of transportation. Placing new emphasis on transit, bicycling, and pedestrian infrastructure is vital to relieve pressure from the traditional roadway systems and improve air quality. (The region's existing transit systems serve only about four percent of rush hour work trips.<sup>31</sup>)

The keys to more efficient planning are appropriately arranged land use, discussed previously, and planning transit systems for the eventual build-out within the county. The alternative is to continue to address congestion mostly through incremental roadway widening. Cities and states further along in the growth process than the San Diego region are realizing that, in the long run, this is not an effective or affordable strategy.

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<sup>31</sup>San Diego Association of Governments 1994



## STRATEGY 17

*Plan for a multi-modal transportation system that meets the mobility needs of the community and improves air quality.*

*Note: For purposes of this document, the term "multimodal" includes transit, pedestrian, bicycle and automobile modes.*

### **Implementation Options**

- ⇨ Identify obstacles to "mode-switching," e.g., walking to transit, bicycling to a carpool parking area, or shuttle bus to commuter rail.
- ⇨ Ensure that updates to the Circulation Element of the General Plan and the design of regional transportation improvement projects support a multi-modal system.
- ⇨ Work with the appropriate transportation providers to develop a complete range of innovative and cost-effective options. Some options to consider are:
  - Jitney services using smaller, efficient vehicles to serve low-density areas (jitneys can run on fixed or flexible routes and can use vehicles similar to airport shuttles or smaller).
  - Improved and less costly taxi service to reduce drop off trips.
  - High Occupancy Vehicle (HOV) lanes or bus-only lanes and transitways.
  - Congestion pricing measures such as toll roads with electronic toll collection and billing with rate structures favoring multiple-occupant vehicles
  - Providing incentives for the use of alternative fueled vehicles (AFV), such as electric vehicle fueling stations at park and ride lots.

### **Discussion**

With federal transportation planning mandates and state congestion management requirements, transportation plans must support alternatives to the single occupant automobile. In addition, most jurisdictions are unable to identify funding sources to address all projected road and highway capacity needs. This means that local jurisdictions must identify ways of using existing roadways more efficiently and reducing travel demand in order to avoid gridlock and degraded air quality. Strategy 17 is an overall commitment to developing an efficient transportation system, rather than one which is responsive solely to automobiles. The economic vitality and future air quality of the region will be determined, in part, by current transportation planning efforts.

Transit systems must be improved to provide shorter waits, competitive trip speeds, and better network coverage. Some transportation experts suggest that, in low-density areas, the most effective forms of transit are those most closely resembling the convenience and size of the private automobile. Envisioned future services could combine advances in both vehicles and telecommunications to match riders with private drivers or shuttle services through a computer and phone system. One author suggests such a service should be made available on a real-time basis by dialing 711 to offer or obtain a ride.<sup>32</sup> Congestion and air pollution could be noticeably reduced if even 10 percent of travelers from low-density areas used such services.

"Multimodal" can also include alternative fuel vehicles (AFV). Many strategies promoting cleaner transportation fuels are intertwined with transit services, vanpools, etc. AFV's have the potential to significantly reduce air pollution from the mobile source sector. San Diego Gas and Electric estimates that 107 compressed natural gas (CNG) transit and 55 CNG school buses result in annual emission reductions of 80 tons of nitrogen oxides, 25 tons of non-methane hydrocarbons, and 560 tons of carbon monoxide.

### Programs in Operation

In the San Diego region, more than 50 entities participate in the San Diego Regional Alternative Fuel Vehicle Coalition that as one project, obtained federal designation of San Diego as a Clean Cities region. This designation makes the region eligible for competitive federal and state funding for AFV incentives. Among other projects, the coalition is also helping to site AFV fueling stations. (Contact: Kim Cresencia, San Diego Gas and Electric, 8306 Center Park Court, Suite 4200C, San Diego, CA 92123, (619)654-1107.)



*Pursue and use local, state and federal funds earmarked for pedestrian, bicycle and transit improvements.*

### Implementation Options

- ⇔ Ensure that Regional Transportation Improvement Plans include cost-effective, alternative transportation mode projects best suited to the community.

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<sup>32</sup>Webber 1994



## Discussion

Because of matching fund requirements for many state and federal transportation funding programs, some jurisdictions do not pursue these sources. The tendency so far has been for jurisdictions to spend funds on roadway improvements such as signalization and capacity expansion. In the long term, many of these projects may actually increase vehicle travel, increasing air pollution.<sup>33</sup> Without a change in funding priorities to support alternative modes of transportation, significant changes in mode shares are unlikely. Municipalities should work with neighborhoods, merchants associations, and transit providers to identify cost-effective projects that would increase walking, bicycling, and transit use in the community.

## Programs in Operation

Each year, SANDAG coordinates the distribution of federal, state, and regional transportation funds. Funding awards are based primarily on the projects requested by local governments, who in turn are responding to citizens, developers, and business owners. Citizens interested in advocating the funding of pedestrian, bicycle, and transit projects should contact their local Department of Public Works or SANDAG. (Contact: George Franck, SANDAG, 401 B Street, San Diego, CA 92101, (619)595-5378.)



*Encourage transit, pedestrian and bicycle travel in existing suburban neighborhoods by constructing additional pathways where appropriate.*

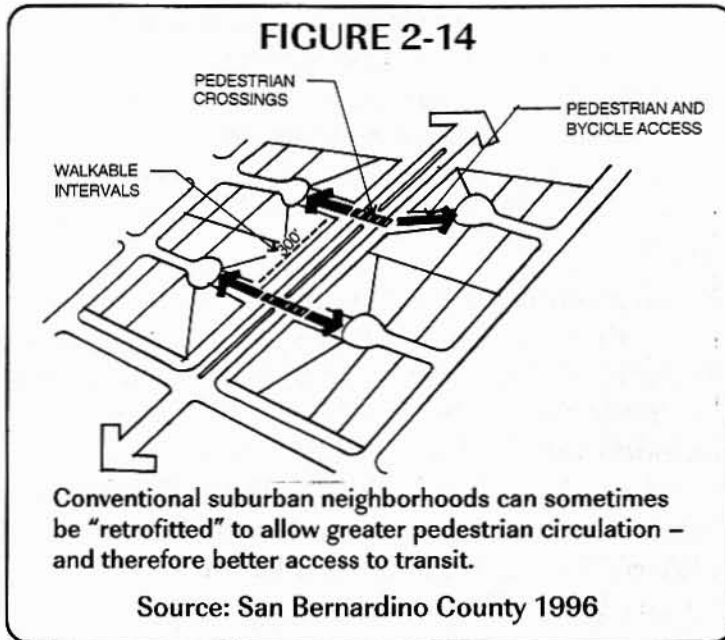
## Implementation Options

- ⇨ Consult community groups and survey existing neighborhoods, particularly those with winding and cul-de-sac street designs, for cost-effective opportunities to improve pedestrian/bicycle circulation by connecting nearby areas separated by barriers.
- ⇨ Include these smaller scale pedestrian/bicycle improvements as part of the Regional Transportation Plan and Regional Transportation Improvement Program.

## Discussion

Traditional transit services in low-density areas are generally ineffective, not only because of low population densities, but also because pedestrian routes to transit stops have been made difficult

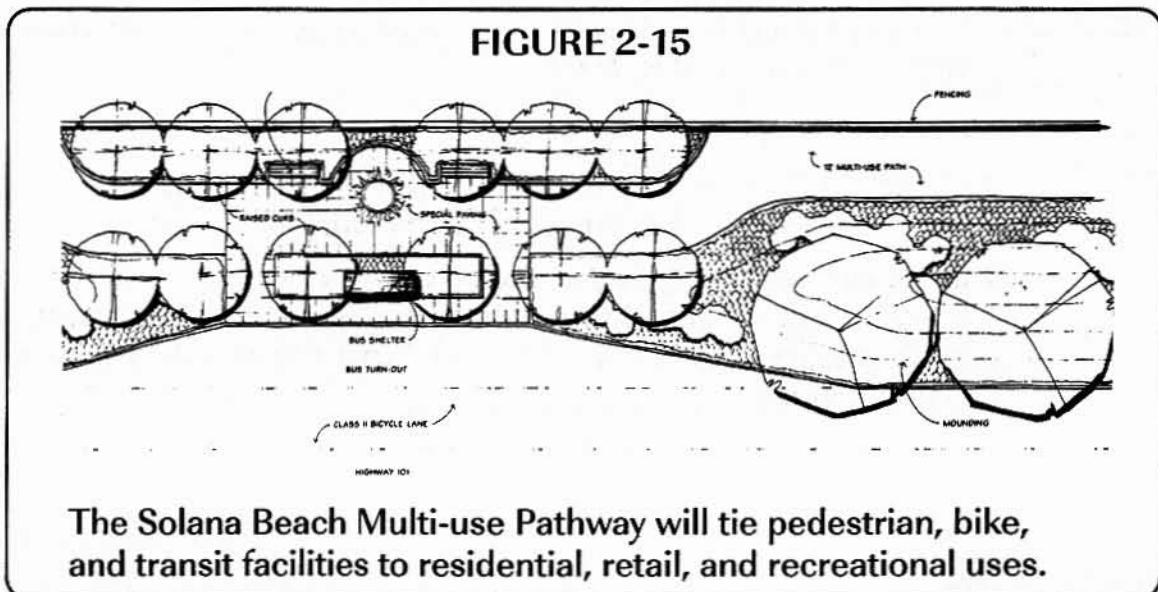
<sup>33</sup>Conservation Law Foundation 1995



by the street layout. These areas can sometimes be "retrofitted" with new pedestrian/bicycle connections by providing a break in a sound wall, or by constructing a sidewalk, stairway, or footbridge between adjacent but unconnected streets (Figure 2-14). In some cases, it is necessary to obtain easements from property owners.

### Programs in Operation

The City of Solana Beach is currently constructing a 1.8 mile multi-use pathway within a linear park adjacent to the coastal rail right-of-way (Figure 2-15). The pathway will reduce auto travel by providing residents and visitors with direct bicycle and pedestrian access to the North County Transit District's Regional Transit Center, a hub for Amtrak, The Coaster (commuter rail), and numerous bus routes. Additionally, the path will connect to local commercial areas, eight bus stops, and six regional beach parks. (Contact: Andrew O'Leary, Solana Beach Planning Department, (619)755-2998.)







Many of the Bay Area Rapid Transit System (BART) stations are connected to a bus system and provide bicycle and pedestrian amenities. The suburban cities of Walnut Creek and Pleasant Hill have prepared a specific plan focusing development in a 125-acre area around the Pleasant Hill BART station. Residents of apartments in the plan area use BART for as many as 40 percent of their commute trips.<sup>34</sup>

The City of Long Beach recently built a "commuter bicycle station" in a transit mall. The station features on-duty security guards and supporting facilities for bicyclists, valet parking, bike rentals, and a coffee bar. Construction of the facility was funded by the federal Department of Transportation, the Metropolitan Transportation Authority, the City of Long Beach, and the Long Beach Redevelopment Agency. (Contact: Tim Lee, City of Long Beach Planning Department, (310) 570-6173, or Georgia Case, Bikestation, 105 Promenade North, Long Beach, CA 90802.)

### Resources

The San Diego Metropolitan Transit Development Board (MTDB) has produced a manual and accompanying videotape illustrating, in part, the need and methods for "retrofitting" low-density suburbs to support pedestrian and transit travel. The manual is entitled *Designing for Transit*. The videotape is called *Cities in the Balance: Creating the Transit Friendly Environment*. (Contact MTDB, 1255 Imperial Avenue, Suite 1000, San Diego, CA 92101, (619)241-1466.)

Also see Strategy 6.



*Work with transit providers to plan for multi-modal transfer sites that incorporate bicycle paths, bicycle parking, transit, pedestrian access, and Park and Ride lots.*

### Implementation Options

- ⇒ Identify locations where transportation systems converge and designate these areas as potential multi-modal transfer sites.
- ⇒ If cost-effective, apply for funding to construct a multi-modal transfer station. Sources for funding include ISTEA funds, transit funds, and the Air Pollution Control District's Vehicle Registration Fund Program.

<sup>34</sup>Weissman 1992

- ⇒ Work with Caltrans, transit providers, and the Public Works Department to identify suitable sites for Park and Ride lots. Designate sites on the General Plan Land Use and Circulation Elements.
- ⇒ Zone Park and Ride lots to allow small commercial uses such as charitable donation centers, food service facilities, and convenience stores. Experience shows this increases activity at the Park and Ride lots, creating “watchful eyes” to protect patrons and their cars.
- ⇒ Coordinate with owners of shopping centers, movie theater complexes, special event facilities, and churches to designate underutilized portions of commercial parking lots for weekday Park and Ride purposes.
- ⇒ Consider funding of Park and Ride lots as an offset for conventional mitigation during CEQA review of land use projects.
- ⇒ Coordinate with appropriate transportation agencies and major employers to establish express buses and vanpools to increase the patronage of Park and Ride lots.

### Discussion

Providing multi-modal transfer sites increases transit’s convenience and eliminates the heavily polluting short trips when people are able to walk or bicycle to the transit stop instead of driving. Reduced congestion is another benefit. One of the best transit systems in North America, located in the City of Toronto, carries 31 percent of travelers during commute hours.<sup>35</sup> On the other hand, transit in San Diego County attracts 4 percent of travelers during the peak commute hour.<sup>36</sup> Transfer sites are only one of many factors influencing transit ridership, but can be a critical link.

Park and Ride facilities support transit and car/vanpooling but generally do not eliminate vehicle trips. Trips to the Park and Ride lot from home and back generate substantial “cold start” emissions (Chapter 1). Consequently, only relatively long shared-ride trips appreciably reduce emissions. Thus, the maximum benefits from this strategy are achieved by targeting long distance commuters.

Security-related problems are a major deterrent to Park and Ride facility usage. The presence of on-site businesses has helped reduce crime and increase patronage at the few Park and Ride sites on which joint uses are permitted.

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<sup>35</sup>Kenworthy 1991

<sup>36</sup>San Diego Association of Governments 1994



### Programs in Operation

In 1996, there were 61 Park and Ride lots providing 3,440 spaces for Park and Ride usage within San Diego County. Thirty-five of these lots are located within Caltrans right-of-way. The remainder are operated under long-term leases or month-to-month agreements on city, county, or private property. Caltrans data indicate parking utilization is 36 percent, and the predominate trip purpose is work-related. (Contact: State of California Department of Transportation District 11, Transportation Demand Management Branch, P.O. Box 85406, San Diego, CA 92186-5406.)

Caltrans completed a San Diego Regional Park and Ride Study in 1994 to coordinate current Park and Ride planning efforts into one concerted effort. This study quantified existing and future demand for Park and Ride facilities and identified and evaluated appropriate candidate sites for future Park and Ride lot locations. By the year 2015, projected demand could support up to 36 additional Park and Ride facilities in the San Diego region.

Vandalism and theft of motor vehicles and bicycles left in Park and Ride lots and concerns about personal safety have contributed to a gradual but steady decline in patronage at many Park and Ride facilities in the San Diego region. To address this concern, Caltrans has implemented an "On-site Provider Program" to site commercial activities at Park and Ride sites where joint uses are permitted. A food service facility at the Interstate 15/State Route 76 lot and manned storage units installed by Goodwill Industries at three sites have resulted in improved site conditions without the loss of parking space.

To utilize sites not within its jurisdiction, Caltrans employs a standard shared-use agreement. The agreement eliminates a property owners' potential liability for Park and Ride activity and provides for potential improvement and periodic maintenance of the parking area.

## TRANSPORTATION: TRANSIT



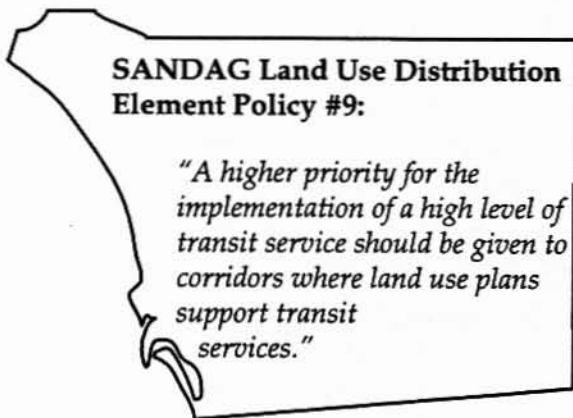
*Coordinate with neighboring jurisdictions and transit providers to plan land uses supporting existing transit services and to designate future transit corridors.*

### Implementation Options

- ⇒ Work with transit providers to develop long-range transit plans based on land use plans supportive of future transit service.
- ⇒ Work with the regional transit agency to route new or existing services on streets with the greatest land use densities.
- ⇒ Consult neighboring jurisdictions during General Plan updates.

### Discussion

Development that is sufficiently intensive to support frequent transit service should be strongly considered, particularly in transit corridors. Conversely, land planners should plan future land uses with transit in mind. Transit providers should be consulted early when new land use plans are being considered.



As available residential land becomes more scarce (Chapter 1), the market for higher density housing will increase. Apartments, condominiums, and small-lot detached houses may be coupled with frequent transit service (10 minutes or less between departures). Local transportation departments should be working with their planning department and transit agencies to plan future transit corridors.

### Resources

*Planning and Design for Transit Handbook*, 1995, contains design guidelines and model zoning language addressing parking lot/parking structure design. Available for \$10 from TriCounty Metropolitan Transportation District of Oregon (Tri-Met), Transit Development Department, Technical Services Division, 710 N.E. Holladay Street, Portland, OR 97232, (503)239-6711.

*Planning and Design for Transit Handbook*, January 1996. Also available for \$10 from Tri-Met. Provides more specific guidance for land use and transportation plans, site designs, and transit facility designs.

*Land Use, Transportation, and Air Quality: A Manual for Planning Practitioners*, San Bernardino Air Quality Plan, 1993. Contains specific design suggestions for encouraging alternative modes. County of San Bernardino and The Planning Center. \$50. Available from The Planning Center, 1300 Dove Street, Suite 100, Newport Beach, CA 92660.

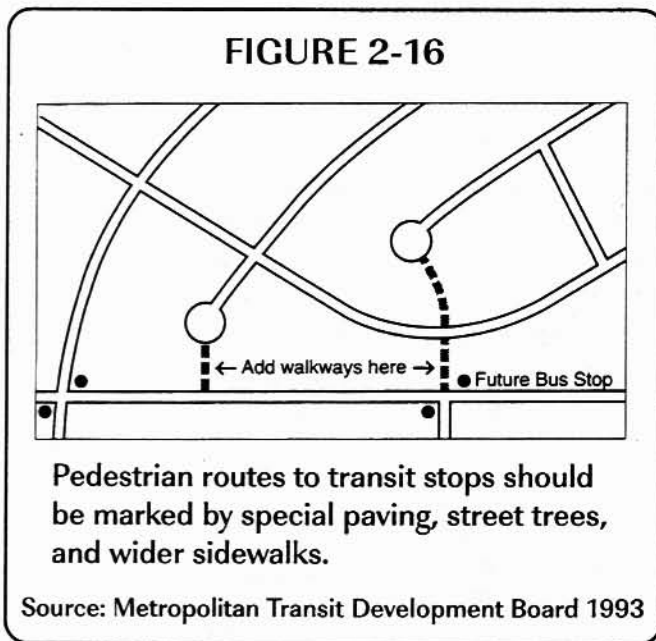


**STRATEGY 22**

*Specify site design and roadway features to enhance pedestrian and bicycle access to transit in existing service corridors and those designated for future transit service.*

**Implementation Options**

- ⇒ Prepare development guidelines specifying transit access features for building sites in designated transit corridors.
- ⇒ Identify transit improvement needs during CEQA review of new development projects, and encourage dedication of sites and improvements as offsets for CEQA mitigation.
- ⇒ Revise street and road design standards to include appropriate designs for pedestrian/bicycle access and passenger loading areas.



This should not be interpreted to mean wider streets. A narrow street with no bike lanes is safer than an 80 foot street width which includes a bike lane.

- ⇒ Include exclusive bus lanes and signal prioritization favoring transit vehicles wherever appropriate to improve pedestrian access to transit.
- ⇒ When building or rebuilding streets and sidewalks, include attractive and clear pedestrian/bicycle routes to transit stops (Figure 2-16).

**Discussion**

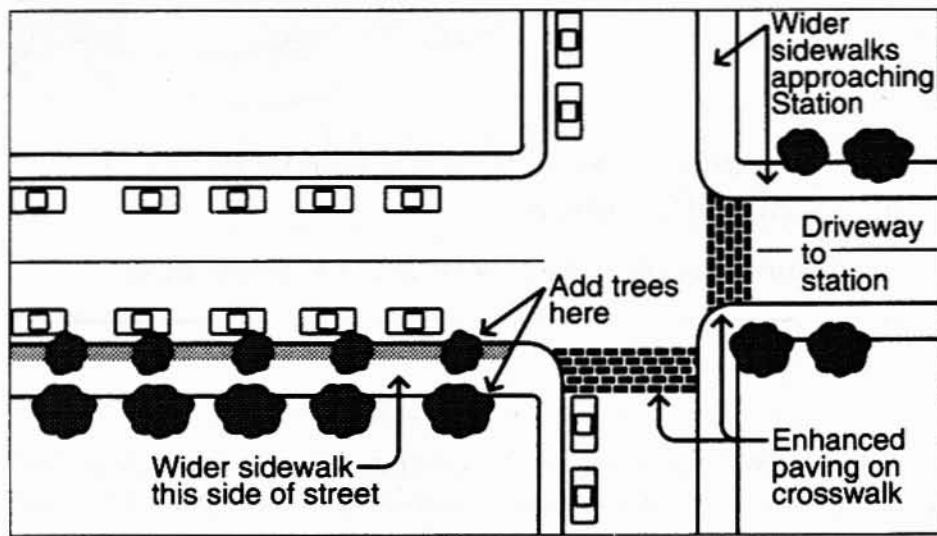
Transit improvements should be considered the same as other roadway improvements such as curbs, gutters, and sidewalks now provided by developers. In light of the multi-modal emphasis of all new transportation plans, transit improvements should be viewed by public works departments as an extension of roadway improvements and by developers as an integral part of site planning.

Typically, low-density residential development is not built with transit access in mind. However, once a new neighborhood is occupied, the residents may complain of lack of access to transit



services. Besides commuters, children, the elderly, and domestic employees may benefit from transit.<sup>37</sup> New developments should be designed to include pedestrian routes to existing or potential future transit stops (Figure 2-17). To be certain this occurs, cities should promulgate legal requirements or flexible but specific guidelines for the design details they desire. Additional development costs should be offset by allowing higher density, since this will make travel by transit more viable for the transit provider.

FIGURE 2-17



New developments should be designed to include pedestrian routes to existing or potential future transit stops.

Source: Metropolitan Transit Development Board 1993

This strategy provides a mechanism for municipalities to reserve the road right-of-way and land needed to construct transit facilities and pedestrian/bicycle routes to transit stops, assuming this is determined to be a cost-effective strategy. By planning in advance for transit stops and pedestrian routes to reach them, surrounding development can be designed to benefit from proximity to transit instead of being negatively impacted by the location of the facilities (Figure 2-18).

### Resources

*Designing for Transit*, MTDB (Contact: MTDB, (619)241-1466.)

See Strategy 14.

<sup>37</sup>North County Transit District 1996



FIGURE 2-18



In higher density areas, streets should be designed to accommodate transit.

Source: San Diego Association of Governments 1995

STRATEGY 23

*Participate with regional transit agencies to identify potential light rail or commuter rail corridors and take action to protect the right-of-way from incompatible development.*

**Implementation Options**

- ⇨ During updates of all General and Community Plans, evaluate the need to protect right-of-way for potential or planned transit corridors.

**Discussion**

It is far easier to locate a rail line if rights-of-way have been secured, and compatible land uses have been planned along the corridor, than to attempt to add a line through existing streets and neighborhoods. Some street rights-of-way remain undeveloped and could serve as future rail rights-of-way. Cities should work with transit agencies to determine the potential of these rights-of-way for future transit development, such as light rail. Identified corridors should then be incorporated in the General Plan or other planning documents.

## TRANSPORTATION: BICYCLING FACILITIES

Jurisdictions in the San Diego region have made a strong commitment to bicycling. Most of the region's General Plans call for a comprehensive system of bikeways to provide an alternative to automobile travel, not just as a form of recreation. Policies suggested in this section address remaining areas of need in completing such systems in a way that cost-effectively replaces vehicles trips with bicycling trips.

**STRATEGY 24** *Identify and correct gaps and obstacles in current and planned bicycling routes.*

### Implementation Options

- ⇒ Conduct a survey of local bicycle commuters to identify gaps and obstacles in the local and regional bicycling network.
- ⇒ Where possible, provide separate bike paths in areas with high potential for non-recreational use, but where motor vehicle speed or volume make on-street bike lanes unsafe or unpleasant to use.
- ⇒ Provide clear instructions for bicyclists at intersections, lane merges, freeway transitions to surface streets and other problem areas.
- ⇒ Use lower speed limits on roads cyclists will share with motorists.
- ⇒ Provide automatic traffic signal actuators imbedded in the roadway or provide manual signal actuators where cyclists may reach them without leaving the roadway.
- ⇒ Where strong potential exists to shift trips from car to bicycling trips, provide convenient bicycle and pedestrian bridge crossings for freeways and waterways.
- ⇒ Educate bicyclists and motorists on the rights and responsibilities of bicyclists and enforce traffic control laws applied to both.

### Discussion

Bicycling is the most efficient form of transportation ever devised. The amount of energy consumed per mile is less than any form of locomotion including walking. The congestion and air quality benefits of bicycling are obvious. The bicycle is a zero-emission vehicle.

Although many communities have systems of bikeways and bike lanes, their current use is limited. Bicycling accounts for approximately 2.5 percent of all trips and one percent of work trips in San Diego County.<sup>38</sup> The most important factors limiting greater use are lack of continuity and safety considerations.

<sup>38</sup>1990 Census

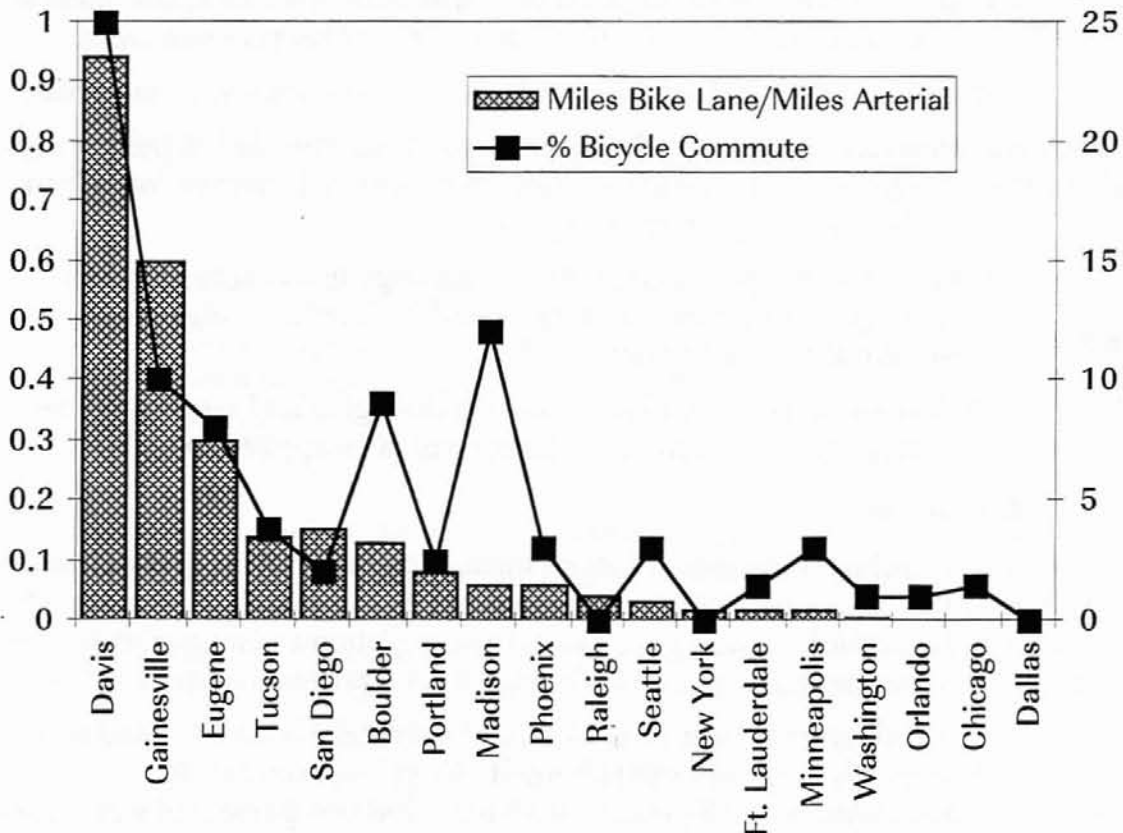


Bicycle routes in the San Diego region are often not continuous. Many routes have unsafe bottlenecks at intersections to accommodate left and right turn lanes. Some routes narrow to one foot in places or periodically disappear and reappear. Many traffic signals cannot be actuated by bicyclists without leaving the roadway to press the pedestrian crossing actuator. All but the most experienced bicyclists are discouraged by these conditions. Nevertheless, it generally follows that the more bikelane miles provided, the more non-recreational bicycling occurs (Figure 2-19).

The countywide emission reduction potential for just a one percent increase in bicycling mode share for all trips is roughly one ton per day each of ROG and NOx. This calculation is based on the 1996 Mobile Source Emissions Budget for ROG and NOx for the San Diego region. The calculation assumes that a one percent shift from vehicle mode share to bicycle mode share corresponds to a one percent decrease in on-road mobile emissions.

**FIGURE 2-19**

**Ratio of Bike Lane to Arterial Miles vs. Percent Bicycle Commuting**



The provision of bicycle lanes correlates well with the level of bicycle commuting.

Source: Federal Highway Administration 1992a

### Programs in Operation

Regional bicycle facilities planning in San Diego County is guided by SANDAG's Bicycle Facilities Committee. Sixteen of the 19 jurisdictions in the county have a Bicycling Masterplan. Currently, 847 miles of linear facilities are available for riding.<sup>39</sup> In some areas, secure bicycle parking, showers and locker rooms and bus mounted carriers are available. The objective of the bicycle program is to increase daily bicycle trips from approximately 250,000 currently to 600,000 trips in the year 2015. That will increase the bicycle mode share from its current 2.5 percent to 3.5 percent in the year 2015. An extensive educational and promotional program is also underway. (Contact: Dennis Thompson, SANDAG, 401 B Street, San Diego, CA 92101, (619)595-5325.)

The current seven year Bikeway Program includes construction of an additional 1,013 miles. One of those projects is the Rail Trail, a 21-mile bicycle path paralleling the proposed rail line between Oceanside and Escondido. (Contact: North County Transit District, (619)967-2828.)

The City of Solana Beach is constructing a multi-purpose trail connecting several modes of transportation and land use origins and destinations (see Strategy 20). This is an example of how one city can encourage alternative means of transportation while enhancing its own desirability and vitality. (Contact: Andrew O'Leary, City of Solana Beach, 635 S. Highway 101, Solana Beach, CA 92075, (619)755-2998, ext. 140.)

Davis, California, is the most bicycle-oriented city in the state. Twenty-five percent of Davis residents commute to work by bicycle<sup>40</sup> and 10 percent of all trips are by bicycle.<sup>41</sup> The city fully integrates bicycles into the transportation system. The city offers an extensive system of bike lanes and bicycle parking facilities, and slow speed limits on most city streets.

### Resources

*Designating Bicycle Routes: A Handbook*; \$15 from the Bicycle Federation of America, 1818 R Street NW, Washington, DC 20009.

*Guide to the Development of Bicycle Facilities*, 1991; \$11 from AASHTO, 444 N. Capitol Street NW, Suite 225, Washington, DC 20001.

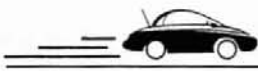
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<sup>39</sup>San Diego Association of Governments

<sup>40</sup>Williams 1993

<sup>41</sup>American Society of Civil Engineers 1992





*National Bicycling and Walking Study*, Federal Highway Administration, available from The National Bicycle and Pedestrian Clearinghouse, 1506 21st Street, NW, Suite 210, Washington, DC 20036, (800)760-NBPC or (202)463-8405. E-mail: nbpc@access.digex.net. Includes 24 extensive studies, standards, and methods for constructing bicycling and pedestrian infrastructure and projecting their use.

*Bicycle Transportation: A Handbook for Cycling Transportation Engineers*, 1994, John Forester, MIT Press.



*Encourage the extension of commuter bikeways to serve new development.*

#### **Implementation Options**

- ⇒ Apply for targeted state and federal funds to expand the bicycle system to new areas if potential use is high.

#### **Discussion**

While most neighborhood streets are safe for bicycling, connections are often lacking between neighborhoods or between residential and commercial areas. This strategy provides a commitment to extend bikeways to serve new development. In the process, these inter-neighborhood connections can be made. Adoption of this strategy should be followed up by developing funding sources.

#### **Programs in Operation**

Like most cities in the region, the City of San Diego maintains and updates a Master Bikeway Plan. The city reviews development proposals and specific community plans to make sure required bicycle facilities are provided. (Contact: Bicycle Coordinator, Engineering and Development Department, City of San Diego, 1222 First Avenue, M.S. 503, San Diego, CA 92101.)



*Ensure that upgrades to existing roads (widening, curb and gutter, etc.) include bicycle and pedestrian improvements where appropriate.*

#### **Implementation Options**

- ⇒ Survey bicycle use in the community to ensure that key bicycle routes are identified and protected during road upgrades.
- ⇒ Compare Public Works/Roads Department's improvement plans with bikeway plans and ensure they match.

**Discussion**

Roads that are good bicycle routes are frequently made unusable when the road is widened, lanes repainted, or when intersections are modified. This strategy encourages cities and the county to design roadway improvements that include bicycle use. This is where adequate long range transportation planning is critical. Roadways should be planned to their ultimate width from the start. Retrofitting to add bicycle lanes sometimes results in less than ideal driving conditions and less safe bicycling. Since bicycling benefits the whole community by reducing traffic, bike lanes should be publicly funded.



*Encourage new major activity centers, office, and commercial development to provide secure bicycle storage and bicycle parking facilities.*

*Note: Consider the type of use when establishing bicycle parking standards. Some uses have limited potential for bicycle use and should have lower bicycle parking requirements (Table 2-1).*

**TABLE 2-1**  
**Comparison of Bicycle Parking Ordinances**

City	Mult-Family Residences	Hotel/Motel	Schools	Commercial	Manufacturing	Recreation	Exemptions
Austin, TX	None	1%	5%	5%	5%	5%	Agriculture, Pet Services, Auto Services, Campgrounds, Airports, Equipment Sales & Service, Funeral, Cemetery
Eugene, OR	1-2 per unit	10%	10%	10%	10%	10%	Drive-in Theatres, Horticulture, Mining
Palo Alto, CA	1 per unit	10%	K-8: 1 per 3 students, 9-12: 1 per 2 students	10%	10%	30%	Warehouse & Distribution, Mortuaries, Auto Services, Day Care, Drive-up Windows
Portland, OR	High density only; 1 per 5 units	5% min: 5	K-12: 1 per 10 students, college:10%	5% min: 3-5	5% min: 2-5	5% min: 10	Cemeteries, Billboards

All percentages refer to percentages of auto parking.

Source: Federal Highway Administration 1992b



### Implementation Options

- ⇒ Encourage inclusion of bicycle storage facilities in new development.
- ⇒ On-site improvements that can increase bicycle use include:
  - Providing bike racks or enclosed and locked bicycle storage at major activity centers and office/commercial establishments.
  - Providing employee showers, lockers, and dressing areas at employment sites.
  - Offering a guaranteed ride home to regular bicycle commuters.
- ⇒ Consider reducing motor vehicle parking standards to acknowledge development with good multi-modal access and facilities, including bicycle facilities.

### Discussion

Providing adequate, secure bicycle parking and bicycle commuting amenities such as showers eliminates more obstacles to bicycle use.

### Programs in Operation

Dozens of cities have bicycle parking requirements. Some of these are described in Table 2-1.



*Consider unused portions of rights-of-way for use as bikeways and pedestrian paths.*

### Implementation Options

- ⇒ Evaluate the potential for bikeway development alongside active rail lines.
- ⇒ Identify potential paths during General Plan updates.

### Discussion

Under some conditions, separate bikeways are preferable to sharing the road with motor vehicles. This strategy encourages the use of rail rights-of-way to provide a low-cost place to construct separate bikeways. The right-of-way should connect with commuter destinations or other segments of the comprehensive bikeway system.

#### SANDAG Land Use Distribution Element Policy #1:

*"Transportation facilities should be designed to meet the needs of pedestrians and bicycle riders as well as automobile drivers."*

### Programs in Operation

Bicycle paths are planned alongside both the Oceanside to Escondido rail line and the Coaster rail line running from Oceanside to Downtown San Diego. (See Strategy 24.)

### Resources

*Converting Rails to Trails: A Citizen's Manual for Transforming Abandoned Rail Corridors into Multipurpose Public Paths*; \$19.95 from Rails-to-Trails Conservancy, 1400 16th Street NW, Washington, DC 20036.

## TRANSPORTATION: PEDESTRIAN FACILITIES

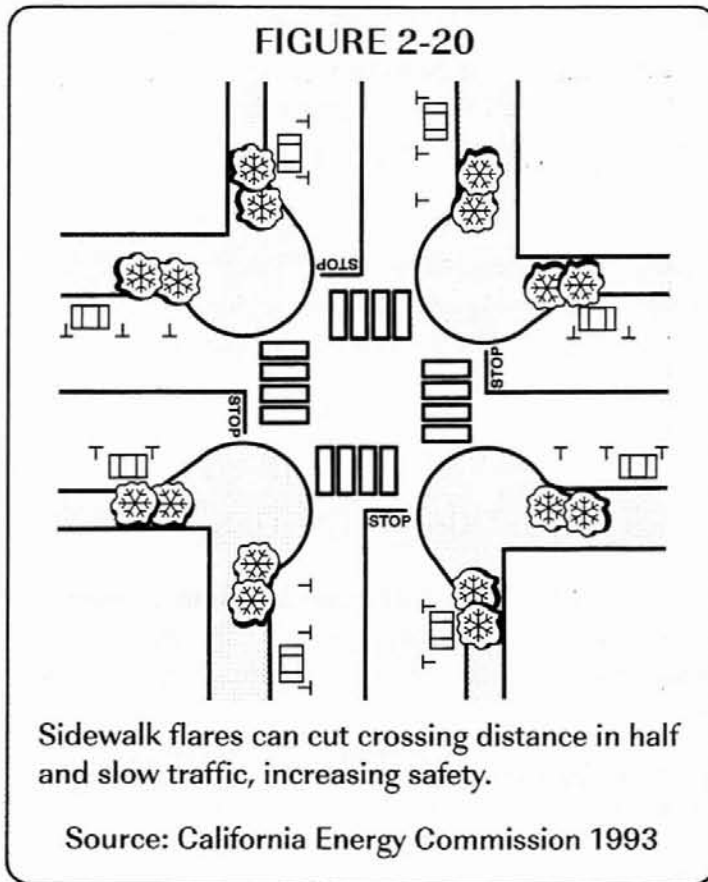
Historically, transportation planners have not accommodated pedestrian trips, even though we all make them every day. Policies in this section are intended to provide accessible pedestrian facilities for all residents and visitors, including the mobility-impaired.



*Provide pedestrian facilities and amenities in new and existing areas of development.*

### Implementation Options

- ⇒ Offer density bonuses, reduced parking requirements, or other incentives to developers installing more than the minimum required facilities and amenities in new mixed-use areas.
- ⇒ Examine and correct roadway construction standards and other ordinances for unintended bias against walking and bicycling.
- ⇒ Create design guidelines and standards for pedestrian facilities (sidewalks, crosswalks, etc.) and amenities (landscaping, lighting, trash receptacles, benches, etc.).
- ⇒ Seek the cooperation of existing property owners to improve pedestrian facilities and amenities in developed areas. For example:
  - Develop detailed planning for areas needing special coordination such as a downtown, older shopping area, transit station, shopping mall, or office park.
  - Examine pedestrian accident records to identify areas needing safety improvements.
  - Install amenities and close gaps in sidewalk links.



- Construct sidewalk flares or “bulbs” that reduce crossing distance at intersections (Figure 2-20).
- Install crossing signals at traffic lights lacking them.
- Plant trees next to sidewalks to provide shade and a sense of protection to pedestrians.

### Discussion

Providing or rehabilitating pedestrian facilities and amenities is one of the best ways to reduce cold start emissions. Vehicle emissions in the first mile of travel are typically around six times higher than those from a warmed engine. The California Energy Commission estimates that regional emissions can be reduced one percent if 20 percent of vehicle trips below half a mile were converted to walking trips.<sup>42</sup>

Closing gaps in the pedestrian network can suddenly increase pedestrian and bicycle travel where none existed before and can revitalize older neighborhood commercial areas. The cost of installing pedestrian facilities and amenities in existing areas varies by location.

Large parking lots, wide streets, berms, fences, dead-end sidewalks, landscaping, and other features routinely prohibit access to adjacent uses by any mode other than automobile. A careful

<sup>42</sup>California Energy Commission 1993





Community Planning Division, Maryland-National Capital Park and Planning Commission, 8787 Georgia Ave., Silver Spring, MD 20910-3760, (301)495-4555.)

The City of Toronto's *Streetscape Manual* specifies amenities and treatments (paving, lighting, etc.) for different kinds of streets. Special emphasis is placed on making pedestrians feel safe and comfortable on most streets. (Contact: Amy Falkner, Toronto Planning and Development Department, (416)392-1138.)

### **Additional Resources**

*Planning and Implementing Pedestrian Facilities in Suburban and Developing Rural Areas*, National Cooperative Highway Research Program Report 294A and 294B, S.A. Smith, et al, 1987. The standard reference in the field of pedestrian facility design. Available from Transportation Research Board, National Research Council, 2101 Constitution Ave. N.W., Washington, D.C. 20418, (202)334-3214.

*National Bicycling and Walking Study, Case Study 24: Current Planning Guidelines and Design Standards Being Used By State and Local Agencies for Bicycle and Pedestrian Facilities*, Federal Highway Administration, Publication No. FHWA-PD-93-006, 1992. One of 24 case studies comprising the extensive National Bicycling and Walking Study. (See Strategy 24.)



*Revise street design standards to deter speeding and encourage pedestrian and bicycle access.*

### **Implementation Options**

- ⇨ Reduce street widths in existing commercial and residential areas by enlarging sidewalks and planting strips, providing bike lanes, and/or allowing on-street parking if none exists.
- ⇨ Reduce standards for curb radii to decrease the crossing distance for pedestrians at corners (Figure 2-22). Consult transit providers to determine necessary radii for transit vehicle turns.
- ⇨ Amend the Zoning Ordinance to permit narrower streets in residential areas of low-to-medium density.
- ⇨ Define streets according to residential, neighborhood commercial, retail commercial, and other uses. Regulations, design speeds, and the amount of traffic intended for the street can better reflect its purpose.

examination of city ordinances can identify whether this unintended bias exists. Attention to potential barriers during development approvals can decrease future vehicle trips. This is particularly true of land uses located in strip development corridors.

Additional pedestrian amenities increase development costs. However, the increased mobility can also be a significant selling point. A survey of almost 4,000 people in five urban and suburban areas found 20 percent of respondents now driving to work would walk if provided adequate facilities.<sup>43</sup>

A study of American walking behavior found that a pleasant and interesting pedestrian environment can double the distance people are willing to walk.<sup>44</sup> A study of neighborhoods near transit stations in the Bay Area found that 12 percent walked to supermarkets in pedestrian-oriented areas.<sup>45</sup> Presumably, services not requiring carrying of purchases would attract an even higher proportion of walkers in these areas.

### **Programs in Operation**

In 1991, the County of San Diego's Department of Planning and Land Use conducted a study of existing ordinances to identify development requirements that discourage walking and bicycling. The study identified numerous requirements that result in such barriers. (Contact: Bob Asher, San Diego County Department of Planning and Land Use, (619)694-3722.)

The City of San Diego installed sidewalk flares (Figure 2-20) and light-colored and textured crosswalk pavement in commercial areas of North Park, Normal Heights, Kensington, and other neighborhoods. In 1994, the City completed a pedestrian/bicycle bridge connecting a pedestrian-oriented residential neighborhood with the Uptown District, a pedestrian-oriented commercial and residential development. (See Strategy 6.) The bridge spans Washington Street, a major arterial.

The suburban cities of Bellevue, Washington, and Bethesda, Maryland, have created more walkable commercial areas by requiring certain pedestrian amenities of developers and offering density bonuses if additional amenities are provided. (Contacts: Dan Stroh, City of Bellevue Planning Department, P.O. Box 90012, Bellevue, WA 98009-9012, (206)455-6880; and Donald A. Downing,

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<sup>43</sup>Robinson et al. 1980

<sup>44</sup>Untermann and Lewicki 1984

<sup>45</sup>Bacon et al. 1993

FIGURE 2-21



Narrow residential streets, ample sidewalks, a planting strip and street trees give pedestrians a greater sense of safety.

Source: Studio E Architects

### Discussion

Human perception of the pedestrian environment is greatly influenced by the ratio of building height to street width. The lower building heights that prevail in Southern California mean streets should be relatively narrow for pedestrians to feel comfortable. Narrower streets than those typically found in San Diego County would encourage more walking (Figure 2-21). Wide, "overengineered" streets encourage speeding, waste public resources, and discourage and endanger pedestrians. Lowering speed limits is rarely an effective deterrent.

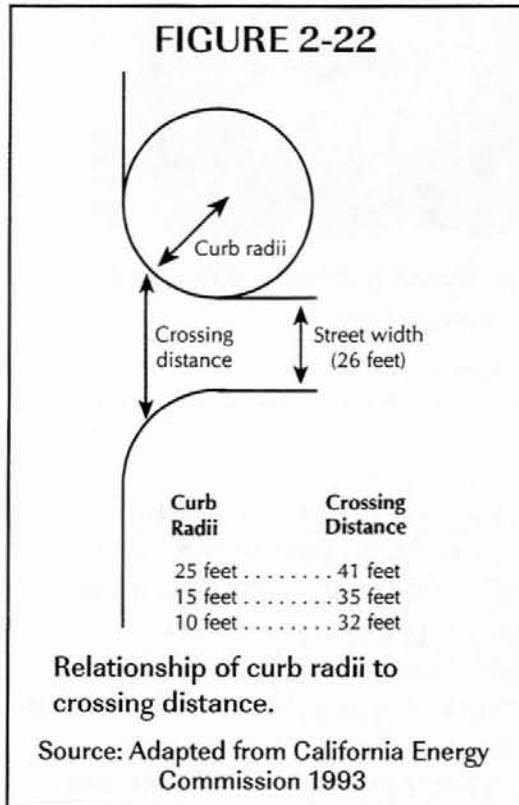
A major obstacle to revising street standards is objection from public works departments and emergency response services, which argue wide streets are necessary to accommodate traffic and emergency vehicles. However, many cities with narrower, pedestrian-friendly streets have not found them to be a problem. (See Programs in Operation.) Tests of maneuverability by emergency vehicles, buses, and service vehicles in older neighborhoods with narrow streets can sometimes overcome these objections.



Another frequently cited concern is liability for unconventional street design features. However, the author of a recent review of accident liability cases contends that "legal obstacles to narrow streets are a red herring." He concluded that lawsuits over street design "invariably have to do with high speed, not street width."<sup>46</sup> Motorists instinctively drive more cautiously on narrower streets.

Pavement widths recommended by the American Society of Civil Engineers (ASCE), the National Association of Home Builders (NAHB), and the Urban Land Institute (ULI)<sup>47</sup> are:

Access streets:	22 to 24 feet
Subcollector:	26 to 28 feet
Collector:	36 feet if homes front street 24 to 26 feet if not



Curb radii (Figure 2-22) recommended by ASCE, NAHB, and ULI are 15-20 feet, but architects of transit-oriented design developments advocate radii of 8-10 feet.

Significantly, the more car-oriented Institute of Transportation Engineers (ITE) has released a draft report, *Traditional Neighborhood Development Street Design Guidelines*, that recognizes the need for narrower streets in new developments based on traditional neighborhood designs (TND). (See Strategy 6.) While failing to recommend particular street widths, the report states "the desired upper limit of actual motor vehicle speeds on TND streets is approximately 20 mph." Five-foot sidewalks and six-foot planting strips between the sidewalk and curb are also recommended.

### Programs in Operation

In Portland, as in many Oregon cities and towns, the Fire Bureau supported "skinny street" zoning in residential neighborhoods having a density not exceeding R-5 (five detached home lots per acre). The new street standard is 26 feet with parking on both sides or 20 feet with parking on one side. The resulting 13-foot clearance

<sup>46</sup>Fernandez 1994

<sup>47</sup>American Society of Civil Engineers et al. 1990

and presence of driveways to break up the parking lane provides adequate access for fire trucks. (Contact: Terry Bray, Portland Bureau of Transportation Engineering, 1120 SW Fifth Street, Room 846, Portland, OR 97204, (503)823-5058.)

By staging a parking lot simulation using traffic cones, developers of the pedestrian-oriented Village Homes development in Davis, California, satisfied local agencies that 20-24 foot street widths could accommodate police and fire vehicles. The narrower widths are credited with preventing speeding, accidents, and crime. Crime is thought to be lower because house dwellers can better observe a narrower street, pedestrian activity is increased, and narrower streets prevent a speedy retreat from the neighborhood.

The City of Chico established a standard range for street widths of 24 to 40 feet, which allows a reduction from the typical 40-foot standard used throughout much of the state.

The rapidly growing City of Fort Collins, Colorado, adopted a new zoning which reduces minimum street widths from 36 to 24 feet (with parking on one side).

Also see Policies 6 and 32.

### **Additional Resources**

*Take Back Your Streets: How To Protect Communities from Asphalt and Traffic*, Conservation Law Foundation, 62 Summer Street, Boston, MA 02110, (617)350-0990. \$10. Excellent citizen-oriented guide to street design issues and how residents can influence the outcome of roadway projects that sacrifice pedestrian movement and aesthetics to increase traffic speeds.

*Report on New Standards for Residential Streets in Portland, Oregon*, available from Terry Bray, City of Portland Oregon, Office of Transportation (see above).

*Traditional Neighborhood Development Street Design Guidelines*, Institute of Transportation Engineers (ITE), 525 School Street SW, Washington, D.C., (202)554-8050. Draft report. Final version is due out January 1998. \$35 for non-members, \$20 for members, plus \$5 for shipping and handling.

*Making Streets That Work*, City of Seattle, Washington. A how-to primer for residents to advocate street designs or retrofits of existing streets to enable use by vehicles, pedestrians, and bicyclists. Available for \$20 through the Local Government Commission, 1414 K Street, Suite 250, Sacramento, CA 95814-3929, (916)448-1198.





**STRATEGY 31**

*Encourage the development of interconnected street networks, where topography allows.*

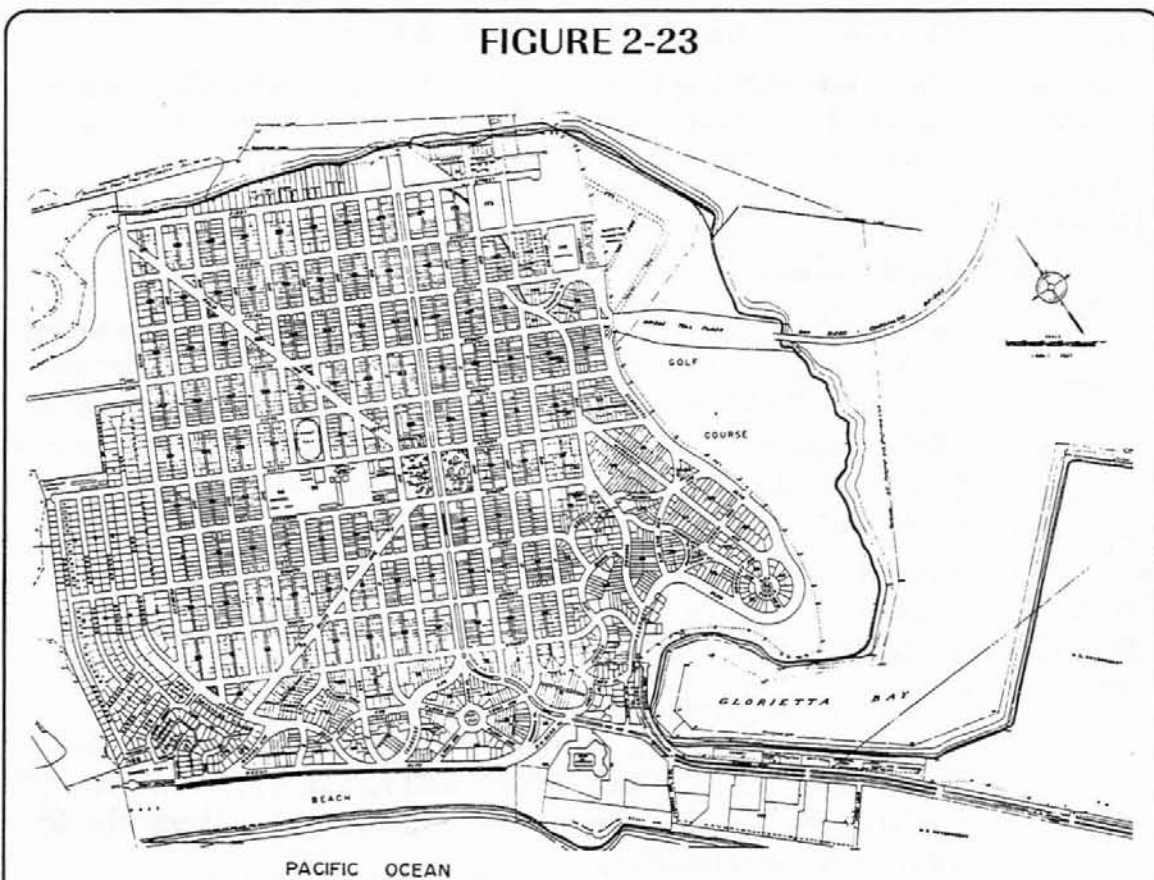
**Implementation Options**

- ⇒ Encourage the use of a grid pattern network when reviewing street layouts for large residential subdivisions.
- ⇒ Maintain two-way travel on all streets.

**Discussion**

The basic premise underlying this strategy is that the grid pattern provides the most easily navigated and safest route for bicyclists and pedestrians. No single street is overburdened with automobile traffic as in the standard hierarchical street pattern.

**FIGURE 2-23**



The City of Coronado's integrated street pattern encourages walking and bicycling, relieves some of the pressure on its main arterials, and adds to the community's appeal.

Source: Studio E Architects

A modeling study of a grid versus cul-de-sac system in Florida estimated 43 percent fewer vehicle miles traveled within the grid system.<sup>48</sup>

The grid pattern was abandoned in the 1950's to improve safety. While curvilinear streets with cul-de-sacs discourage through-traffic, accidents involving automobiles and pedestrians in grid patterns can be reduced by proper signage (stop signs, yield signs, and pedestrian crossing areas) and by revising street standards to discourage speeding. (See Strategy 30.)

Some older cities with grid patterns have made extensive use of one-way streets to speed traffic. The tradeoff is a more hazardous environment for pedestrians. One-way streets invite additional traffic and create extra trips by necessitating driving around blocks to reach destinations.

### Programs in Operation

Most older neighborhoods in California cities and towns are laid out in a grid pattern (Figure 2-23). New developments incorporating pedestrian-oriented design also employ a grid or modified grid pattern. (See Strategy 6.)



*Institute a program to prioritize and implement "traffic calming" measures where appropriate to reduce traffic speeds and enhance pedestrian and bicycle safety.*

### Implementation Options

- ⇒ Traffic calming involves installing physical impediments such as speed humps, street narrowing, and sidewalk "bulbs" at intersections to slow traffic on neighborhood streets. Other techniques include introducing gentle turns, landscaping, textured paving, and on-street parking.
- ⇒ Institute an ongoing city service offering traffic calming measures designed in conjunction with residents, businesses, and emergency service providers.

### Discussion

Many lightly traveled neighborhood streets, and even busy commercial areas, may benefit from reduced traffic speeds and increased comfort and safety for pedestrians without sacrificing mobility. Traffic calming originated in Europe to promote walking while allowing vehicle movement. Traffic calming reduces

<sup>48</sup>Kulash 1990



speeding far more effectively than posting low speed limits on streets engineered for higher speeds. Calmed streets reduce accidents and replace some vehicle trips with pedestrian or bicycle trips.

Retailers sometimes fear traffic calming will reduce business volume. However, anecdotal evidence suggests the resulting increase in pedestrian circulation increases business as long as reasonably close parking remains available.

Fire departments sometimes object to the implementation of traffic calming measures. However, Menlo Park, California, found the average emergency response time before and after implementing traffic calming measures was virtually the same.

### **Programs in Operation**

The City of San Diego's Traffic Engineering Department responds to requests for neighborhood traffic calming. Traffic circles in intersections, "median chokers" at mid-block, speed humps, and other measures can be employed - with the agreement of at least 75 percent of affected residents - to reduce cut-through commuting and speeding. (Contact: Traffic Engineering Division, 1010 Second Avenue, M.S. 609, San Diego, CA 92101, (619)533-3126.)

Portland, Oregon's Traffic Calming Program also responds to neighborhood requests, working with residents and the fire department to implement traffic calming measures, neighborhood by neighborhood. (Contact: Mike Coleman, Acting Manager of the Traffic Calming Program, (503)624-6083.)

The town of Greenville, South Carolina, observed an increase in the number of businesses downtown after the primary retail street was narrowed from four lanes to two, and streetscape improvements were added.

Traffic calming has been shown to deter crime where, for example, street-corner drug transactions can be curtailed when motorists are forced to drive more slowly. Two examples demonstrate the special application of traffic calming measures to high crime areas. A traffic calming program in a high crime neighborhood in Dayton, Ohio, reduced violent crime by 50 percent. A similar program and the opening of a new sheriff's station in the Fair Oaks/Atherton area of San Mateo County, California, decreased crime by 49 percent.

### **Additional Resources**

*Traffic Calming*, American Planning Association, (312)786-6344.

*Traffic Calming*, available from Sensible Transportation Options for People, Tigard, OR, (503)624-6083.

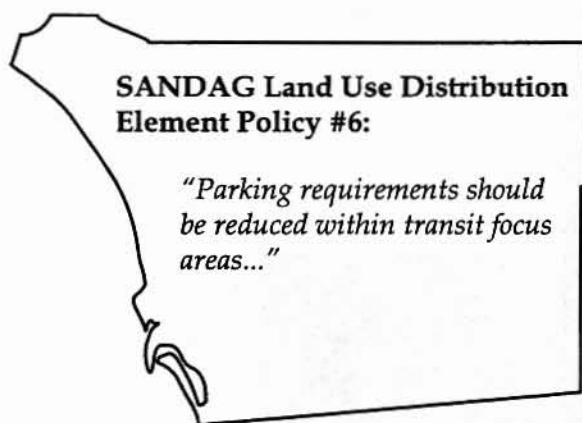
## TRANSPORTATION: PARKING

Parking is an extremely important feature of the urban landscape. While sufficient parking is critical for commercial uses, off-street parking can discourage pedestrian circulation by creating a physical barrier to movement and increasing the distance between destinations. Required but unused parking has been described by one expert as a legacy of "planners' choices [that] are tragically, and often absurdly, misinformed."<sup>49</sup> Oversupplied parking decreases land values (typically by 30 percent) and local tax revenues, while increasing emissions and congestion. In short, parking supply must be carefully balanced with parking's negative effects. Strategies in this section encourage transit use and minimize barriers to walking by managing the supply, location, and cost of parking.

**STRATEGY 33** → *Ensure parking requirements do not significantly exceed demand, while addressing spillover parking in local neighborhoods.*

### Implementation

- ⇒ Reduce parking requirements within transit focus areas.
- ⇒ Allow shared parking arrangements between uses with complementary hours of operation.



- ⇒ Conduct parking lot surveys to determine the percentage of spaces used in a typical day and on high-demand days. Then reexamine the Zoning Ordinance to determine whether parking requirements reasonably reflect demand.
- ⇒ Modify the Zoning Ordinance to reduce parking requirements where unique site characteristics, on-street parking, commercial parking, and other factors reduce parking demand.

- ⇒ Reduce or eliminate parking requirements for certain supporting commercial uses, such as restaurants, locating in pedestrian-oriented commercial districts.
- ⇒ If spillover parking occurs in nearby neighborhoods, consider establishing "parking benefit districts" to fund neighborhood improvements. (See Discussion section.)

<sup>49</sup>Shoup 1996

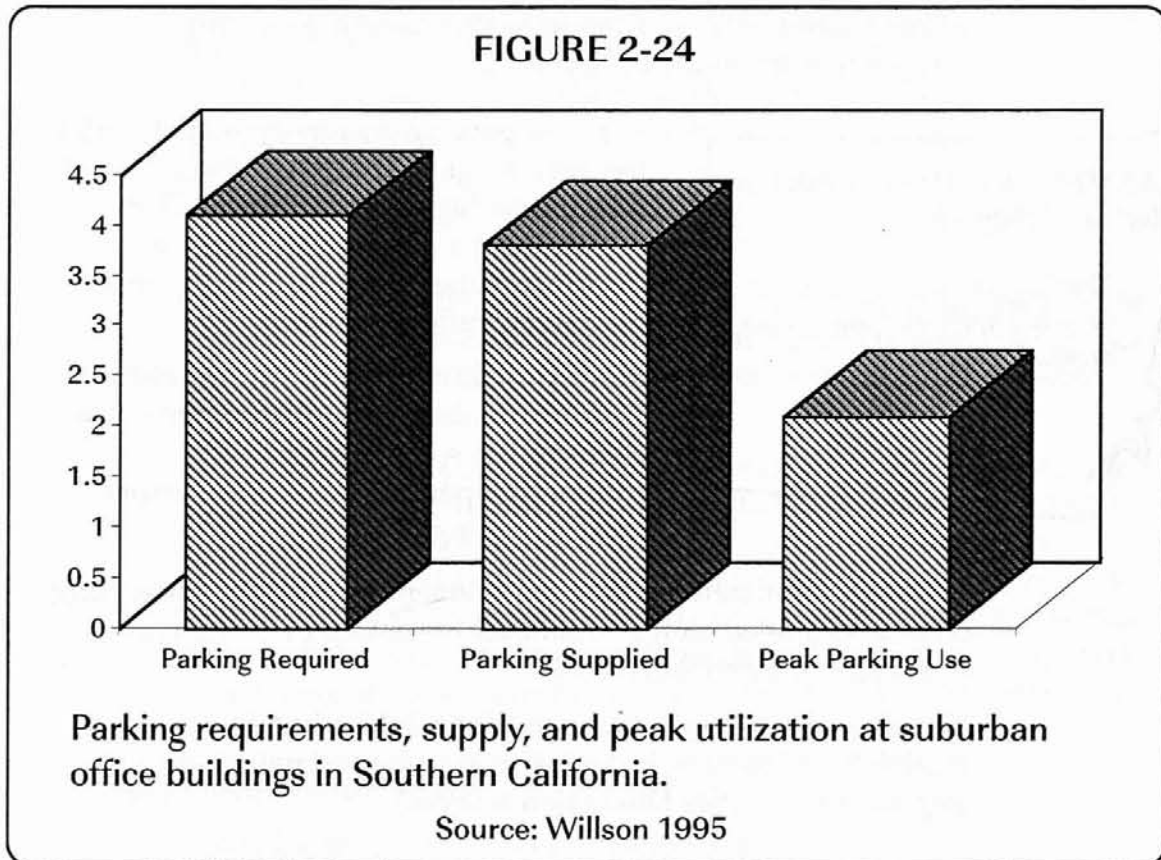


## Discussion

A recent study of the history of parking regulations<sup>50</sup> shows that, in almost every case, minimum parking requirements are based on national average requirements, requirements in neighboring cities, or guesswork, rather than on measurements of parking *demand*. As a result, requirements often far exceed the highest demand experienced. Strategy 33 addresses direct and indirect impacts of unused parking on transit and pedestrian travel.

In a study of Southern California suburban office buildings, supplied parking was found to be double the actual parking use on the busiest day of the year (Figure 2-25).<sup>51</sup> The consequences of oversupplied parking tend to go unnoticed unless focus is shifted from serving automobiles to serving all modes of travel. Some of these consequences are:

- Development costs are significantly higher, reducing funds that might otherwise be used for better design, landscaping, a childcare facility, etc.



<sup>50</sup>Shoup 1995

<sup>51</sup>Willson 1995



- Because of land and design requirements, oversupply of parking virtually guarantees dependence on the automobile, limiting work opportunities for those who cannot afford a car or who are unable to drive.
- Development is unintentionally driven to low-density areas with cheaper land, where trips are more likely to be by automobile.
- Local tax revenues are lost when land is wasted on unused parking rather than revenue-generating uses.
- Environmental impacts including air pollution, stormwater runoff, traffic congestion, and consumption of open space are greatly increased.

To reduce these impacts, parking requirements should be more carefully tailored to demand, especially in areas in which active pedestrian circulation is desired.

Recognizing the impact of excessive parking, some cities have reduced or eliminated parking requirements, allowing developers to determine the appropriate level. However, neighbors of large traffic generators often favor retaining high off-street parking requirements to avoid spillover parking. To deal with this problem, Donald Shoup at the UCLA School of Public Policy and Social Research advocates working with the local neighborhood or merchant's association to establish a "parking benefit district".<sup>52</sup>

A parking benefit district relies on parking meters or other payment system to collect parking fees from spillover parkers. Net parking revenues are returned to the neighborhood in the form of street or sidewalk repairs, building rehabilitation, low-interest business loans, etc. The price of parking can be adjusted to ensure the parking turns over frequently, maximizing revenue and ensuring spaces are always available. By handling spillover parking in this way, parking demand can be met, while locally-impacted residents or businesses can be compensated for spillover effects.

Part of the difficulty of setting parking requirements is accounting for changes in parking demand when the use of a particular parcel changes. Some cities have addressed this problem by prohibiting uses which produce a higher parking demand than the available parking supply can accommodate.

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<sup>52</sup>Shoup 1994, 1995



## Programs in Operation

The City of San Diego's Draft Zoning Code Update establishes parking ratio maximums as well as minimums for many uses. The new code also lowers, by 15 percent, parking requirements in areas near trolley stations and for certified Very-Low-Income dwelling units. The code allows shared parking but requires the parties to file an agreement with the City. (Contact: Kelly Broughton, City of San Diego Development Services Department, (619)236-5932.)

## Resources

*Don't Even Think of Parking Here: Are We Building Too Many Spaces?*  
Lisa Wormser, *Planning*, June 1997.

*Shared Parking Planning Guidelines*, Institute of Transportation Engineers, \$30. (202)554-8050, ext. 130.

Project for Public Spaces, a non-profit planning and design organization, works with communities to improve the "livability" of urban and suburban environments through parking management, site designs, economic analysis, etc. Project for Public Spaces, Inc., 153 Waverly Place, New York, NY 10014, (212)620-5660.



*Support pedestrian-oriented commercial areas in major activity centers by appropriately pricing the municipal parking supply.*

## Implementation Options

- ⇨ In major activity centers, ensure there is an adequate, but not excessive, supply of on-street and/or off-street short-term parking in commercial areas.
- ⇨ "Short-term parking" means that parking rates or time limits are set to favor use for two hours or less. Intrinsicly, all commercial areas have an optimal parking space turnover rate that maximizes the number of patrons who can visit the area without oversupplying the number of spaces. Ideally, parking should be priced to encourage the optimum turnover rate. Appropriately priced meters are more effective than time limits in maintaining the optimum space turnover rate.

## Discussion

The most successful pedestrian-oriented activity centers typically rely on three kinds of customers: nearby residents, transit riders arriving from outside the area, and automobile drivers arriving from either nearby or outside the area. To meet the needs of all three market segments, the area's pedestrian orientation is carefully

protected, transit service is frequent, and short-term parking is kept relatively available. A price penalty for long-term parking is generally imposed to encourage parking space turnover.

Major activity centers with thriving commercial uses reduce vehicle trips by allowing nearby residents and transit riders to access a variety of products and services on foot. Households taking advantage of such centers can manage with one rather than two vehicles, reducing their impact on air quality.

### Programs in Operation

The City of Portland has a well-coordinated short-term parking program, aimed at supporting downtown businesses. Parking rates for both on-street and off-street facilities favor short-term use. As a result of this and other measures, the city boasts one of the highest grossing center city retail markets in the country. (Contact: City of Portland, Bureau of Traffic Management, 730 The Portland Building, 1120 SW Fifth, Portland, OR 97204.)



*Allow on-street parking, where compatible with existing land uses, to buffer pedestrians from vehicle traffic.*

### Implementation Options

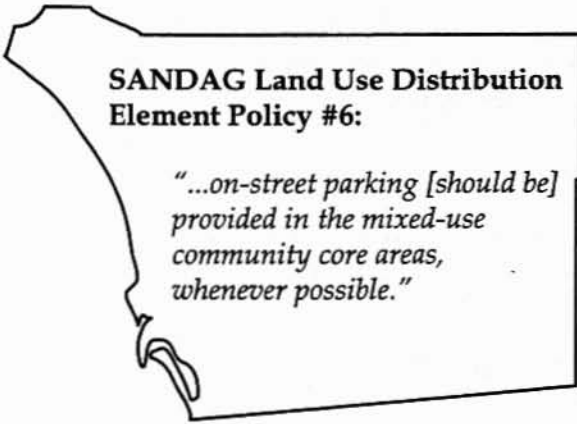
- ⇒ Allow on-street parking anywhere sidewalks are provided, especially in community center areas.
- ⇒ Consult with existing residents and/or merchants to ensure on-street parking is acceptable to the community.

### Discussion

The walking environment is made more comfortable by providing an adequate buffer between sidewalks and street traffic (Figure 2-25). This is most easily accomplished by allowing on-street parking. In

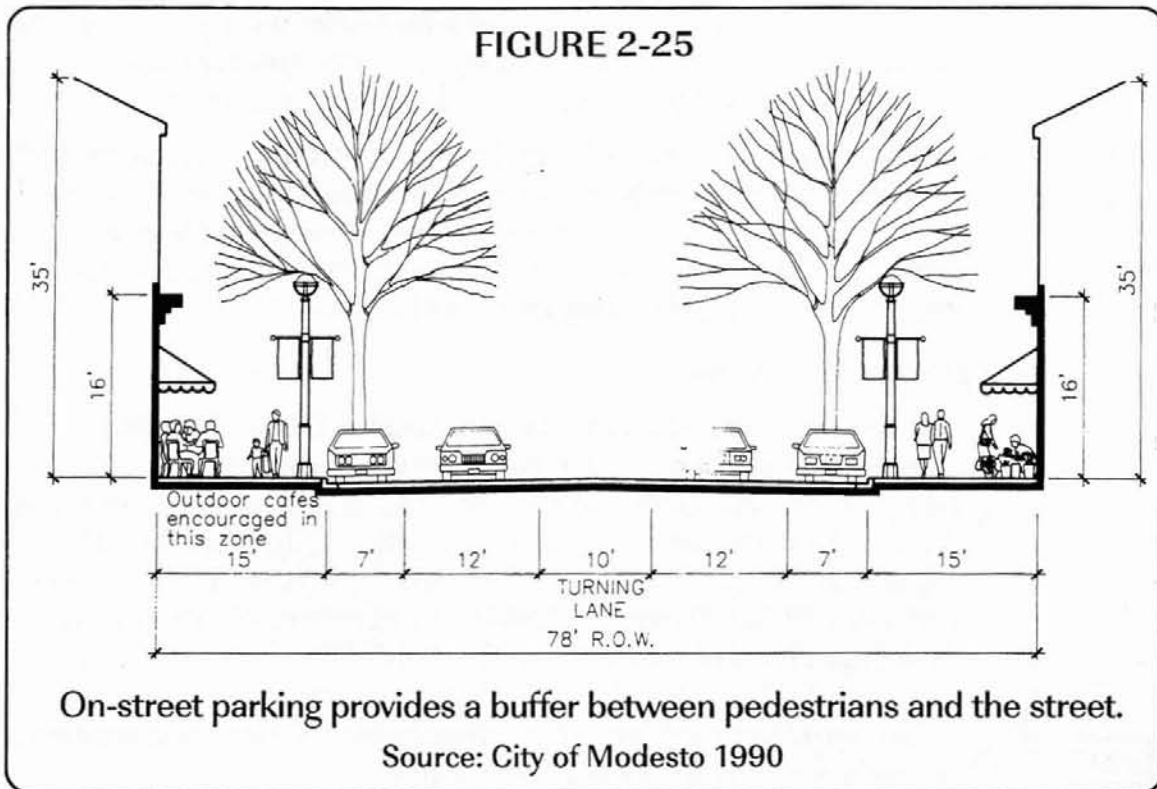
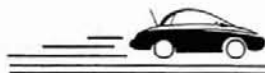
commercial areas, on-street parking – priced for short-term use – also adds to the pedestrian population.

This strategy might appear to conflict with policies promoting narrower streets, since street widths would presumably need to be wider to accommodate parked vehicles. However, parking lanes need not be more than six feet wide. As noted in the discussion of Strategy 30, Portland's street standards for



#### SANDAG Land Use Distribution Element Policy #6:

*"...on-street parking [should be] provided in the mixed-use community core areas, whenever possible."*



medium-density residential neighborhoods is 26 feet *with parking on both sides*. This is 35 percent narrower than the typical 40-foot width for similar streets in the San Diego region. Accommodating on-street parking need not conflict with a narrow street standard.

### Resources

See Strategy 6.

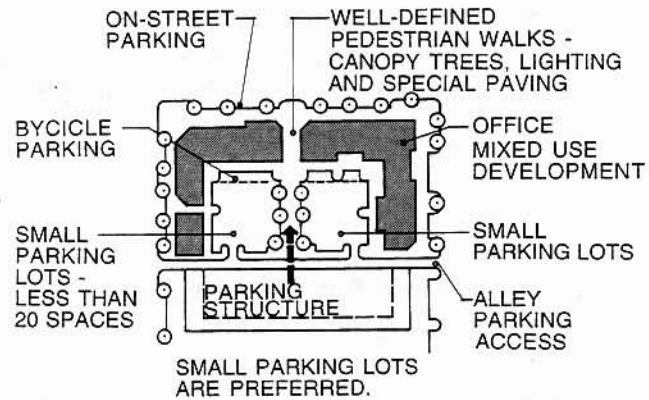


**Encourage parking facility designs that enhance the pedestrian environment.**

### Implementation Options

- ⇒ Surface parking lots should be as small as possible and scattered throughout an area. Unless crime is a particular problem, large lots should be screened from view by solid walls, fences, or dense landscaping (Figure 2-26).
- ⇒ Design features such as street trees, landscaping, street furniture, fenestration, other facade treatments, and driveway placement may be employed to reduce the impact of off-street parking on pedestrians (Figure 2-27).
- ⇒ Establish a maximum parking structure footprint on commercial streets with heavy pedestrian traffic.

FIGURE 2-26



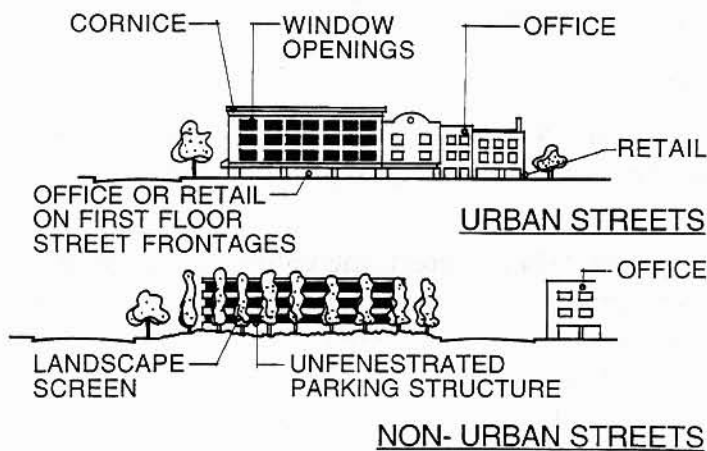
In commercial districts, surface parking should be placed off the main road, in small, scattered lots.

Source: County of San Bernardino & The Planning Center 1993

**Discussion**

If the quality of the pedestrian environment is maintained, shoppers will be encouraged to visit more stores in a single area rather than making multiple vehicle trips. Parking lot design and location can have a strong impact on the pedestrian environment. Parking garages with uninterrupted blank walls and large surface

FIGURE 2-27



Parking structures should be designed to enhance the pedestrian environment.

Source: County of San Bernardino & The Planning Center 1993





lots separated from the sidewalk only by a chain are examples of designs that create a hostile pedestrian environment. In the case of parking garages, first floor retail, landscaping, or wall treatments should be required in pedestrian-oriented commercial areas. If at all possible, large surface lots should be located away from streets with frequent pedestrian traffic.

### Resources

*Planning and Design for Transit Handbook*, 1995, contains design guidelines and model zoning language addressing parking lot/structure design. Available for \$10 from TriCounty Metropolitan Transportation District of Oregon (Tri-Met), Transit Development Department, Technical Services Division, 710 N.E. Holladay Street, Portland, OR 97232, (503)239-6711.

*Planning and Design for Transit Handbook*, January 1996. Also available for \$10 from Tri-Met. Provides more specific guidance for land use and transportation plans, site designs, and transit facility designs.

*Land Use, Transportation, and Air Quality: A Manual for Planning Practitioners, San Bernardino Air Quality Plan*, 1993. Contains specific design suggestions for encouraging alternative modes. County of San Bernardino and The Planning Center. \$50. Available from The Planning Center, 1300 Dove Street, Suite 100, Newport Beach, CA 92660.



*Reduce parking requirements where walking, bicycling, and transit amenities reduce parking demand.*

### Implementation Options

- ⇒ Recognize in the Zoning Ordinance thriving pedestrian and transit oriented districts, and reduce parking requirements in these areas. (See Strategy 29.)
- ⇒ Use vehicle registration data to determine vehicle ownership patterns throughout the city. Reduce parking requirements for new residential developments in neighborhoods with low vehicle ownership, either as-of-right, or in exchange for providing pedestrian/bicycle amenities.
- ⇒ Where appropriate, allow on-street parking to substitute for off-street parking spaces if specified amenities are provided, and if the safety of bicyclists is not compromised.

- ⇒ Reduce parking requirements for new residential housing reserved for transit-dependent populations, such as low-income, elderly, students, and disabled residents, in areas well served by transit.
- ⇒ Reduce parking requirements for employment sites locating along transit corridors if convenient transit access is included in the site design.
- ⇒ For new projects in older areas, maintain the historical ratio of parking spaces to dwelling units or commercial space rather than applying parking standards developed for suburban locations.

### **Discussion**

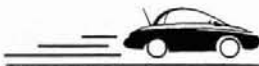
Parking can cost from \$10,000 per space for a surface lot to \$30,000 or more per space in a parking structure. Offering to reduce parking requirements in exchange for desired design features and amenities to promote pedestrian, bicycle, and transit access can be a strong incentive. Opportunities to apply this incentive abound because the match between parking requirements and parking demand is often quite poor. As discussed under Strategy 33, jurisdictions who commit resources to measuring parking demand may be able to obtain a better match between demand and supply.

The main obstacle to this approach, other than the cost of measuring demand, is the reluctance of nearby property owners or tenants to accept reduced parking requirements for fear of spillover parking. A jurisdiction can address this problem by establishing clear guidelines for what design features of new development and pedestrian/bicycle/transit amenities will reduce parking demand. Establishing a parking benefit district may also alleviate some concerns. (See Strategy 33.)

### **Programs in Operation**

The City of Coronado and the California Coastal Commission recently approved reduced parking standards for a mixed-use affordable housing zone located on a bus line. For housing intended for low income or elderly residents, the parking standard is one-half to one parking space per dwelling unit. (Contact: Ed Kleeman, City of Coronado Planning Department, 1825 Strand Way, Coronado, CA 92118, (619)522-7329.)

The City of San Diego's Draft Zoning Code Update lowers, by 15 percent, parking requirements near trolley stations and for certified Very-Low-Income dwelling units. (Contact: Kelly Broughton, City of San Diego Development Services Department, (619)236-5932.)



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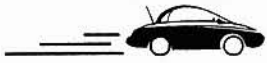
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## CHAPTER 3

# Planning Processes and Resources

This chapter discusses planning processes and resources to address vehicle trips/air quality through the local planning process. It also addresses typical barriers to implementation of desired policies or projects and how to overcome them. Finally, it provides an overview of the financing and fiscal review process for development projects.

Planning processes refer to execution of legal documents (such as the General Plan), development approvals, etc., that can be used to promote more efficient planning to improve air quality by reducing vehicle trips. Resources are funding mechanisms and specific funding sources that may be available for community improvements to enhance non-automobile modes of travel. Barriers to implementation of desired strategies include entrenched institutional practices, high implementation costs, and initial neighborhood opposition to different forms of development or transportation facilities.

Most of this chapter is adapted from a 1995 California Air Resources Board report, *Land Use/Transportation Strategies to Minimize Motor Vehicle Emissions: An Indirect Source Research Study*,<sup>1</sup> for which the San Diego Air Pollution Control District served as an advisor.

### I. Key Policy Documents

All of the policies recommended in Chapter 2 can be implemented through existing planning processes. To do so, it is important to identify the appropriate policy document in which to create or change policies.

#### **Document #1: General Plan or Community Plan**

The strategies presented in Chapter 2 were designed for insertion in the General Plan as one of several possible planning documents. The General Plan is a particularly effective mechanism for adopting new planning approaches because its policies are usually adopted only after lengthy public involvement and because it is a legally enforceable document.

State law requires each General Plan to include seven elements: land use, circulation, housing, conservation, open space, noise, and safety. Some jurisdictions have also adopted a separate air quality element. In large jurisdictions, individual neighborhoods may adopt Community Plans which are similar to the General Plan but more specific.

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<sup>1</sup>California Air Resources Board 1995



Each jurisdiction is required to update its General Plan at least every five years, although many have not done so. A comprehensive update can be extremely expensive and time consuming, but it establishes a clear set of priorities and goals for future growth. When amending the General Plan, care must be taken to ensure the new policies are consistent throughout the various elements. Implementing ordinances such as the Zoning Ordinance or Subdivision Ordinance must also be amended to reflect new policies.

#### **Document #2: Zoning Ordinance**

The Zoning Ordinance provides the specific regulations that implement policies contained in the General Plan but often go beyond the General Plan. The Zoning Ordinance is the code that can specify higher densities around transit stations, flexible parking standards, pedestrian-scale streetscapes, mixed uses, and most of the other strategies recommended in Chapter 2.

#### **Document #3: Subdivision Regulations**

Subdivision regulations are authorized under the California Subdivision Map Act to regulate the division of land. A part of the Municipal Code, subdivision regulations set standards for the size and shapes of lots, conditions for condominium formation, and design and dedication requirements for public facilities including streets. Jurisdictions are allowed to require design features and dedications (collectively known as exactions) necessary to bring the subdivision into conformance with the General Plan. For example, the Chula Vista Subdivision Regulations authorize the Planning Commission to require pedestrian ways where necessary for access to schools, parks, shopping centers, transportation facilities, other community facilities, or unusually long blocks.

Subdivision regulations also include street standards for streets for subdivisions. The subdivision regulation can be revised to relax lot shape and minimum lot sizes; increase requirements for pedestrian, bicycle and transit facilities; and reduce required street widths and turning radii in order to support transit- and pedestrian-oriented development.

#### **Document #4: Design Guidelines**

Design guidelines set standards for building placement and orientation, facade and roof materials, parking locations and form, landscaping, streetscape improvements, and virtually any other characteristic of development. Design guidelines can be mandatory or flexible. They can apply to entire cities or a single block. They can be part of the Zoning Ordinance, in a separate document, or integrated into a specific plan for a single subdivision project. Strategy 6 of Chapter 2 describes the use of Transit-Oriented Design Guidelines.

### **Document #5: Master EIRs**

By preparing a Master Environmental Impact Report (EIR) for a specific plan or for a group of policy changes (such as a set of amendments to the General Plan, Zoning Ordinance, or Subdivision Ordinance), a jurisdiction can streamline the development application process for developers who comply with the new plan and regulations. A Master EIR assesses the impacts of a plan, a program, or a set of policy changes and recommends mitigation measures.

Once a Master EIR is prepared for a group of policy documents, any project that is allowed "by right" in those and other documents and that complies with all regulations does not require a separate environmental document. For example, the San Diego Centre City Development Corporation has prepared a Master EIR for a 120-block area of downtown. Future developers meeting the conditions evaluated in the EIR can proceed with development after filing a "Negative Declaration" stating that all environmental impacts have been addressed. This eliminates the time and expense of meeting environmental review requirements.

### **Document #6: Specific Plans**

A specific plan includes regulations similar to those of a Zoning Ordinance for a particular focus area. It must be consistent with the General Plan. A specific plan could be prepared for a transit corridor, station area, downtown, business district or neighborhood. An EIR would need to be prepared for the specific plan; development projects that are consistent with the specific plan would not necessarily require discretionary approvals nor project EIRs. Sacramento County has developed a number of specific plans for transit-oriented areas.

### **Document #7: Planned Development Ordinances**

Planned Development Ordinance (PDO) provisions of the Zoning Ordinance allow flexibility, to a lesser or greater degree, in applying the base zoning. A PDO is similar to a specific plan but the types of developments allowed and the range of variation from the base zoning are specified in the Zoning Ordinance. A PDO may cover a newly developing area or an existing area undergoing revitalization.

### **Document #8: Capital Improvement Program**

Cities regularly prepare Capital Improvement Programs to plan infrastructure projects. Priorities within the program can be ordered to emphasize transportation, lighting and landscaping projects that support



alternative means of transportation; civic and cultural projects located in areas that are targeted for increased pedestrian activity; infrastructure upgrades for business centers or areas near transit; and projects that would improve the mixture of uses. For example, Glendale, California's Capital Improvement Program includes funding for a shuttle system and an intermodal transfer facility. Federal law requires a Major Investment Study for any major metropolitan transportation investment that uses federal funds and affects existing or planned housing. Relocation and replacement housing can be located near transit, employment, civic uses, shopping, and services.

## **II. Administrative Actions**

Administrative actions are processes, operations, or negotiations that city or county agencies can initiate. The day-to-day administration of planning regulations and other development processes determine to what extent land uses will support alternative travel modes. Streamlining the permit process for projects that promote walking, cycling, and riding transit is the most important administrative action a city or county can take in this direction.

### **Action #1: Streamline the Permit Process for Desired Projects**

The current permit process in most jurisdictions is simpler for a single-use, automobile-oriented project that covers an entire parcel with private lots than it is for a clustered or mixed-use project. The permit process could be changed to reward mixed-use, transit-oriented projects and projects in certain areas. For example, approval criteria could enable staff to approve pedestrian-accessible projects up to a certain size without a public hearing, while a hearing could be required for projects that do not meet pedestrian-oriented design criteria. In Washington, D.C., for example, the Pennsylvania Avenue Development Corporation centralized the permit process for projects in a particular target area and in some cases cut permitting time in half.<sup>2</sup>

### **Action #2: Negotiate Development Agreements**

State law allows cities and counties to negotiate developer agreements for proposed projects that require use permits or changes to adopted policies and for other reasons.<sup>3</sup> (Projects meeting the use and density requirements under the zoning code and other ordinances do not require such approvals.) An agreement can specify a mix of uses, grant density bonuses (if consistent with the General Plan and ordinances), and require land for pedestrian, bicycle and transit facilities.

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<sup>2</sup>McBee et al. 1992

<sup>3</sup>California Government Code §§65864-65869.5



A jurisdiction may be able to exact improvements in transit, bicycle or other facilities in excess of the need created by the individual project. In exchange, the jurisdiction loses the right to apply new ordinances to the project. A developer agreement can be an important mechanism to ensure the design quality of high-density and mixed-use projects.

### **Action #3: Modify Impact Fees and Exactions**

Many cities and counties require developers to pay impact fees or provide land, facilities, or services (exactions) to meet the needs generated by their projects. Unfortunately, infill projects are often charged higher fees *even though the infrastructure costs to serve them may be lower than for outlying development*. Where this occurs, a community may attract development to areas near transit, downtowns, and activity centers by reducing certain fees or exactions.

### **Action #4 Establish Enterprise Zones in Older Activity Centers**

An enterprise zone provides tax breaks and infrastructure upgrades for employers locating in the zone. A local government can apply to the U.S. Department of Housing and Urban Development to have an economically depressed area designated as a federal Enterprise Zone. Or a local government can create its own enterprise zone, giving local tax breaks to businesses in the zone. An enterprise zone can help to increase the density of business areas where there is not presently a strong real estate market.

If the goal is to create a central area that can attract a large enough number of workers to support transit, the type of jobs created is unimportant. If, however, the goal is to locate jobs near existing housing, it is important to specify that the subsidized uses would employ the types of workers who reside nearby. For example, Richmond has a federal Enterprise Zone. San Bernardino established its own enterprise zone, placing tax incentives in its municipal code. The incentives are available to new and expanding businesses in the zone, and for housing rehabilitation and infill housing construction.

## **III. Resource Tools**

A resource tool is a source of funding, services, or land. Funds are available for developing and implementing policies and programs and for designing and building facilities in support of the Chapter 2 strategies. Many of the sources can fund multi-purpose projects and programs, such as those designed to strengthen downtowns and other activity centers.





### **Resource Tool #1: Apply Through SANDAG for ISTEA Funding**

As the region's Metropolitan Planning Organization (see Chapter 1), SANDAG applies for federal transportation funds. Currently, some federal transportation funds can be spent on facilities for travel modes other than automobiles. Federal programs also include funding for scenic byways, recreational trails, and transportation planning. So-called Congestion Mitigation/ Air Quality (CMAQ) funds are intended to help local governments reduce emissions from motor vehicles and reduce traffic congestion. SANDAG's most recent allocation of the \$66.3 million available to the region for CMAQ included funding for transit, highway carpool lanes, traffic signals, major bikeways, and promotion of ridesharing.

Another federal program, the Transportation Enhancement Activities (TEA) fund, is also available for landscaping, biking/walking paths, historic preservation, scenic viewsheds, and non-traditional transportation projects. SANDAG has slated two bicycle path projects, the 42-mile Coastal Rail Trail and the North Shore Lake Hodges Bike and Hiking Path, to receive TEA funds totaling \$980,000.

Citizen groups or cities interested in applying for federal transportation funds should contact their local Department of Public Works or SANDAG for more information.

### **Resource Tool #2: Use Housing and Community Development Funds**

The California Department of Housing and Community Development (HCD) administers state and federal housing assistance programs. Prevalent financing programs available to local governments from the U.S. Department of Housing and Urban Development (HUD) and HCD include the federal Community Development Block Grant (CDBG) and Home Investment Partnership (HOME) programs, Housing Opportunities for People with AIDS (HOPWA), and Emergency Shelter Grants (ESG).

To apply for these funds, a city or county must submit a Consolidated Plan to HUD. This plan must address housing and community issues in a coordinated way and is part of a combined application for all four funding programs. These four types of grants can fund staff and other expenses to increase densities in transit corridors and around stations, improve central business districts, and promote infill projects. Rancho Cucamonga is using HCD funds for rehabilitation of existing buildings and for sidewalks and street lights. Information about funding sources for housing is available from HCD's Clearinghouse for Affordable Housing Finance in Sacramento.<sup>4</sup>

<sup>4</sup>Wheaton 1994

### **Resource Tool #3: Establish a Main Street Program**

The National Trust for Historic Preservation initiated the Main Street Program in 1986, and states are responsible for administering it. Main Street programs are used to revitalize the downtowns of small cities or distinct neighborhoods (3,000 to 50,000 people) through economic restructuring, pedestrian-oriented design and improvements, promotion, and organization. (See Strategy 9 in Chapter 2.)

Under California's program, communities may become a demonstration community by hiring a full-time coordinator; thus, the program has a matching requirement. Even if a community does not become a demonstration city, it can use program videotapes and literature for help in revitalizing its downtown. A Main Street Program can help to revive a downtown so it functions more effectively as a transit hub and activity center. The cities of Coronado and El Monte have used the Main Street Program to revitalize downtowns. Ontario has used it to rehabilitate commercial structures and improve facades.

### **Resource Tool #4: Apply for Historic Preservation Tax Credits**

A city or county can designate an area that has historic significance as a Historic District. Once this is done, building owners can receive Historic Preservation Tax Credits for renovation of historic buildings. The jurisdiction can use these tax credits to revitalize older areas that have a pedestrian environment and to strengthen downtowns. The city of Pomona, for example, established a mixed use Historic District as part of its Downtown Pomona Specific Plan.

### **Resource Tool #5: Motor Vehicle Surcharge Fund Grants**

In 1990, Assembly Bill 2766 was signed into law.<sup>5</sup> This legislation authorizes regional air quality management districts to impose an additional fee of up to four dollars on local annual motor vehicle registration fees. The proceeds may be used to implement programs to reduce air pollution from mobile sources, pursuant to air quality management plans and the California Clean Air Act. Air pollution control districts distribute a portion of the funds to local governments and private enterprises for proposed projects.

In San Diego, the San Diego Air Pollution Control District's \$2 surcharge generates approximately \$3.8 million dollars per year. These funds have been used to fund a wide range of projects including buying/scraping of older cars, clean-fueled buses, bikepaths, and planning for transit-oriented developments.

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<sup>5</sup>California Health and Safety Code §44220



### **Resource Tool #6: Establish a Business Improvement District**

A Business Improvement District (BID) is a funding mechanism wherein businesses within a single commercial district agree to tax themselves to fund area-wide improvements. These might include improved lighting, security services, rebuilt sidewalks, a centrally located sign, public art, or a gateway marker. The City of San Diego has established several BIDs in older commercial areas.

### **Resource Tool #7: Set Up a Public-Private Partnership**

Many revitalization projects in central business districts are funded by multiple organizations. For example, funding sources for the renovation of the historic Denver Dry Goods Building for mixed uses included developer equity and union pension funds as well as state multi-family housing bond issues, city loans, a federal grant, sales of low-income housing units, and historic preservation tax credits. Transit agencies often partner with private developers to develop around transit stations on land owned by the transit agency.<sup>6</sup>

### **Resource Tool #8: Build on Public and Tax-Delinquent Land**

Jurisdictions can use surplus property such as an unneeded school or sites that have been acquired through non-payment of taxes to develop transit stations and infill projects.

### **Resource Tool #9: Establish Special Assessment Districts**

A special assessment district is used to fund public improvements in an area of a city or county. It requires property owners to pay according to the benefit they receive, which is not necessarily the same for each property owner. State law expressly authorizes several types of assessment districts. One of these is a Lighting and Landscaping District, which could be used to make transit, pedestrian, and bicycle facilities safer and more attractive. Downtown merchants sometimes use assessment districts to fund amenities designed to attract customers to the downtown. The city of Pasadena established a special assessment district comprised of the facades of shops on the main boulevard of its downtown historic district and transformed the area into a vibrant commercial core.

### **Resource Tool #10: Establish Mello-Roos Special Tax Districts**

A law enabling cities and counties to set up Mello-Roos districts was passed in response to Proposition 13, which requires a two-thirds vote for most tax increases but only a simple majority for special, single-purpose taxes.

<sup>6</sup>Post 1996

A Mello-Roos district sets up a special tax to pay for a single-purpose set of improvements and must be approved by a majority of the residents of the district. If projects in the district have not yet been built, the developer constitutes the majority of owners and the tax is passed on to future residents who buy land from the developer. The district can sell tax-exempt bonds to fund the public improvements.

In a Mello-Roos district, each parcel owner pays the same tax, and the payments may be used for operations and maintenance costs as well as capital improvements. A Mello-Roos district could be used to pay for transit, pedestrian, and bicycle improvements or for infrastructure, civic buildings, or beautification intended to draw people into an area. Long Beach is using a Mello-Roos district to revive Pine Avenue downtown, one block from the Blue Line light rail transit.<sup>7</sup>

### **Resource Tool #11: Use the General Fund**

If money is available in the General Fund, and a planning or capital project is expected to result in changes that will increase revenues in the long run, it could be worthwhile to allocate money from the General Fund for plan preparation and implementation. General funds are used for day-to-day in-house planning work and for most General Plan update projects.

### **Resource Tool #12: Issue Bonds**

There are two types of bonds: general obligation bonds and revenue bonds. General obligation bonds are sold to pay for capital improvements that do not generate income, such as schools. These bonds must be paid back from the General Fund; therefore, issuing general obligation bonds generally requires a tax increase. Under Proposition 13, a tax increase requires a two-thirds majority vote of the people. If a proposed effort is popular enough to garner a two-thirds vote, this could be an option.

Revenue bonds are issued to fund projects that will generate income such as civic centers, utilities, and housing. The federal Tax Reform Act of 1986 severely limits the issuance of revenue bonds. However, if the local government can secure a portion of the state's small allocation, it can issue revenue bonds. For example, mortgage revenue bonds issued locally or by the California Housing Finance Agency are still a major source of financing for affordable housing in California.<sup>8</sup>

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<sup>7</sup>Humphrey 1995

<sup>8</sup>Wheaton 1994





## **IV. Overcoming Barriers to Implementation**

Local jurisdictions are likely to encounter a number of local barriers and difficulties in implementing transportation or land use strategies aimed at encouraging alternative modes of travel. This section outlines some of these potential problems, and it briefly suggests solutions to them. The barriers referred to in this section are generally related to caution on the part of institutions and citizens who are not certain that transit- and pedestrian-oriented development will be profitable or desirable. Solutions include education and guarantees designed to increase the sense of security to those who are in a position to take risks regarding the form of development.

### **Barrier and Solution #1**

#### **Public Opposition: Education and Public Improvements**

Residential neighbors of land proposed for change may believe the changes will ruin their community's appearance. For example, many people equate higher densities with high-rise apartment buildings surrounded by dirty parking lots commandeered by criminals. Planning with residents is the key to successful change. Some effective methods for discerning local preferences and communicating a plan's layout are suggested under Policy 2 of Chapter 2. Usually, residents see that the places they prefer are well-designed, pedestrian-accessible, mixed-use, and even higher density environments.

Citizens may also believe that high-density residential projects will reduce their property values or increase crime. The cities of Fremont and San Jose and the County of Santa Cruz have prepared presentations to show neighbors the design and population characteristics of affordable housing, along with statistics on adjacent property values. Some available resources that showcase high-quality, higher-density development are a video from the American Institute of Architects and a slide show from the highly successful BRIDGE Housing Corporation. Also, the Local Government Commission maintains a video library including these and other videos.

Residents may oppose high-density commercial or residential development because of anticipated increased traffic and associated noise and air pollution. Site-specific impacts can be mitigated to some extent or compensated for with public improvements such as those listed above. Residents and merchants may oppose removal of parking to make way for bicycle lanes; replacement parking may have to be developed to compensate for this loss. The public may object to the cost of alternative transportation facilities; publicizing the high cost of building and maintaining vehicular roadways can counter this objection. Objections to the cost of improvements in commercial areas can be overcome by a unified effort to improve the area. In Denver, a group of civic, neighborhood, business and government leaders campaigned for a bond issue for downtown infrastructure improvements. The bond measure passed and the downtown prospered.



### **Barrier and Solution #2**

#### **Capital Reluctance: Education, Loan Guarantees, and Local Funding**

Banks and other financial institutions that make construction loans tend to be very conservative. Their loan policies are based on "tried and true" developments and may lead to denied loans or higher interest rates for "experimental" projects. There is information about dense, mixed-use, and limited-parking projects that have been financially successful, which the lenders may not have. For types of projects where this is the case, educating the lenders can at least lead them to make a loan, even if it is at a higher rate than for a "conventional" project. For pioneering projects, a loan guarantee from a local agency or entity could be the only way to induce institutions to finance a project. Local lenders may be more likely to support local renewal efforts than larger institutions whose central offices are outside the area, because they benefit from local renewal. In Shelby, North Carolina, the local banks formed a tax exempt loan pool for Uptown renovation.

The California Home Energy Efficiency Rating System, Inc. (CHEERS) encourages Energy Efficient Mortgage Programs. Under energy efficient mortgages, utility savings on energy efficient homes are subtracted from the principal, interest, and taxes in calculating the amount a homebuyer can borrow. A recent study<sup>9</sup> quantifies how neighborhood characteristics can reduce vehicle use and associated household costs. The neighborhood characteristics are residential density, transit and pedestrian accessibility, and neighborhood shopping. CHEERS is considering factoring these characteristics into the mortgage qualification formula for Energy Efficient Mortgage programs.

### **Barrier and Solution #3**

#### **Uncertain Market: Market Studies and Marketing**

Developers may be concerned as to whether there is a market for infill, mixed uses or pedestrian-oriented design. They may also be uncertain about the market for projects in central cities and near transit stations. Density incentives only elicit development if there is a perceived market for higher density projects.

Market Studies: Each area is in a unique market position. Its location, existing uses, surrounding uses, and access all help determine what type of development and transportation tools would attract people to that location. It is important to conduct a market study before embarking on improvements to an area or a transportation system. A market study not only helps to determine whether there is a demand for the type of development and transportation facilities a jurisdiction is considering, but it can also identify what types of uses and facilities are likely to draw people.

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<sup>9</sup>Holtzclaw 1994



Marketing: A marketing program developed along with improvements in an area can inform potential residents, businesses, customers, walkers and riders about the improvements. A marketing coordinator can also advise businesses in targeted activity centers on how to improve their marketing.

Market Experience: Because many downtown, pedestrian-oriented, transit-oriented and mixed-use development projects are just being completed, the market evidence is anecdotal. Computer firms have located in downtown San Jose and at Laguna West, a pedestrian-oriented development near Sacramento. In a joint development project on land owned by the MTDB in La Mesa, 100 apartments and a day care center built next to a trolley station are full. The mixed-use Uptown District in San Diego enjoys success, but some of the upper floor office and retail spaces remain empty. Residents of new traditional neighborhoods, where most houses have front porches and are within a five to ten minute walk of a commercial-office center, reported high satisfaction; 84 percent preferred this type of community in a 1992 survey.<sup>10</sup>

The Disney Company is building Celebration, a pedestrian-oriented community based on its popular Main Street attraction. Located on 49,000 acres near Disney World in Florida, the community will eventually house 20,000 people. More than 4,500 people entered a lottery to be among the town's first 350 homeowners.<sup>11</sup>

Outreach to Developers: Luring developers to a downtown can take a concerted effort. The city of Columbus, Ohio, directed an educational effort toward the development community regarding the market for high-density housing downtown. After conducting a market study, the city identified 350 suitable parcels, mailed a survey to owners, and provided technical assistance in assessing the feasibility of potential projects and in cutting costs. A conference held downtown attracted 150 developers, lenders, architects, builders and realtors. Market data, a computer to run pro formas, and sessions on adaptive reuse, design and construction techniques, financing and marketing strategies, mixed-use development, and moderate-income housing were available at the conference.

The city has continued to update development community members through a newsletter. These efforts, together with one-stop permitting for downtown housing, longer inspector hours, federally assisted loans, tax deferral, and capital improvements resulted in a fourfold increase in developer interest. The 321 residential units that were built between 1987 and 1992 may not seem like a high number for the effort, but their value has appreciated 190 percent.<sup>12</sup>

<sup>10</sup>Schleimer 1993

<sup>11</sup>Local Government Commission 1996

<sup>12</sup>McBee, et. al. 1992

### **Barrier and Solution #4**

#### **Developers Building Elsewhere: Multi-Jurisdictional Cooperation**

If a jurisdiction places substantial requirements and restrictions on developers and employers, and these requirements are not offset by the advantages of locating within the jurisdiction's boundaries, developers may locate outside the boundary. A multi-jurisdictional area may have unique assets such as a labor pool with unusual skills or a natural feature. If all the jurisdictions within the area adopt the same ordinance, most firms will not base their location decisions based on the ordinance's requirements. The Golden Triangle trip reduction ordinance, which was a forerunner of Congestion Management Programs, is an example of this kind of cooperation.

### **V. Monitoring Methods**

It is important to measure the effectiveness of policies, planning documents, programs, and administrative actions in achieving desired goals. Specifically, a jurisdiction should monitor land uses, infrastructure development, and travel patterns to determine the direction and magnitude of changes.

The simplest way to monitor program effectiveness is to compare development or transportation projects implemented before and after policies affecting them were adopted. This can be done by looking for various attributes such as block size, street widths, density, sidewalk characteristics, lot sizes, etc. Geographic Information Systems (GIS) are now available to help quantify the variables under study.

### **VI. Fiscal and Financial Review in the Planning Process**

Most of the transportation and land use planning concepts advocated in Chapter 2 not only reduce emissions from motor vehicles but also produce more efficient communities requiring lower public and personal expenditures over time. However, sound financial planning must accompany plans for new land use and transportation approaches. The following discussion, excerpted from an article appearing in the California Energy Commission's *Energy Aware Planning Guide*,<sup>13</sup> describes the fiscal and financial planning process used to evaluate a project. This discussion is intended to assist community groups and others unfamiliar with the planning process who may wish to propose more efficient planning scenarios.

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<sup>13</sup>California Energy Commission 1993



In the past, land use and environmental planning took place with very little attention paid to fiscal or financial constraints. A typical planning process would occur as follows:

- (1) A General Plan is adopted or amended, setting forth land use plans for the jurisdiction and evaluating the infrastructure required to serve these land uses.
- (2) Specific plans or community plans, consistent with the General Plan, are approved. Infrastructure requirements are identified in more detail and a short discussion of financing options is provided.
- (3) When the project proponent is ready to proceed with development, the public agency evaluates the fiscal impacts and financial burdens associated with the land use plans previously approved.

Often, by the time the process is in the third and final step, substantial resources have been invested in the land use plan. Unfortunately, it is at this third step that the true feasibility of the land use plan is first evaluated. If the proposed plan is determined to be a fiscal or financial loser, the first two steps may have to be revised or completely redone. This is the harsh reality facing public agencies and developers throughout the state; new development must be more than environmentally sound – it must also be fiscally and financially sound.

### What Has Changed?

The planning process developed in a financial environment quite different from that currently found in California. When plans were developed and infrastructure designs completed, federal and state agencies would often provide substantial funding assistance through grants and revenue sharing programs. What was not provided at the federal and state levels could be funded at the local level through an increase in ad valorem property taxes.

As federal and state contributions began to dwindle, local government attempted to fill the gaps by increasing ad valorem property taxes. These increases continued until the California taxpayers responded in 1978 with the passage of Proposition 13, which limits ad valorem property taxes to one percent of the assessed value of property (with certain exceptions) and allows a maximum annual increase in *assessed value of two percent until the property is sold or ownership is transferred*.

As local governments continue to feel the revenue pinch from Proposition 13, the state continues to balance its budget by transferring mandated services to the local level. As a result, local revenues must be used to pay the cost of public



services, and funding of public infrastructure has become almost entirely the responsibility of new developments. Because the state's school facilities program has a substantial funding backlog, the total cost of school mitigation also has been transferred to new development. In addition, the cost of providing environmental mitigation continues to rise.

The cumulative impacts of the changes discussed above have resulted in projects throughout the state that *were* ready to develop and are now considered to be fiscally or financially infeasible. Although General Plan law does not require a financing element, many public agencies recognize that a financial evaluation is crucial to the overall success of a land use plan, and that this evaluation should occur during the *early planning stages* to avoid proceeding with a plan that may be infeasible.

### Fiscal Vs. Financial Evaluation

The terms "fiscal" and "financial" are often used interchangeably, however there are actually two separate evaluations to be considered. A *fiscal* analysis evaluates the recurring surplus or deficit that accrues to the public agency in each year of development and at buildout of a project. A "fiscal impact report" compares the recurring annual revenues (i.e., property tax, sales tax, motor vehicle in-lieu tax) to the recurring annual costs of services (i.e., police protection, fire protection, road maintenance).

If the fiscal impact report projects a deficit, the public agency must consider policies to avoid or mitigate the shortfall. If the deficit is only in the initial years of development, the agency may consider temporary mitigations such as assessments, special taxes, or fees to cover the shortfall. If, however, the fiscal analysis determines that the project will always produce a fiscal deficit, the land use plan may have to be revised or the required level of service reduced.

For instance, a residential development may result in a fiscal deficit because the property tax revenues are insufficient to cover the costs of services required by the new residents. However, by revising the plan and allowing a mixed-use project, the sales tax revenues generated from the commercial or industrial development may more than offset the deficit produced by the residential land uses. In this case, if a fiscal analysis were conducted at the early planning stages, the public agency and developer would save considerable time and money by assuring that land use plans and environmental impact reports consider the feasible mixed-use development alternative.





## Financial Analysis

A financial analysis evaluates the burden on the homeowners, property owners, and developers that will result after the infrastructure required to serve the project has been financed. This analysis, summarized in a "public facilities financing plan," should include an evaluation of available funding sources and the tax, assessment, or fee amount that would result after all infrastructure has been financed. Various alternatives to be considered include the following: benefit assessment districts, Mello-Roos community facilities districts, community services districts, county service areas, development impact fees, etc.

The financial feasibility of a project will be directly related to the land use plans proposed for the area. If a large portion of the infrastructure must be in place prior to the development, a public agency must consider the absorption potential of the proposed land uses and the ability of the landowners to carry the cost of funding the infrastructure before development occurs. In addition, the amount of public financing that can be supported in a certain area will be limited by the value of the land uses being developed.

For example, an industrial development may require that water and sewer improvements are provided to an area that has no existing infrastructure network. Although it is determined that the value of the industrial property can support the special taxes or assessments at buildout of the project, a 20-year absorption estimate may make the carrying costs of the project prohibitive. However, if a mixed-use development were proposed for the same area, the accelerated absorption of the residential land uses may make the project viable. A financial evaluation at an early planning stage can identify these potential pitfalls.

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### CHAPTER 4 Where We Are Now

#### I. Introduction

As discussed in the previous chapter, General Plans represent one mechanism to pursue the recommended strategies. This chapter discusses the District's review of 18 of the 19 current General Plans in San Diego County as one indicator of whether cities are currently employing the strategies discussed in Chapter 2. This review was undertaken for two reasons: first, to highlight those jurisdictions which lead the region in removing barriers to alternative travel modes, and second, to show where opportunities exist for improvement.

Each General Plan was examined for its treatment of *a representative sample* of the recommended strategies. The strategies chosen for examination address a range of overall land use/transportation concepts and details of design. The discussion of each strategy includes:

- The number of the strategy, a paraphrased version of it, and the number and percentage of General Plans in which it was found;
- A general finding of the strategy's treatment within the General Plans, including trends identified and limitations implied by the wording found;
- A description or quotation of the best example found in the county; and
- Ways the General Plans could be strengthened with respect to the strategy.

The results of the analysis are summarized in Table 4-1 and discussed in detail in the next section. It is important to note that the City of San Diego is a national leader in promoting development accessible to pedestrians, bicycling, and transit. Since San Diego's General Plan was not reviewed,<sup>1</sup> this chapter focuses on trends among other jurisdictions in the region.

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<sup>1</sup>The City of San Diego General Plan was not examined for three reasons: (1) the City is revising its zoning code; (2) a comprehensive General Plan revision is being considered; and (3) each San Diego neighborhood has completed a supplemental Community Plan.



**TABLE 4-1**  
Summary of General Plan Review for Selected Strategies<sup>2</sup>

Strategy 5	Promote mixed-use development	12 Plans (67%)
Strategy 6/9	Develop/preserve pedestrian-oriented neighborhoods	9 Plans (50%)
Strategy 7	Designate central business cores for higher density and mixed-uses	12 Plans (67%)
Strategy 8	Encourage large employment/shopping centers to locate in transit corridors	1 Plan (6%)
Strategy 10	Encourage residential infill development and revitalization	8 Plans (44%)
Strategy 13	Site designs to enhance transit use	10 Plans (55%)
Strategy 21	Designate future transit corridors	0 Plans (0%)
Strategy 25	Extend bikeways to new development	11 Plans (55%)
Strategy 30	Revise street standards	0 Plans (0%)
Strategy 31	Encourage interconnected street networks	0 Plans (0%)
Strategy 35	Encourage on-street parking	1 Plan (6%)
Strategy 36	Encourage pedestrian-friendly parking facility designs	0 Plans (0%)

<sup>2</sup>General Plans were considered to include policies even where limited in scope or application. See text for more detail.

## II. General Plan Evaluations



### Promote Mixed Use Development

#### Finding

A majority of the plans promote mixed-use development in some form. However, only a few address the building and street design details that make mixing of uses an advantage to pedestrians. For example, many plans fondly acknowledge the mixed-use, pedestrian pattern of an older commercial district or town center but require separation of uses for any new development, thus preventing development of new pedestrian-oriented neighborhoods.

#### Best Local Policy

The Chula Vista General Plan contains a general mixed-use objective:

*Encourage planned developments with a coordinated mix of urban uses, open spaces, and amenities (Land Use Element, p. I-9).*

As important as the policy itself, the plan discusses where and how this policy will be applied (p. I-19). The plan indicates the city understands the precision of design details required to provide pedestrian accessibility between uses. Not coincidentally, Chula Vista is also the site (overlapping with the County of San Diego) of the transit-oriented Otay Ranch development discussed in Chapter 2.

#### Ways Plans Could Be Strengthened

To some degree, all development can be shown to be "mixed-use" if examined on a large enough scale, such as one square mile. The critical factor in a mixed-use development proposal is whether a pedestrian can easily move between uses and is drawn to do so by interesting routes. Plans promoting mixed-use development should emphasize the need to address both the scale of development and pedestrian amenities needed to encourage movement between uses.



### Develop/Preserve Pedestrian-Oriented Neighborhoods

#### Finding

Most of the General Plan policies promoting pedestrian access focus on constructing sidewalks or pedestrian pathways. While walkways are important,



pedestrians will venture out in large numbers only if there are close destinations between land uses, whether a neighboring office building, a coffee shop, or a neighbor's house. As with policies promoting mixed uses, some plans acknowledge, even celebrate, the pedestrian accessibility of an older commercial center while prohibiting such areas elsewhere.

### **Best Local Policy**

The Imperial Beach General Plan goes beyond general statements promoting pedestrian accessibility. It provides policies illustrating what features are needed, specifically in residential neighborhoods, to accomplish this goal (p. L-4):

- Safe and pleasant pedestrian ways with numerous street trees.
- Front doors and windows facing the street whenever feasible.
- Ground level front porches, patios, bay windows, and balconies facing the street wherever feasible.
- Minimum front yard set-backs.
- Garages and parking accessed from an alley or set back and recessed behind the front facade of the residential unit.

Imperial Beach capitalizes on a well-established and permanent pedestrian orientation. Indeed, its stated goal is to retain "the quality of life and atmosphere of a small beach-oriented town," which is "not overcrowded or exclusive like many California beach communities" (p. L-3).

Another example is the Oceanside General Plan, which states:

*[T]he City shall strive to implement the policies contained in the Land Use Distribution Element (SANDAG, February 1995) related to enhancing opportunities for mixed-use development in transit focus areas as appropriate (Circulation Element, p. 51).*

Oceanside has followed this commitment with an evaluation of seven commuter rail stations and surrounding areas with the intention of rezoning for transit-oriented development.

### **Ways Plans Could Be Strengthened**

The neighborhood features specified in the Imperial Beach plan have been successfully employed in a variety of communities throughout the country and could be adopted for new building areas in the San Diego region. Similar features could be specified for commercial areas.



**STRATEGY 7**  
12 Plans (67%)

### **Designate Central Business Cores for Higher Density and Mixed-Uses**

#### **Finding**

A majority of plans recognize existing business core areas. Some of these areas are decades old and have been through cycles of boom and decay. Most of the plans include policies aimed at maintaining and enhancing these older areas. However, only two plans establish or contemplate *new* core areas with design parameters to minimize vehicle trips.

#### **Best Local Policy**

Both the Oceanside and Chula Vista General Plans call for new mixed-use core areas around existing and planned rail transit stops. For example, as part of Otay Ranch, the Chula Vista General Plan considers the need for a new university and other regional uses surrounded by transit-oriented residential neighborhoods. This Eastern Urban Center would be connected to the existing Urban Core by express bus service (p. 0-2). To accomplish the goal of transit and pedestrian orientation, the developers of Otay Ranch were allowed to depart from many of the zoning standards applied to the rest of the city.

#### **Ways Plans Could Be Strengthened**

Jurisdictions should examine prospects for new business development and designate one or more centralized locations with an emphasis on pedestrian circulation. However, parking ordinances can make designing for pedestrians difficult. Strict parking supply requirements favor massive parking lots that discourage pedestrians. This problem can be overcome by encouraging shared parking and sequestering parking underground, in a separate structure, or behind buildings.



**STRATEGY 8**  
1 Plan (6%)

### **Encourage Large Employment/Shopping Centers to Locate in Traffic Corridors**

#### **Finding**

All of the plans reflect careful zoning, but most do not suggest an active role for the jurisdiction in influencing where particular types of businesses locate. Because of the specialized nature of commercial siting decisions, cities generally

leave location evaluation to businesses. The resulting land use pattern is a patchwork of individual projects, forming a disjointed commercial "strip" or a series of disconnected malls. Typically, the coordination required to ensure transit can work well between developments is lacking.

### **Best Local Policy**

Only the City of Oceanside included a form of this policy, stating:

*The City shall encourage the reduction of vehicle miles, reduction of the total number of daily and peak hour vehicle trips and provide better utilization of the circulation system through...increased development of employment centers where transit usage is highly viable (Circulation Element, p. 49).*

### **Ways Plans Could Be Strengthened**

General Plans could commit the jurisdiction to a more active role assembling and promoting properties along appropriate transit corridors. Plans could also commit the jurisdiction to work with appropriate transit providers to determine site characteristics necessary to ensure transit compatibility of new commercial areas.

 STRATEGY 10  
8 Plans (44%)

### **Encourage Residential Infill Development and Revitalization**

#### **Finding**

Several plans encourage infill development and/or neighborhood revitalization. However, different goals are emphasized. Some plans seek to increase the stock of affordable housing by allowing accessory apartments or "granny flats" in areas zoned for single family houses. Occupants of these accessory units are sometimes limited to family members of occupants of the primary dwelling.

Other plans focus on replacing or rehabilitating buildings in blighted areas. One plan promotes infill and revitalization as a way to increase the efficiency of delivery of public services. However, no plans specifically acknowledge the potential improvement to transit efficiency. The plans of cities contemplating transit-oriented development call for compatible mixed-use development, including residential uses, near transit stations.

### Best Local Policy

Even though 16 plans committed to increasing opportunities for pedestrian, bicycle, and transit travel, none recognized infill development as an effective transportation strategy. Often, infill development is seen as an additional burden on the immediate street system without recognizing its benefits to the regional system.

### Ways Plans Could Be Strengthened

With long-term transit corridor planning, the additional traffic burden of infill development can be addressed, and infill can be evaluated as a possible remedy to the travel inefficiency of fringe development. Neighborhoods accepting additional development should be those targeted for future transit services.



### Site Designs to Enhance Transit Use

#### Finding

Several plans require only minimal transit improvements such as bus shelters, pull out areas on arterial streets, and transit signs. More site-specific improvements are generally not discussed. These include building setback, orientation to the street, convenience of building entrances to bus stops, and pedestrian accessibility between adjacent buildings (since transit riders are without a car).

### Best Local Policy

One General Plan, which goes further than others, is that of La Mesa:

*The City will develop and apply public and private design standards applicable to new developments which will improve access to public transit (Circulation Element, p. 23).*

### Ways Plans Could Be Strengthened

Transit officials frequently report that cities and developers pay little attention to the transit compatibility of a new development during design and construction, only later to request transit service. General Plan policies requiring or encouraging appropriate transit access features would help transit providers working to persuade developers to include such features. Most of these features can be provided at little or no additional cost.



STRATEGY 21  
0 Plans (0%)

### Designate Future Transit Corridors

#### Finding

Nine plans call for long-range transit planning. However, none take the important next step of designating travel corridors for future transit service. One General Plan states “[t]he city shall support establishment of transit operations *when demand levels are sufficient to warrant such service*” (emphasis added). This passive approach is common among the plans and largely reflects current practice and the resultant lack of efficient transit service in most areas. Transit demand does not emerge without careful planning by jurisdictions, in cooperation with transit providers.

#### Best Local Policy

The General Plans for Escondido (p. II-75) and Oceanside (Circulation Element, p. 51) include identical policies representing the most active approach to public transit planning among the plans:

*The city shall cooperate with the North County Transit District (NCTD) to attain a balance of transportation opportunities. This shall include the establishment of criteria to implement transit improvements, short/long-range service plans, corridor improvements, transit centers, and the preservation of rights-of-way for commuter-rail lines.*

#### Ways Plans Could Be Strengthened

Demand for transit must be *created* by designating future transit corridors and then requiring or encouraging access standards applicable to new development in those corridors. Plans could commit cities to work with transit providers and the public to designate future corridors and commit to providing appropriate guidelines for transit access improvements in those areas.



STRATEGY 25  
11 Plans (55%)

### Extend Bikeways to New Development

#### Finding

Most of the plans emphasize bicycling facilities. This includes planning and maintaining a bikeway system (15 plans) and extending the system to new development (10 plans). A few plans commit to providing more exclusive (Class I) bicycle lanes rather than relying on designated street lanes (Class II).





### Best Local Policy

La Mesa's General Plan addresses most aspects of improving bicycling facilities including bicycle lane design criteria, street improvements and maintenance, parking and storage, bike racks on transit vehicles, and coordinating with other cities on facility planning (Circulation Element, pp. 23-28).

### Ways Plans Could Be Strengthened

The plans could be improved by addressing the barrier to bicycling of low-density development, which frequently spreads destinations beyond bicycling range. They could also acknowledge and address deficiencies of current bicycling facilities including the placement of bicycle lanes on high speed arterials, poor signage for bicyclists, and disappearing/reappearing lanes.



STRATEGY 30

0 Plans (0%)

### Revise Street Standards

#### Finding

No plans discussed the revision of street width standards. These standards are a source of controversy because of the competing interests of traffic engineers, pedestrians, bicyclists, emergency services, garbage collection agencies, and residents. In most plans, accommodating through-traffic is given explicit priority over other uses of the street. Discussions of street widening as a traffic solution or street width standards typically do not consider negative impacts on other users.

### Best Local Policy

Two of the most recently adopted plans reflect newer thinking about the multiple functions of streets. La Mesa's Circulation Element states:

*Streets are not just curbs, gutters, and sidewalks to meet engineering standards. Streets are "places" which define the shape and character of the community. Streets have a lot to do with determining the values of the community that are not measured in terms of traffic flow or level of service. The design and maintenance of La Mesa's streets also determines the livability of the City (p. 24).*

While no plans call for reducing street width standards, the Imperial Beach plan contains a policy contemplating reducing the width of one category of existing streets:

*The City should consider reducing the existing 80 foot street right-of-ways for streets that are not shown as prime, major, or collector streets on the Street Classification Plan (p. C-17).*



## Ways Plans Could Be Strengthened

Chapter 2 discusses cities and developments successfully utilizing narrower streets, and the benefits to pedestrian circulation, reduced speeding, and neighborhood aesthetics. Many professional organizations advocate narrower street standards and ways to overcome officials' fears of liability. Plans could commit to investigate and propose revised standards for new neighborhood streets.



STRATEGY 31

0 Plans (0%)

### Encourage Interconnected Street Networks

#### Finding

Most areas of the county populated before World War II are laid out in a grid street pattern. During the last 50 years, curvilinear and cul-de-sac streets have been the predominant form. Only those cities planning limited transit-oriented developments contemplate new communities with a grid or other street integration pattern that allows easy pedestrian and bicycle access between destinations.

Poway has taken a unique approach, offering separate "pathways" as an alternative to a traditional sidewalk (p. Transportation-40). The Poway Transportation Element declares that sidewalks do not sufficiently separate pedestrians from roadway traffic and are not direct since the city's streets are not laid out in a grid pattern. The plan recognizes the potential for commuting and shopping on foot and calls for a Master Plan to create pathways linking residential, commercial, school, business, and other land uses. Since land uses are themselves located on streets, it is not yet clear whether this approach will prove successful. However, it may be more compatible with the plan's emphasis on rural character.

#### Best Local Policy

While not part of its current General Plan, the City of San Diego's Draft Zoning Code Update includes an Urban Village Overlay Zone that can be overlaid on existing zones, under certain conditions. Regarding street pattern, the Urban Village Overlay Zone provision states:

*The layout of the street system shall be in a grid pattern or modified grid pattern, emphasizing interconnected streets and the ability to reach local destinations without crossing major or arterial streets. It is desirable to have streets with block faces 400 feet in length or less. The use of alleys is encouraged. Where possible, streets should frame vistas of the mixed-use core, public buildings, parks and natural features (§132.1308a).*



## Ways Plans Could Be Strengthened

Plans could encourage developers building new communities to utilize a grid street pattern. Supporting measures should also be encouraged. For example, the San Diego provision quoted above is coupled with street tree, street width, and building orientation provisions that together create a highly favorable pedestrian environment without sacrificing vehicle movement.



## Encourage On-Street Parking

### Finding

Some plans specifically discourage on-street parking to minimize impedance to traffic-flow. Only the La Mesa General Plan discusses the tangential benefits of on-street parking.

### Best Local Policy

La Mesa's Circulation Element specifically acknowledges the benefits of on-street parking to pedestrians:

*Increasing sidewalk widths, landscaping, street furniture and parking in commercial areas all work to help separate pedestrian and vehicular traffic while improving the appearance of the community (emphasis added, p. 29).*

It includes a policy specifically addressing on-street parking:

*On-street parking is recognized as an important use of public streets serving the needs of both residential and commercial areas. On-street parking also serves as a traffic control function, yet it can represent a traffic safety issue in specific locations. The City will establish standards and review procedures to balance the benefits of on-street parking with the concerns for congestion management and traffic safety in determining its proper use and location (p. 10).*

## Ways Plans Could Be Strengthened

Plans should commit to improving pedestrian circulation in commercial areas. Policies such as La Mesa's could be one of several strategies for implementing this commitment.



STRATEGY 36

0 Plans (0%)

## Encourage Pedestrian-Friendly Parking Facility Designs

### Finding

A few plans – including those of Coronado, Imperial Beach, La Mesa, and Lemon Grove – discuss the negative impact of off-street parking on the pedestrian environment. These plans encourage reductions in parking facilities through shared parking arrangements, off-site parking, and other techniques. However, no plans address the design of parking facilities as a factor in improving the pedestrian environment.

### Best Local Policy

No local example of this policy exists.

### Ways Plans Could Be Strengthened

Plans could require or encourage attention to the impact of parking facilities on pedestrians and suggest particular design features.

## III. Observations and Conclusions

### Observations

Cities everywhere are recognizing the need to re-establish walking, bicycling, and transit as viable transportation modes. However, the means to do so are controversial and uncertain since this requires changes in long-standing practices. The same is true for the San Diego region as reflected by these observations of the region's General Plans:

- The newer General Plans reflect a willingness by traditionally low-density suburban communities to allow limited, compact, mixed-use developments oriented to regional transit systems. These plans effectively emphasize the design details necessary to encourage alternative modes. However, jurisdictions appear less willing to retrofit existing communities or to change long-standing development and transportation standards for all new development. Low-density development continues to be seen as the most desirable building form.



- Planning for future transit service is almost completely absent from the General Plans. No future service is envisioned in new development areas. This is probably due in part to the ways transit is funded in the United States – justification of public expenditures for transit requires demonstrating the demand for services first. This contrasts with the European practice where transit lines are conceived first and often built ahead of development.
- The plans are striking in their lack of discussion on regional growth trends and the growing scarcity of land as discussed in Chapter 1. Many cities have recently reacted to growth pressure by reducing allowable building density. This is an understandable reaction, which may solve a very localized problem but which creates a larger regional problem by pushing development to the outer fringe. If faithful to their purpose, future General Plans will grapple with the tension between continued growth, the consumption of land, and the challenge of providing acceptable living situations and municipal services to new residents.
- The most innovative General Plans – Oceanside, Chula Vista, La Mesa, and Imperial Beach – are also among the most recently revised. Because every jurisdiction approved SANDAG's Land Use Distribution Element, it is assumed each community will adopt more policies favoring alternative transportation modes as General Plans are revised.
- General Plan policies do not necessarily translate into reduced emissions from automobiles. Some of the most innovative General Plans were written by cities with extensive areas of low-density, auto-oriented development. Creating new opportunities for traveling without a car takes time as new development occurs.
- General Plan policies favoring alternative modes often conflict with policies favoring automobiles. For example, all jurisdictions have adopted the regional traffic flow standard of Level of Service "C". One ironic result of this standard is to spread uses out more, thus increasing vehicle trips, travel distances, and congestion on highways and arterials. What is required to address this problem is more situation-specific application of traffic flow standards as discussed in Chapter 2 (Strategy 10).
- Almost every jurisdiction has one neighborhood that is pedestrian-accessible since most have a town center or neighborhood developed prior to World War II. Some of these have deteriorated with age. Others have been fully restored and provide identity and pride to the jurisdiction.





## Conclusion

The most recently revised General Plans suggest the region's jurisdictions are cautiously considering allowing more compact development accessible to all transportation modes. However, zoning and transportation standards applied inflexibly will thwart the attempts of innovative developers to reduce vehicle trips through pedestrian- and transit-oriented design principles. Particularly where standards are well established or resulted from intense negotiations between local interests, wholesale changes are not likely to occur quickly, if at all.

To resolve this dilemma, jurisdictions may wish to adopt the approach taken by the City of San Diego. The City started by creating Transit-Oriented Design guidelines. The basic parts of the Guidelines were incorporated in the zoning code as a "floating" Urban Village Overlay Zone, discussed throughout this document. This optional zone can be used by developers in designated areas to develop more compact, pedestrian accessible neighborhoods with preset standards. Suburban areas could utilize the same technique, applied to defined areas. Once attractive neighborhoods built on these principles are available as models, more can be built. Likewise, strategies applicable to existing areas can be more widely used once successful examples of their application exist and are publicized.



## APPENDIX A

### Land Use and Transportation Strategies

This section reprints the strategies presented in Chapter 2 without the implementation options and discussion. It is a comprehensive “menu” of strategies which could be incorporated into local projects, planning documents, or growth strategies to reduce future vehicle trips.

#### Land Use Strategies

##### **Integrated Planning: Public Education/Participation**

- Strategy 1 Work to educate the public on the link between transportation, land use, and air quality.
- Strategy 2 Actively involve the public in all comprehensive planning processes involving transportation infrastructure and land use.

##### **Integrated Planning: Project Planning And Review**

- Strategy 3 Consider ways to increase non-automobile travel when planning land uses or considering changes to the land use pattern of this community.
- Strategy 4 Ensure all local government submittals of transportation projects to be included in regional transportation improvement programs are consistent with local air quality goals and policies.

##### **Land Use: Development Pattern**

- Strategy 5 Encourage greater mixing of land uses to increase walking and bicycling trips.
- Strategy 6 Encourage the development of pedestrian-oriented communities, both within and outside transit focus areas.
- Strategy 7 Establish one or more central business cores for high-density and mixed-use development.
- Strategy 8 Encourage the location of large employment or shopping centers in major bus transit corridors and within walking distance of planned or existing transit stations.
- Strategy 9 Preserve and enhance existing neighborhoods and commercial districts having transit and pedestrian-oriented designs.
- Strategy 10 Encourage infill and revitalization projects within urban residential areas.



### **Land Use: Public Facilities**

- Strategy 11 Provide public facilities and subsidize development fees to attract investment to older areas exhibiting high transit ridership.
- Strategy 12 Encourage subdivision designs that are integrated with existing or planned parks, libraries, schools, and other public facilities within walking distance of residential uses.

### **Land Use: Site Designs**

- Strategy 13 Encourage developers to design project sites to increase the convenience, safety, and comfort of people using transit, walking, or bicycling.
- Strategy 14 Encourage all development projects proposed within 2,000 feet of an existing or planned light rail transit, commuter rail, express bus, or transit corridor stop to incorporate site design measures that enhance access to the transit system.
- Strategy 15 Review all plans for subdivision streets and lots, commercial sites, public facilities, and multi-family residences to identify design changes to improve access by transit, bicycle, and walking.
- Strategy 16 Ensure that, wherever possible, new commercial developments include convenient, comfortable, and safe pedestrian/bicycle connections to adjacent properties.

## **Transportation Strategies**

### **Transportation: Multi-Modal System**

- Strategy 17 Plan for a multi-modal transportation system that meets the mobility needs of the community and improves air quality.
- Strategy 18 Pursue and use local, state, and federal funds earmarked for pedestrian, bicycle, and transit improvements.
- Strategy 19 Encourage transit, pedestrian, and bicycle travel in existing suburban neighborhoods by constructing additional pathways where appropriate.
- Strategy 20 Work with transit providers to plan for multi-modal transfer sites that incorporate bicycle paths, bicycle parking, transit, pedestrian access, and Park and Ride lots.

### **Transportation: Transit**

- Strategy 21 Coordinate with neighboring jurisdictions and transit providers to plan land uses supporting existing transit services and to designate future transit corridors.

- Strategy 22 Specify site design and roadway features to enhance pedestrian and bicycle access to transit in existing service corridors and those designated for future transit service.
- Strategy 23 Participate with regional transit agencies to identify potential light rail or commuter rail corridors during General Plan updates and take action to protect the right-of-way from incompatible development.

### **Transportation: Bicycle Facilities**

- Strategy 24 Identify and correct gaps and obstacles in current and planned bicycling routes.
- Strategy 25 Encourage the extension of commuter bikeways to serve new development.
- Strategy 26 Ensure that upgrades to existing roads (widening, curbs, gutters, etc.) include bicycle and pedestrian improvements where appropriate.
- Strategy 27 Encourage new major activity centers, office, and commercial development to provide secure bicycle storage and bicycle parking facilities.
- Strategy 28 Consider unused portions of rights-of-way for use as bikeways and pedestrian paths.

### **Transportation: Pedestrian Facilities**

- Strategy 29 Provide pedestrian facilities and amenities in new and existing areas of development.
- Strategy 30 Revise street design standards to deter speeding and encourage pedestrian and bicycle access.
- Strategy 31 Encourage the development of interconnected street networks, where topography allows.
- Strategy 32 Institute a program to prioritize and implement "traffic calming" measures where appropriate to reduce traffic speeds and enhance pedestrian and bicycle safety.

### **Transportation: Parking**

- Strategy 33 Ensure parking requirements do not significantly exceed demand, while addressing spillover parking in local neighborhoods.
- Strategy 34 Support pedestrian-oriented commercial areas in major activity centers by appropriately pricing the municipal parking supply.
- Strategy 35 Allow on-street parking, where compatible with existing land uses, to buffer pedestrians from vehicle traffic.
- Strategy 36 Encourage parking facility designs that enhance the pedestrian environment.
- Strategy 37 Reduce parking requirements where walking, bicycling, and transit amenities reduce parking demand.