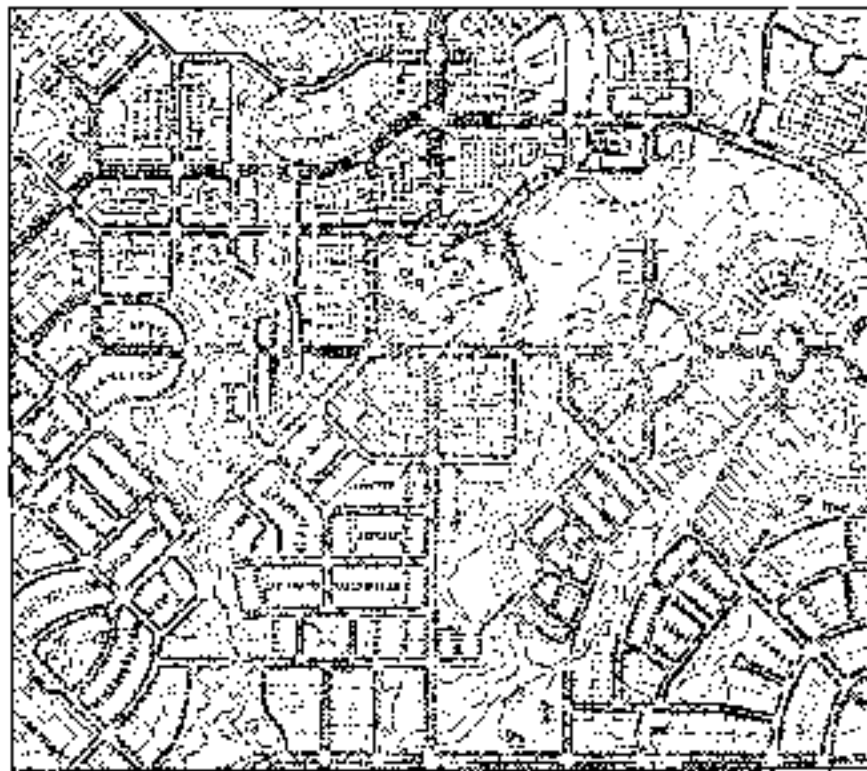


The Next American Metropolis

Ecology, Community,
and the American Dream



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The following guidelines define an integrated strategy for growth in our cities, suburbs, and towns. Unlike typical "design guidelines," which deal primarily with aesthetic and architectural principles, these guidelines attempt to define a new context and direction for the built environment – for the way we develop our communities, neighborhoods, districts, and regions. They are shaped according to three general principles: first, that the regional structure of growth should be guided by the expansion of transit and a more compact urban form; second, that our ubiquitous single-use zoning should be replaced with standards for mixed-use, walkable neighborhoods; and third, that our urban design policies should create an architecture oriented toward the public domain and human dimension rather than the private domain and auto scale.

Technically the guidelines can operate at different scales. They can be used to redirect and reconfigure a region's General or Comprehensive Plan, help establish Urban Growth Boundaries, designate appropriate new growth and infill areas, and in setting standards for the development or redevelopment of neighborhoods through "Special Area Plans," and they can help to revise existing zoning ordinances to allow more mixed-use, pedestrian-oriented land plans.

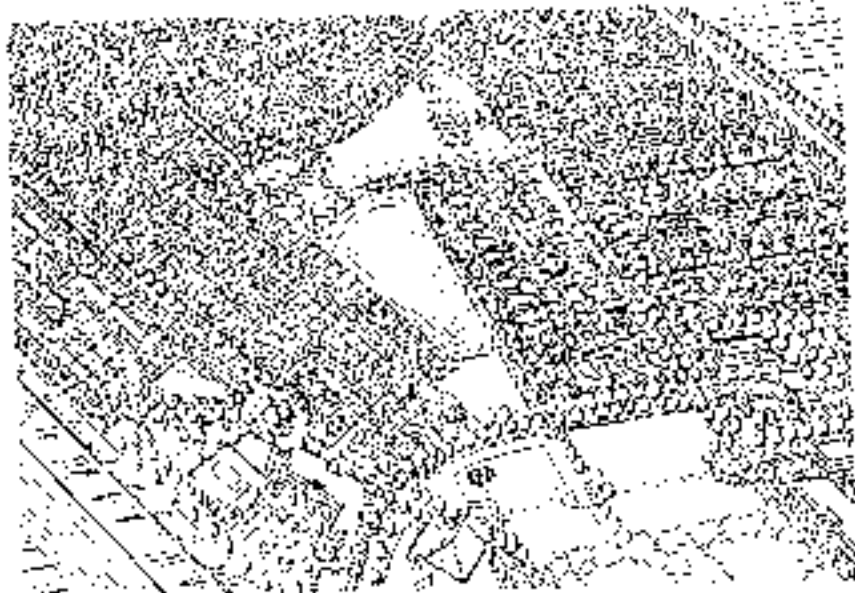
The Transit-Oriented Development (TOD) concept is simple: moderate and high-density housing, along with complementary public uses, jobs, retail and services, are concentrated in mixed-use developments at strategic points along the regional transit system. Recently, similar concepts have gone by many names: Pedestrian Pockets, Traditional Neighborhood Developments, Urban Villages, and Compact Communities to name a few. Although different in detail and emphasis, these concepts share a common perspective, design principles, and set of goals. TODs and emphasis to the integration of transit on a regional basis, providing a perspective missing from strategies which deal primarily with the nature and structure of individual communities and neighborhoods. This regional perspective helps to define a meaningful edge for the metropolitan area, eliminating the danger of random growth in distant sites served only by highways. Such a larger view can help order growth across our balkanized metropolitan regions as well as encourage infill and redevelopment efforts. Transit is not the only goal of these development patterns, it is however a potential end result which adds to a strategy with many other benefits.

A "walkable" environment is perhaps the key aspect of the concept. In order to develop alternatives to drive-alone auto use, comfortable pedestrian environments should be created at the origin and destination of each trip. No one likes to arrive at work without a car if they cannot walk comfortably from transit to their destination or run a mid-day errand on foot. TODs seek to bring many destinations within walking distance, allowing trips to be combined. Placing local retail, parks, day care, civic services, and transit at the center of a TOD reinforces the opportunity to walk or bike for many errands, as well as combine a

trip to transit with other stops. Streets lined by trees and building entries also help to make the TOD environment "pedestrian-friendly." Although focused on reinforcing transit, such land use configurations would equally support car-pool and more efficient auto use. Given historic development trends and projections for the future, each of these travel modes can play an important role in solving a city's or region's increasing traffic problems.

Transit-Oriented Developments can, and ironically should, develop without transit - with a justifiable focus on the pedestrian and a healthier community structure. More walkable, integrated communities can help relieve our dependence on the auto in many ways other than just transit. Reducing trip lengths, combining destinations, car-pooling, walking, and biking are all enhanced by TODs. A healthy walking environment can succeed without transit, but a transit system cannot exist without the pedestrian. The growth of such pedestrian-friendly developments, if coordinated at a regional scale, can form the backbone for future transit growth. In fact, this type of development must precede, not just follow, the growth of our transit networks. TODs can exist without transit, but our transit systems have little chance of surviving in the low-density environment of sprawling suburbs without TODs.

The fundamental structure of the TOD is nodal - focused on a commercial center, civic uses, and a potential transit stop. This nodal quality is the result of the contemporary bias of retail to develop in distinct "packages," the spacing requirements of transit stations, and the qualitative need for an identifiable social center in our neighborhoods and districts. This is in stark contrast to the linear form which is used to delineate the form of grid towns or strip commercial suburbs. Defined by a comfortable walking distance, the TOD is made up of a core commercial area, with civic and transit uses integrated, and a



flexible program of housing, jobs, and public space surrounding it. The densities and mix of these primary uses, though controlled by certain maximums, is determined by the specifics of each site and economy. Surrounding the TOD is a secondary Area for low-density uses, the large lot single-family residences, schools, larger businesses, and major parks.

There are many "mixed use" Planned Unit Developments and Master Planned Communities which speak of similar goals but employ fundamentally different planning principles. These strategies, which have dominated the "progressive" side of sprawl for some time now, differ from TODs in several significant ways.

First, while they typically have a mix of uses, they unfortunately separate these uses into individual development zones segregated by major arterial roadways and property lines. This segregation often makes walkable connections weak. Second, they tend to isolate the pedestrian from the street, either on greenways or designated paths, leaving the street solely for auto use. Third, they still employ a hierarchy of streets, focusing congestion by forcing traffic onto the arterial network. Fourth, they continue to design neighborhood streets for the convenience and speed of autos rather than for a mix of uses and slower traffic. And finally, they remove the hierarchy of public and private space by facilitating an archi-tecture of anonymous "objects" rather than an architecture which helps define and create memorable public places.

To do that, not only promote alternatives to auto use, but can be a formula for affordable communities – affordable in many senses. Communities are affordable to the environment when they efficiently use land, help to preserve open space, and reduce air pollution; they are affordable for diverse households when a variety of housing types, at various costs and densities, are encouraged in convenient locations; they are affordable to families with limited incomes when the mix and configuration of uses allow reduced auto dependence and auto-related expenses; they are affordable to businesses seeking to relocate when the workforce can be freed of the gridlock and high housing costs typical in many growing metropolitan regions; and they are affordable to the public taxpayer when infrastructure is efficient, and public amenities are well-used.

In summary, the principles of Transit-Oriented Development are to:

- organize growth on a regional level to be compact and transit-supportive;
- place commercial, housing, jobs, parks, and civic uses within walking distance of transit stops;
- create pedestrian-friendly street networks which directly connect local destinations;
- provide a mix of housing types, densities, and costs;
- preserve sensitive habitat, riparian zones, and high quality open space;
- make public spaces the focus of building orientation and neighborhood activity; and
- encourage infill and redevelopment along transit corridors within existing neighborhoods.

These principles are not new; they are simply a return to the timeless goals of urbanism, in its best sense. They are principles which over time have created our most treasured man-made environments and which, although constantly evolving with culture and technology, remain true to the human dimension and our deepest social aspirations. But they are fundamentally different from the ideas that have guided planning for the last two generations.

Sustainable Communities, Pedestrian Pockets, and Transit-Oriented Development

A brief history of the progression of ideas and models which led to the guidelines may be helpful in understanding their underlying assumptions and concepts. The book *Sustainable Communities* was an early work which attempted to re-define our patterns of settlement primarily in relation to environmental concerns.

Involving biologists, architects, sociologists, traffic engineers, planners, and economists, it was a multi-disciplinary effort to show how ecological systems could be integrated into cities, suburbs, and new towns. It succeeded in demonstrating technologies and designs which could build a more ecological infrastructure for communities through energy conservation, waste recycling, open space preservation, and walkable neighborhoods. But in some ways it went too far in literally bringing nature into the human settlement. The balance between urbanism and naturalism was lost: urban vitality was too often sacrificed to green spaces in an effort to incorporate organic systems within the city. The concerns became almost myopic; buildings looked in a single orientation to optimize solar heating, for example. Communities should be compact, diverse, and urban, and their natural systems should be integrated at a regional scale, not necessarily in each block and neighborhood.

A simple expression of this imbalance between urbanism and environmentalism was in the treatment of the street. Separating the pedestrian onto "greenways" and curless patios was a flawed strategy from the Radburn experiment of the 1930s - a neighborhood design which, in attempting to control the car, sacrificed the street to it. Likewise the Modernist's "building in the park" approach to town planning ultimately helped kill the life of the street by separating it from the activities of the buildings that lined it. Both of these approaches were incorrectly adopted into *Sustainable Communities* and the models it presented. Environmentally sound communities need parks, regional greenbelts, and high-quality open space, but they also need density and street-life. Isolated from a larger concept of human habitat, the environmental movement could be in danger of becoming another "special interest group" which can optimize its goals while losing sight of a larger purpose.

Through a grant from the NEA arts program, I had an opportunity, along with architect Mark Mosk, to develop designs which attempted to integrate environmentalism and urbanism. On the one hand the ideas were greatly influenced by Leon Krier who defined, in his early works, a pure and compelling vision of



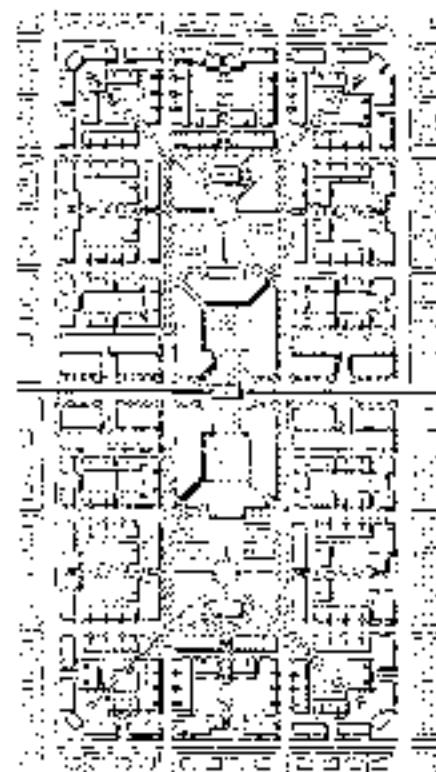
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urbanism. On the other was the problem of the American suburb and the decentralizing forces that produced our current palette of building types. The work became an attempt to join these two seemingly divergent directions.

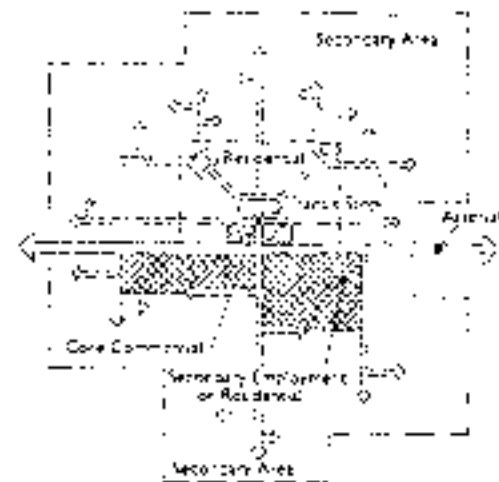
The concept that resulted used walkable, mixed-use neighborhoods to reinforce transit, preserve open space, and make a more compact metropolitan form. These places, called Pedestrian Pockets, were meant to form a regional network spanning infill and greenfield sites, inner-city and suburban locations. They were built on the notion that retail, employment, and transit were growing and decentralizing at a rapid rate. The diagram for the Pedestrian Pocket mixed several mid- to high-density housing types with jobs over shops as a transit stop. The size of the pocket was set by the comfortable walking distance of one minute mile. Although a goal, it was not given on the Radburn model pedestrian streets with segregated pedestrian paths leading to the center.

Since that time the concepts evolved through theoretical design research at University of California at Berkeley, design charrettes at University of Washington, and through private practice. One of the charrettes produced a book, *The Pedestrian Pocket Book*, which outlined the thinking prior to the practical experience of major regional and neighborhood planning projects. Under the influence of the private sector projects, the design approach was expanded to include a clearer understanding of the development types visible in the current marketplace – the architectural components which could make the concepts buildable today. The realities of the modern American city require a model which incorporates and reconfigures the diverse uses at work in the marketplace, not a theoretical construct which hypothesizes a fundamental change in the architectural “building blocks” of development.

The original Pedestrian Pocket model was expanded through the larger projects to include concepts for new towns, regional growth strategies, and a wider range of residential densities – particularly low density single-family homes, the majority of sprawl. Incorporating a reasonable and realistic proportion of single-family housing called for a fundamental rethinking of a model which started primarily as a multi-family infill proposal. “Secondary Areas” were added around the denser mixed-



PEDESTRIAN POCKET



TRANSIT-ORIENTED DEVELOPMENT

use core to incorporate many of the low-intensity uses excluded from the early Pedestrian Pocket model. This provided an excellent location for large schools, major recreation parks, and light industrial uses, as well as a range of single-family housing. The larger projects also

fostered consideration of transit and its implications on regional form, as well as the structure of individual neighborhoods. They ultimately produced the guidelines for "Transit-Oriented Development" from which this section of the book is derived.

Transit-Oriented Development and Travel Behavior

Central to the utility of these concepts is their implications on travel behavior: the way we choose to get around, the frequency of trips, and the distance of each journey. Though many factors other than land use configurations affect our travel behavior — such as the cost of gas, auto ownership, parking expenses, the amount of time lost to congestion, and the quality of transit — the effects of land use on travel behavior are formative. In fact, land use patterns are the foundation upon which the viability of travel cost, time, and investment factors depend. If land use primarily supports the auto, then increasing the costs of operating cars and allowing congestion to grow will only result in pain, not a fundamental reorientation of travel behavior. Without coordinated land use policies, increasing transit investments will only lead to underutilized facilities. On the other hand, if land use configurations support alternatives to the car, then many results are possible: people may choose to walk, bike, and use transit more often; they can combine trips more easily; there may be shorter, more direct routes to local destinations; they may actually be able to reduce the number of cars they own; and because of these changes, reduced congestion on highways and arterial roadways is possible.

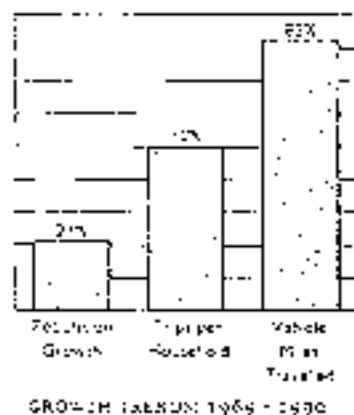
As land use patterns and travel behavior change, many positive "feedbacks" can occur. If transit ridership rises, service can be increased and transit becomes convenient for more people. As air quality improves, health costs could be reduced. As more people walk or use bikes, the federal and local costs for road and highway maintenance can be reduced. With more people arriving at work or shopping areas without their cars, the size of parking lots can be limited. The end result of shifts away from auto usage would result in reduced energy consumption, greenhouse effect, and dependence on foreign oil. Yet these changes are dependent on understanding, quantifying, and valuing the effect that land use can have on travel behavior. Unfortunately these linkages are not fully understood.

Traffic engineers have developed sophisticated modeling programs for predicting the multiple and interdependent effects of population growth and traffic. The models are calibrated by, and therefore tend to replicate, the way things are in our sprawling cities — rather than the way things could be. These programs are

sensitive to household size, household incomes, residential density, costs of travel, congestion levels, type of trips, and proximity of destinations. But they are not sensitive to the walkability of a neighborhood, the density of destinations within a neighborhood (a measure of mixed-use), or the implications of these factors on transit use. They effectively are not sensitive to the possibilities of walkable and transit-oriented communities.

In order to fully understand the dynamic of land use and travel behavior and be able to use it in the design of communities, the components of traffic analysis must be understood. There are several critical yardsticks used in traffic analysis, each with special implications. Auto ownership per household is a fundamental measure of the travel bias of a region. And it affects the personal American household budget directly. In California, auto ownership per household has been increasing while the size of households has been falling. Across the country our love affair with the car is becoming more of an obsession when compared to other industrialized countries. In an average Swedish city there are 1.3 autos per household, compared with an average 0.8 autos per household in the USA.

Vehicle Miles Traveled (VMT) per household is another significant milestone. VMT directly affects the amount of road usage and therefore maintenance and construction costs. Once again, VMT has been increasing much faster than the growth in population would predict. From 1969 to 1990 it increased 82 percent while the national population only increased 24 percent.

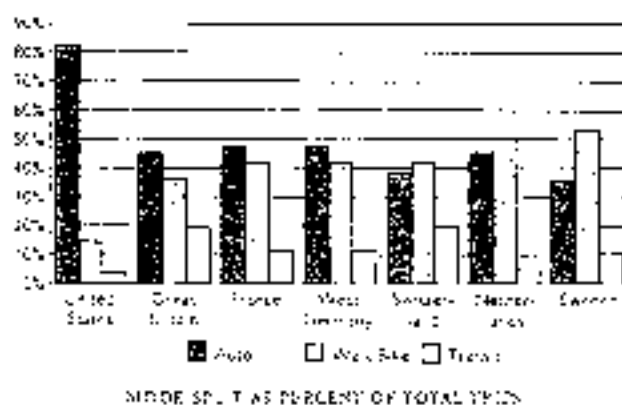


The number of trips per household per day is another factor on the rise. From approximately eight per household per day in 1969 to twelve in 1990. Trip generation is critical because it is used to calculate the effect of development on local street intersections and because

an equate is directly related to the number of times a car is started (cold starts) rather than simply the distance traveled.

Finally, "mode split" is the percent of trips by each type of travel means: auto, walking, bike, or transit. It can vary greatly, depending on the quality of the environment and demographics. For example, suburban Huntington Beach has a 91% auto mode split while inner-city Philadelphia has only 13% of all trips in autos. Each of these interdependent travel factors is governed by the type of communities we build and the economics of the alternatives.

Different countries demonstrate significant variations in the relationship between land use, public transportation policies, and travel behavior. In European communities auto use is generally between 50% and 48% of all trips; transit comprises between 11% and 26% of all trips; and pedestrian/bike trips are from 33% to 50% of the total (transit there is supported with healthy pedestrian environments). In comparison, the U.S. average mode split is 86% via auto, 8% walking, 3% bike, and 3% by transit. Canada has a similar walk/bike mode split but a much higher transit utilization, 15% of all trips rather than 3%.



Of course the cost of gas and transit infrastructure investments affect these distributions, along with land use patterns. In Europe today gas costs are three times those in the USA. Perhaps this explains a portion of the difference. But to what degree are our land use configurations inhibiting our ability to set similar public

prising policies? And to what degree would more compact, walkable, and transit-oriented land use patterns independently change travel behavior?

Although few of the new generation of TODs in Traditional Neighborhoods have matured to a stage to answer these questions directly, neighborhoods with similar characteristics - typically built before WWII - may offer a reasonable comparison. One study by Fehr & Peers Associates for the International Association of Traffic Engineers compared older TOD-like neighborhoods in the San Francisco Bay Area with some of its newer suburban areas. These older neighborhoods were not inner city locations with high densities, but the older centers of small towns throughout the region. Taken from travel surveys conducted in 1980, the results showed both a significantly lower number of trips per household (nine in the TOD-like neighborhoods vs. eleven in the new suburbs) and a dramatic shift in the mode split. Auto trips were 86% in the suburbs while only 64% in older neighborhoods. Walking and bike trips were 15% for the older neighborhoods and 11% in the suburbs. The transit trips in the older neighborhoods accounted for 17% of the total vs. only 3% in the suburban areas.

A similar survey in Portland, Oregon showed that walking trips in the older, mixed-use neighborhoods were three times those of the typical suburb. In another empirical study done by Tom Hirtzlaw of NACTD in the Bay Area, odometer readings were aggregated by neighborhood type and location. The TOD-like neighborhoods had almost half the VMT per household per year of the new suburbs, 13,700 miles vs. 31,400. Using the cost per mile developed by Hertz Corporation in 1987 of \$0.57, this difference represents a savings of \$8,883 per year for the average household in a TOD-like neighborhood.

There were several factors other than land use configuration which affected this dramatic shift for the older neighborhoods. Lower average household incomes, better transit service, and closer proximity to the metropolitan center all characterized the older neighborhoods. New TODs may not be able to match the proximity and they may have slightly higher average incomes than the older neighborhoods, but they should have equivalent transit service and similar land use diversity and density. Even if new TODs cannot exactly replicate the performance of these older neighborhoods, the numbers

indicate a possible range of results that are very promising. And they are, in cultural nature and public policy, specific to America.

It has been shown that a higher percentage of people are likely to use transit if they can walk to the station, rather than get in their cars to drive to a "park-and-ride" lot. As the convenience retail, recreational, civic, and entertainment elements of new TODs develop, combined trips would increase as people run errands on foot to and from the transit stop. Park-and-ride lots would continue to be a part of any transit system, but should not typically be located within TODs. Transit utilization in TODs would increase over time as the mix of uses reaches build-out, as the transit corridor develops, and as residents and employees come to see the convenience of transit service. Simultaneously, the type of transit service coming to TODs can mature. It may start with local bus service, add express bus service as ridership grows,

and finally provide fixed rail connections.

Even without increasing transit or walk trips, the TOD street system can reduce traffic congestion on major streets. Standard suburban development patterns presently force all local shopping, recreation, and school trips, as well as work trips, onto the arterial street system.

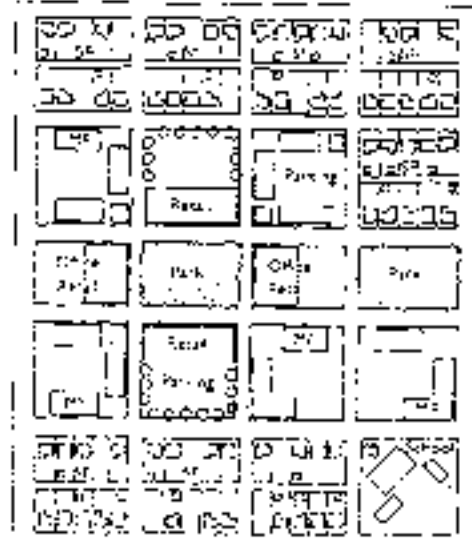


This pattern leads to the congestion about which neighborhood groups typically are most concerned. In a hypothetical study by Walter Kulok for the American Society of Civil Engineers, a suburb with standard street configurations was compared with a mixed-use development with a grid of local street connections. Because of the more direct routing possible in the gridded neighborhood, the overall vmt for trips with destinations in the area was reduced by 33% and the vmt on the arterial network was reduced by 75%. Although this study only calculates local trips and not through traffic, such local trips typically represent over 50% of all travel. Clearly, an interconnected system of local streets, internal to the neighborhood, reduces congestion on main roads even if people are using their cars. In short, arterials are seen as edges, providing for through traffic and regional access only. Local streets should be designed to minimize the potential for through traffic while providing access to local destinations.

Clearly much more research and analysis is needed to clarify and quantify the potential results of a new land use pattern on our travel behavior. It is critical work; critical to effectively directing federal and state transportation dollars, critical to many of our most pressing environmental issues, and critical to our quality of life. We are driving twice as much as we did in the 1970s yet the result seems to be less mobility and more frustration. Understanding this important linkage is fundamental to charting an intelligent and benign vision of the Next American Metropolis.



CONVENTIONAL SUBURBAN DEVELOPMENT



TRADITIONAL NEIGHBORHOOD DEVELOPMENT

Regional Context and Implementation

Where and how these guidelines are used is critical to their success. The overall distribution of development rights across three primary types of sites – redevelopment, infill, and new growth areas – must be balanced and analyzed from a regional perspective, balanced in environmental, economic, and social terms. The quantity and limitations of infill and redevelopment sites must be understood when making decisions on the quantity and location of new growth areas. In the reverse, too many new growth areas may reduce demand for inner-city redevelopment and infill. The balance is complex and critical, on the one hand economic health for the region often calls for suburban housing opportunities and adequate industrial sites, on the other hand too much of such growth can strain investment from the city. Regional land use governance is key to applying these land use patterns in a way which creates viable transit systems, open space networks, and inner-city reinvestment as well as a vital regional economy. In each of the potential settings, Redevelopment, Infill, and New Growth areas, top plans should respond to sensitive environmental circumstances and to the context and character of existing adjacent neighborhoods.

Inner-city development has been a critical problem for most regions; a problem with many dimensions. Planning at a regional scale, with transit expansion as a framework, can play a role in focusing development into these critical areas. Using the catalyst of transit and redevelopment funding, inner-city areas and older neighborhoods may gradually transition to new and more intensive uses. Such changes should be guided to reinforce the transit system, producing land uses and configurations that are more pedestrian-oriented, affordable, and linked to the greater metropolitan region. Intensification and redevelopment must, however, be balanced with sensitivity to protecting existing neighborhoods and a recognition that additional development is not appropriate in every setting.

Infill sites, land that has been "skipped over" but is surrounded by existing development, often occur in areas similar to redevelopable sites. However, infill sites are often large enough to develop all or a major portion of a block, with the existing surrounding neighborhoods functioning as a support area. Both infill and redevelopment sites can be located in older urban areas or in new suburban situations. When a street grid is present, as is typical in older inner-city locations, horizontal connections between local uses is easy and small sites can develop to balance the mix of uses surrounding it. In the new suburban context the disconnected street patterns make it difficult to establish walkable connections to local destinations. Therefore smaller infill opportunities cannot simply add a missing component to the neighborhood, they must also provide the walkable connections. One prime infill and redevelopment possibility exists in the suburban fabric: old commercial areas with large parking lots offer the opportunity to insert density and new uses into central suburban locations.

Finally, each metropolitan region has viable New Growth Areas which are environmentally suitable for development and are within reasonable distance of transit. While New Growth Areas are the easiest to develop with transit and

pedestrian-oriented patterns, there is a caveat: they also may spread the size of the city. In many cases transit service to these sites is only at preliminary planning stages and they may be required to function for some time without full transit service. In these larger areas the concept should be applied in a manner that respects environmental constraints, works with topography, and functions in the interim without strong transit service.

Every piece of land in the USA is controlled by codes and planning documents that evolved after WWII. These controls have been largely founded on modernist principles—segregation of uses, circulation systems focused on the car, and a loss of public orientation for buildings and gathering places. With the exception of a few urban centers, every city, county, and town has a set of zoning ordinances, planning codes, street standards, and perhaps a comprehensive plan that binds the area to a future of sprawl-like development. To redirect the form of growth for the next generation, each of these documents must be revised. The ten guidelines provide an overview, a set of goals, and a specific set of principles to direct such revisions. Each case and each place will have unique and special conditions which should enhance, modify, and extend the concepts inherent in the guidelines. But underlying the specifics of each place are some universal postulates of human scale, environmental limits, and social order. These postulates define a new template for growth, one formed to the technology, economics, demographics, and culture of our time.

There are four layers of planning that are affected by this change: regional plans, Comprehensive Plans, Specific Area Plans, and zoning ordinances. Regional planning, though rarely implemented in the U.S., should shape the overall distribution of development, coordinate transit and circulation, balance jobs and housing in an economic fashion, administer regional pollution controls, and set limits to protect open space resources. Without such a regional framework, the local jurisdictions often compete with and contradict one another.

Each "layer" of existing plans needs change. The Comprehensive Plans for each city, town, or county should be updated, or in some cases created from scratch. Local ordinances and standards eventually should be rewritten to allow mixed use and more walkable neighborhoods,

and to eliminate the current bias toward the auto. An additional planning tool should be developed to allow site-specific, integrated planning for areas larger than single parcels but smaller than those typically covered in community plans. This tool would be similar to the Specific Plan used in many areas of California.

These guidelines were distilled from work in several sub-regional areas: the County of Sacramento, Tri-Met in Portland, the Santa Clara Transit Authority, and the City of San Diego. Within these areas the primary focus for the regional elements of the guidelines was the relationship of development to an expanding transit system. In order to complete the picture at a regional scale, the placement of growth should also be directed by an analysis of long term open space needs, natural resource assets, and the establishment of an Urban Growth Boundary. The Sacramento County General Plan update proposes such a boundary within its jurisdiction and identifies the critical agricultural lands and other zones that should be permanently preserved.

Identifying national, mill and revitalization districts, New Growth Areas and potential New Town sites should be the work of an agency which spans the numerous cities and counties within a metropolitan area. Lacking such entities, counties, air quality boards, and regional transportation agencies often take on the task without legal power to fully implement the results. Regional governments are needed if growth is to be managed and directed in a sustainable manner.

The Comprehensive Plan establishes each jurisdiction's fundamental goals and policies along with its basic distribution of land uses and development controls. This plan is often completed without real regard for regional concerns and sometimes exhibits a parochial or even xenophobic quality. For example, parts of Placer County represent an excellent growth area for the Sacramento Metropolitan Region, but Placer's Comprehensive Plan effectively limits growth in this area by zoning for higher income households and open space. In another adjacent jurisdiction, West Sacramento, development is welcomed even when the sites would replace prime agriculture. Each jurisdiction is acting according to its perceived local interests, but the regional impact is a poor mechanism of development.

At the same time that Comprehensive Plans rarely express regional intelligence, their goals and policies are often too vague to redirect the quality of growth. The land use map of the Comprehensive Plan typically reinforces the segregation of uses into generic single use types. There is no "mixed use" or equivalent designation. The typical zoning map further reinforces the isolation of uses while its ordinances require many features which frustrate the goals of a more integrated mixed-use environment. Finally, the street standards adopted by most areas are myopic, favoring the auto over all other concerns and reinforcing the notion that streets must form a hierarchy of speed and capacity rather than a network of parallel routes and walkable places.

Each level of our planning codes needs revision and updating, but the sequence is key to the result. First, broadly based community support for the alternatives to sprawl must be developed. Before any plan revisions begin, a common understanding that there are significant alternatives to sprawl and that they are bound by specific principles must be developed within all segments of the community. The TOD guidelines can be used as a point of reference in this process. Developers, environmentalists, neighborhood groups, bankers, business interests, and politicians should participate in an effort to redefine the quality and form of growth in their region.

A good example of this inclusive effort was used in developing and adopting the guidelines for San Diego. Such a common vision and consensus is essential to the scale and political complexity of revising the many layers of planning controls and legislation.

With a clarified common vision, the task of creating a regional framework for growth is possible. One special element of the regional plan should be identification of potential transit corridors and sites for TODs. These "corridor plans" often cross jurisdictional lines and need to be coordinated by a regional planning agency along with the regional transportation agency. Regional plans and "corridor plans," along with the goals and policies of the community consensus, could then be used to guide a revision of each local Comprehensive Plan. The Comprehensive Plan ought to support the emerging regional vision and prescribe a new standard of development. Here again, the guidelines can be referenced as policies and standards to clarify what is meant by mixed-use developments. For areas identified with major rail or new growth, Specific Plans should be prepared which detail the application of the guidelines. Finally, the zoning ordinances ought to be updated or supplemented with new standards. In some cases, a new ordinance can be created to guide development in TOD areas while only modifying the existing zoning elements.

The Structure of the Guidelines

The TOD guidelines are designed to provide direction and policies for all levels of planning: regional, comprehensive, specific area, and zoning ordinances. They are expected to be modified for each region and locality, and are not intended as a universal model. At each level of planning, sections of the guidelines can play a greater or lesser role. For example, the Definitions and Guiding Principles sections can be used for regional and comprehensive plan direction, while the sections on streets or specific uses can be used for more detailed zoning ordinance modifications. Taken together they represent a new vision for the kinds of places we build, and amount to a detailed statement of progressive community goals and the means to achieve these goals.

The guidelines are arranged from the general to the specific. The Definitions and Guiding Principles sections form a summary of concepts. These two sections can stand alone. The Ecology and Habitat section defines in a general sense

goals and techniques to make growth more environmentally sensitive and site-specific. The next four sections – on commercial, residential, secondary areas, and parks and civic uses – focus on the nature and quality of each of the primary elements of a town. Finally, the remaining sections deal with differing aspects of the circulation system: streets, pedestrian and bicycle environments, transit stops, and parking. The following is a summary of each section with a focus on the critical changes each calls for.

DEFINITIONS The fundamental building blocks of the guidelines are three “new” land use types: Urban TODs, Neighborhood TODs, and Secondary Areas. These new land use types differ from one another in their varying mix of uses, their relationship to transit, and their density. They differ from most existing zone classifications because they have defined spatial limits relating to the pedestrian scale, and they are mixed use. The mix of uses – commercial, residential, and public – are defined with minimum densities and land uses, rather than the maximum limits typically found in old zoning codes. Finally, three locations are identified in which TODs can occur: Redevelopable, Infill, and New Growth Sites.

GUIDING PRINCIPLES The basic principles for all TODs, regardless of type or location, are simple: they must be mixed-use, transit-oriented, walkable, and diverse. Reordering private space to make the public domain more usable, memorable, and the focus of each neighborhood is an overarching goal. The principles may seem radical and familiar at the same time. Making such changes would reverse forty years of planning that put cars ahead of pedestrians, put private space before public, put segregation and isolation of uses before integrated and diversity. To accomplish these types of integration, we should look beyond individual parcels and develop a process that allows larger areas to be planned in a coordinated way.

ECOLOGY AND HABITAT The Next American Metropolis needs a broad array of environmental strategies at all scales: Urban Growth Boundaries, greenbelts, biological sewage treatment systems, water reclamation, drainage systems that maintain natural water flows, indigenous and drought-tolerant landscaping, and energy conservation techniques in buildings. They are approaches too long ignored in an era of cheap energy, free water, and relative environmental neglect.

CORE COMMERCIAL AREAS This section outlines some significant evolutions for retail development, both in terms of location and configuration. Creating accessible commercial centers from both local and arterial streets, placing an emphasis on the needs of pedestrians, and integrating retail with civic and transit uses would represent a considerable change from the current norm. These are clearly the most challenging transformations called for by the guidelines and ones that will take time, experimentation, and evolution. Hybrids between our old “Main Street” configurations and our newer strip and mall configurations will be necessary to combine the needs of walkable neighborhoods with large-scale convenience retail. Additionally, retail development will typically be last to develop in new neighborhoods – which raises questions about phasing and interim development patterns.

RESIDENTIAL AREAS The key to the housing program for TODs is diversity and flexibility. By defining an average minimum density, the guidelines allow considerable flexibility for developers to invent new combinations of housing types. The guidelines outline several new types of housing to fill the gap between conventional single-family and multi-family needs, including courtyard cottages, small-lot single-family, and ancillary units. These higher-density forms could provide affordable alternatives while maintaining the ownership patterns and private yard features of the single-family home. With these new types of housing mixed with

traditional attached housing, the makeup of a TOD residential area can respond to many dimensions of the housing market. The idea of mixing a broad range of housing types is timely because many land developers are coming to understand the wisdom of market diversity. Nevertheless, the challenge of mixing housing types and economies is difficult in an industry and market accustomed to isolated enclaves.

SECONDARY AREAS These lower-density areas within a mile of transit represent a desirable place for the housing and low intensity employment uses typical of the modern suburb. The quantity of land allocated for this use will establish the fundamental single family/multi-family housing ratio for a region. The difference between a Secondary Area and a conventional subdivision is found in its street pattern. The Secondary Area is close enough for walking and biking, and is directly linked by local streets to the mixed-use TOD. Its streets are tree lined and comfortable to walk along. It is an area which integrates schools, neighborhood parks, and some employment into an accessible framework.

PARKS, PLAZAS, AND CIVIC BUILDINGS Over the last generation parks have grown larger and more remote. The small neighborhood park and village green have been eliminated in favor of larger facilities (and their reduced maintenance costs) or useless "buffer zones." These guidelines call for a return to local, accessible parks. They also call for prominent locations for civic and public buildings to add identity and focus to the neighborhood. This highlighting of civic facilities along with the requirement to combine them with commercial development represents another new direction. The careful placement of elementary schools in the geography of TODs is critical because one of the most common pedestrian trips is to school.

STREETS AND CIRCULATION SYSTEM Traffic is one of the most important and controversial aspects of TODs. Reducing street widths to slow traffic and make pedestrian crossings comfortable is difficult. Although empirical studies have shown that narrow streets are safer, changing the current standards raises issues of legal liability. Even though simple feasibility demonstrations show that fire trucks, school buses, and other large vehicles can safely use such streets, care must be taken in detailing intersections and landscaping. The other significant change outlined is the elimination of single purpose street hierarchies - "connector" streets rather than "collector" streets are needed. High design speeds, responsible for our familiar sweeping turns and large lane widths, should be reduced within the TOD. There is no reason to design for 35-45 mph in a mixed-use pedestrian zone.

PEDESTRIAN AND BICYCLE SYSTEM The purpose of these guidelines is to encourage streets that are comfortable, interesting and safe to walk along rather than segregated pathways which isolate the pedestrian and result in an expensive, duplicative system. This is the reverse of the popular "Radburn" system of pedestrian "greenways" in that it uses the street as the common ground of the neighborhood. Similarly, the emphasis for bikes should be to integrate them on the street rather than create a separate network. Within TODs it is better to slow cars down to allow bikers safety and comfort on the local streets. However, a larger bike trail system connecting TODs with regional destinations can benefit from separated rights of way. Streets should be seen as a multi-purpose mixing ground rather than a single use utility for cars.

TRANSIT SYSTEMS Land use and transit systems must be planned together. This may seem obvious, but for too long the two have been disconnected. Unfortunately, transit systems have been overlaid on inappropriate densities or uses and station areas have been designed as bus transfer zones or park-and-ride lots. Often, trunk line systems follow existing growth in suburban areas rather than helping to define needed New Growth Areas which, in turn, can be planned in a transit-oriented fashion. Transit systems should help guide regional growth and land use, and transit stations should be treated as neighborhood and community focal points. Placing stations at the center of mixed-use commercial and residential neighborhoods will increase ridership as it allows people to combine errands on foot. Trunk line systems should be designed to allow "walk and ride" or "bike and ride" rather than "park-and-ride" as the central means of access.

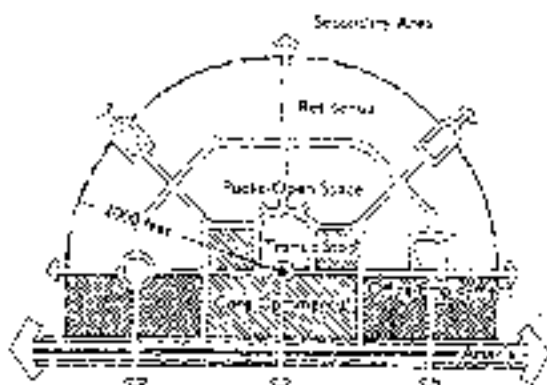
PARKING REQUIREMENTS AND CONFIGURATION

The handmaids of streets designed for the speed and comfort of cars are large parking lots. The size, location, and configuration of parking lots send a clear and simple message: "arrive by car only." In mixed-use areas several strategies should be employed to reduce the functional and aesthetic dominance of parking lots. On-street parking should be credited, the number of stalls should be reduced to reflect the joint-use time of day or time of week needs of different uses, and lower standards should be set to reflect non-auto arrival modes -- transit, bike, or pedestrian. Where possible, parking lots should be placed to the rear of buildings with entries and windows fronting on streets and sidewalks. Reducing and relocating parking lots will be a difficult change, as developers do not want to be at a disadvantage in competing with conventional projects. This is why city- or region-wide standards should be established.

Definitions

Transit-Oriented Development (TOD)

A Transit-Oriented Development (TOD) is a mixed-use community within an average 2,000-foot walking distance of a transit stop and core commercial area. TODs mix residential, retail, office, open space, and public uses in a walkable environment, making it convenient for residents and employees to travel by transit, bicycle, foot, or car.



TODs offer an alternative to traditional development patterns by providing housing, services, and employment opportunities for a diverse population in a configuration that facilitates pedestrian and transit access.

They can be developed throughout a metropolitan region on undeveloped sites in urbanizing areas, sites with the potential for redevelopment or reuse, and in new urban growth areas. Their uses and configuration must relate to existing surrounding neighborhoods.

They must be located on or near existing or planned segments of a trunk transit line or feeder bus network. Adequate auto accessibility is also important. These design guidelines establish standards for site selection

and development to ensure that TODs succeed in providing a mix of uses, a variety of housing types, and a physical environment that is conducive to pedestrian and transit travel. Developing a network of TODs throughout the region will also serve to strengthen the overall performance of the regional transit system.

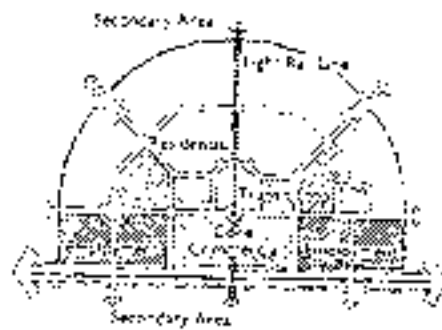
The size of a TOD must be determined on a case-by-case basis. The average 2,000-foot radius is intended to represent a "comfortable walking distance" (5 to 10 minutes) for a majority of people. In some locations, comfortable walking distance is affected by topography, climate, intervening streets or freeways, and other physical features. Therefore, their size will be greater or lesser depending on surrounding features.

Urban TOD

Urban TODs are located directly on the trunk line transit network at light rail, heavy rail, or express bus stops. They should be developed with high commercial intensities, job clusters, and moderate to high residential densities.

Each TOD may assume a different character and mix of uses depending on its location within the region, market demands, and the surrounding land uses. Urban TODs are suitable for job-generating and high intensity uses such as offices, community-serving retail centers, and moderate to high-density housing, because they allow direct access to the transit system without requiring

passengers to transfer. Similarly, the intensity of development along the trunk line network should reflect the significant investment necessary to construct the transit system and should generate the greatest number of transit-hourly trips.



Special development guidelines are recommended for sites that are highly accessible by trunk line transit to permit higher density residential development and to encourage a higher percentage of job-generating uses. When Urban TODs are located in existing developed neighborhoods, it may be appropriate to apply the densities and mix of uses recommended by a local planning

effect. Urban TODs are typically sited approximately 1/2 to 1 mile apart to meet station spacing guidelines, although they could be sited closer together, as transit planning and market demand permit.

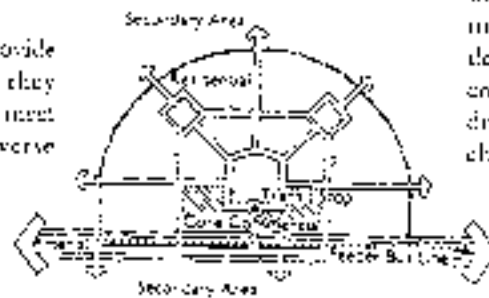
Neighborhood TOD

Neighborhood TODs are located on a local or feeder bus line within 10 minutes transit travel time (no more than 3 miles) from a trunk line transit stop. They should place an emphasis on moderate density residential, service, retail, entertainment, civic, and recreational uses.

Neighborhood TODs should have a residential and local serving shopping focus at densities appropriate for its context and lesser transit service level. Where the feeder bus stops are frequent, TODs can be sited close together and form a "corridor" of moderate density, mixed-use nodes.

Neighborhood TODs can help provide affordable communities because they include a variety of housing types to meet the needs of our increasingly diverse

population in a land use pattern that minimizes the need for multiple car ownership. If properly designed, Neighborhood TODs can meet local needs for public facilities and parks, respect the character and quality of existing neighborhoods, and limit unnecessary traffic through residential areas. They are also walkable communities, providing access for children, the elderly, and those adults who choose to walk or bike.

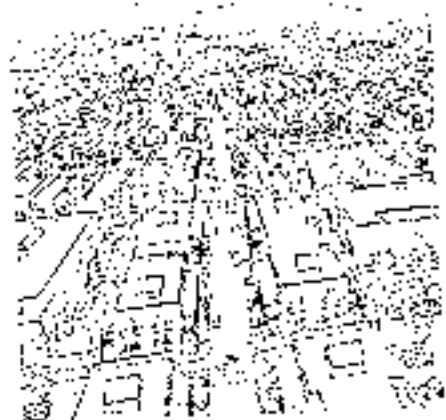


Core Commercial Areas

Each TOD must have a mixed-use core commercial area located adjacent to the transit stop. At a minimum, the core area should provide convenience retail and local-serving offices. Larger core areas may also combine major supermarkets, restaurants, service commercial, entertainment uses, comparison retail, second-floor residential, and employment-intensive office and light industrial uses.

A commercial core at the center of each TOD is essential because it permits most residents and employees to walk or ride bicycles for many basic goods and services. This is particularly advantageous for those without cars and individuals with mobility limitations. Those who still choose to drive to shop will have to go fewer miles and can avoid using arterial streets for local trips. Core commercial areas also provide a mixed-use destination that makes transit use attractive. People are more prone to use transit to get to work if the transit stop is combined with retail and service opportunities.

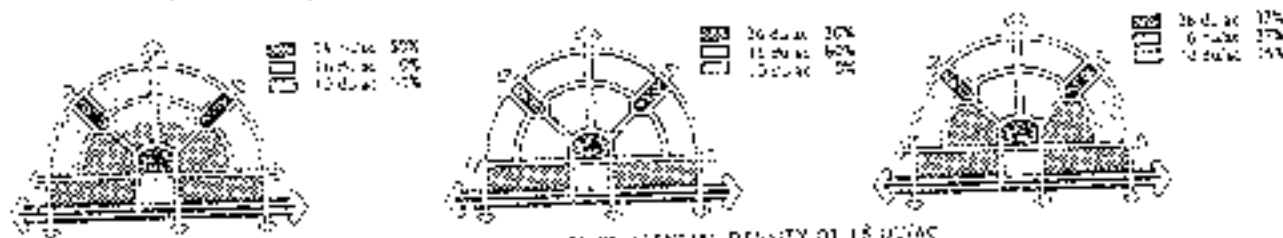
The size and location of core commercial areas should reflect anticipated market demand, proximity to transit



and phasing considerations. Optional upper-floor office and residential uses in the core commercial area increase the mixed-use, round-the-clock nature of the core area. Employment-generating uses, such as office buildings and employee-intensive light industrial uses, may be located adjacent to or amongst the retail component of the core commercial area. The transit stop and core commercial area should be complemented with a "village green" or public plaza which can serve as a focal point for community activities. Secure and convenient bicycle parking facilities should be provided to encourage bicycle access.

Residential Areas

TOD residential areas include housing that is within a convenient walking distance from core commercial areas and transit stops. Residential density requirements should be met with a mix of housing types, including small lot single-family, townhomes, condominiums, and apartments.



URBAN TOD - AVERAGE RESIDENTIAL DENSITY OF 18 UDS/AC

TOD residential areas provide a higher concentration of households in close proximity to transit service and core commercial areas than typical suburban land use patterns.

Average minimum densities of at least 20 units per acre are necessary to support local bus service; higher densities are necessary for adequate light rail and express bus

service. To this end, the TOD concept encourages walking and biking, reduces reliance on the automobile, supports transit service, and creates distinct, identifiable neighborhoods.

Residential areas should extend from the core commercial area and transit stop over an area that is an average 2,100 feet in radius, representing a 20-minute walking distance. They should contain a variety of housing types and ownership patterns, ranging from small to single-family homes with carriage units to apartment buildings.

The average minimum density requirement is intended to set a baseline density standard for all TODs, as well as encourage variety. A mix of housing types may be used

within this area, some high density and some low density, provided the overall average minimum density is met. For example, a TOD residential area may include a mix of small to single-family homes with ancillary units (12 density), rowhouses (25 density), and apartments (25 density), combined to meet an average density requirement of 28 density. Net densities are roughly 20% higher than gross densities, once streets and other infrastructure improvements are accounted for. Higher average density standards may be adopted by site-specific plans to respond to locational differences within a community. Community Plans, Specific Plans and/or zoning studies will clarify how the minimum average density standards are applied to individual sites.

Public Uses

Public uses are required to serve residents and workers in TODs and neighboring areas. Parks, plazas, greens, public buildings, and public services may be used to fulfill this requirement. Small public parks and plazas must be provided to meet local population needs.

The structure of a TOD is built around accessible and convenient public facilities and spaces. A strong sense of community, participation, identity, and connectivity is important to support a sense of safety and comfort within a neighborhood. Public uses serve this role by providing meeting places, recreation opportunities and high-visibility spots essential to the vitality of TODs. A well-used park is centrally located in a neighborhood, has good



visibility from the street, and often benefits by being next to a public library, civic services, transit, or retail.

Each TOD must contain open space areas available to the public and facilities which serve the needs of the surrounding community. Varying sizes and types of TODs will require or justify inclusion of civic buildings and

public facilities. Appropriate public facilities include day care, libraries, community buildings, police and fire stations, post offices, and governmental services. Public buildings should be placed in central locations, as highly visible focal points, or adjacent to public parks and plazas. Civic uses such as an urban plaza, community center, post office, and library are best located in the core area in conjunction with retail businesses and

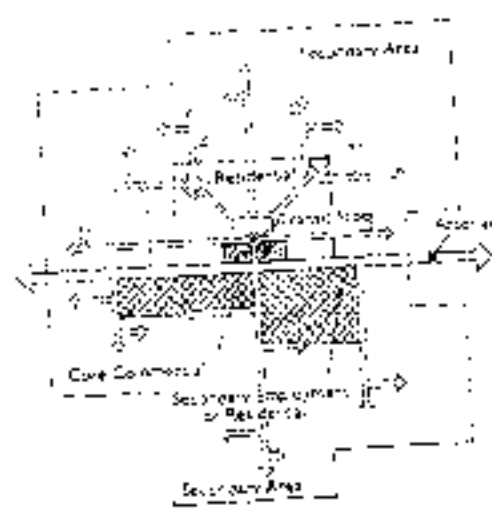
offices. Recreation-oriented uses, such as parks, recreation facilities, and community buildings, as well as large parks and schools, should be centrally located with easy access from TOD residences and the core area. Schools should be placed at the perimeter of TODs in their Secondary Area.

Secondary Areas

Each TOD may have a Secondary Area adjacent to it, including areas across an arterial, which are no further than one mile from the core commercial area. The Secondary Area street network must provide multiple direct street and bicycle connections to the transit stop and core commercial area, with a minimum of arterial crossings. Secondary Areas may have lower density single-family housing, public schools, large community parks, low intensity employment-generating uses, and park-and-ride lots.

The Secondary Area provides for uses which are not appropriate in TODs because they are lower density and more auto-oriented. These areas will, however, provide market support for TOD businesses because Secondary Area residents and workers may shop in the core commercial area and generate riders for the transit system. Employment-generating uses should be located directly across the arterial from the transit stop.

Commercial uses which are very similar in nature and market appeal to those located in the core commercial area should not be permitted in Secondary Areas. They may diminish the ability of the TOD to establish a viable retail center. Similarly, very low intensity industrial and warehousing uses which are highly auto- and truck-dependent are not appropriate for Secondary Areas; they do not have a sufficient number of



employees to contribute to create a healthy pedestrian environment.

Single-family residential development is and will continue to be an important land use. These areas typically have too low a density to be adequately serviced by transit. By maximizing street connections to TODs and making it convenient for residents to bike or walk to the transit stop, transit utilization in single-family areas may increase. This is important both in New Growth Areas and in existing neighborhoods where streets may need to be retrofitted.

Providing multiple, interior street connections between TODs and Secondary Areas will keep many auto trips off arterials. Locating public schools in Secondary Areas will provide a service for the TOD without using valuable transit-accessible land.

Other Uses

Uses that rely extensively upon autos, trucks or have very low employment intensities are not appropriate uses for TODs or Secondary Areas. Rural residential, industrial uses, and travel-commercial complexes should be located outside of TODs and Secondary Areas.

Many uses typically allowed in commercial areas rely predominantly upon auto travel to generate business patterns. These uses, such as auto dealers, freestanding car washes, car storage facilities, highway commercial

uses, and motels, should not be permitted in TODs or Secondary Areas.

Similarly, low employment-generating industrial uses should not be permitted in TODs or Secondary Areas.

They are not compatible with nearby residential uses and generate few employees to support core commercial areas. Industrial uses are more appropriate where existing industrial activities occur and where major freeway noise impacts are anticipated.

In order for more frequent transit service to be economically viable, uses near transit stops must have

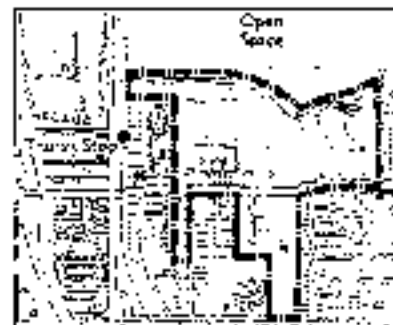
moderate residential densities and the commercial uses must create a high level of pedestrian activity. Land near the transit stop should reinforce transit use by supporting higher density, pedestrian-oriented uses and development patterns. Uses that are primarily auto-oriented are not appropriate for TODs and are better located near major highways.

Location Types

TODs may be located in Redevelopable Sites, Infill Sites, or in New Growth Areas. Redevelopable Sites are developed areas that could be revitalized with new, more intensive uses and transit service. Infill Sites are vacant parcels surrounded by existing urban development. New Growth Areas are larger, undeveloped properties typically on the city's periphery. Regional comprehensive plans, local community plans, and transit corridor plans should identify appropriate sites in each of these settings.



REDEVELOPABLE SITE



INFILL SITE



NEW GROWTH AREA

TODs are an opportunity to promote efficient development patterns, both in the existing urbanized fabric of the city and in New Growth Areas. Three types of settings have been identified which broadly characterize the physical pattern of development throughout most American cities. These three functional settings represent the range of conditions where TODs could be located and linked by transit.

Implementation on Redevelopable and Infill Sites has the opportunity to transform development patterns that are presently highly auto-oriented into mixed-use, transit-oriented development. Careful site selection and integration of viable, existing uses within the site and its surroundings can help ensure its future success.

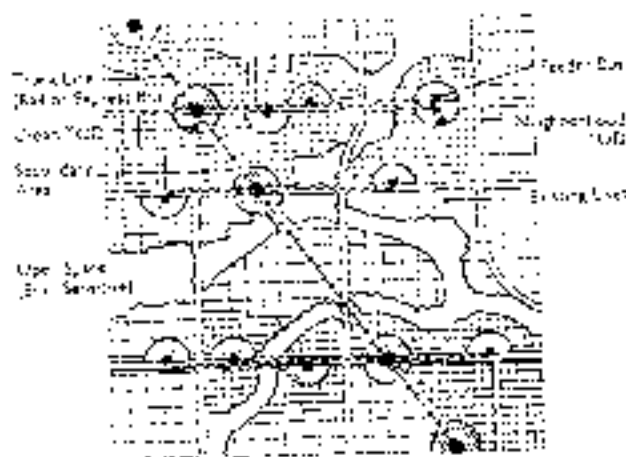
Furthermore, traffic and infrastructure constraints must be addressed if TODs are to function well.

The TOD concept is also a strategy to promote efficient and environmentally sensitive development patterns in newly developing areas. Because these sites are relatively free of existing land uses, New Growth Areas offer a great opportunity for creating mixed-use destinations and interconnected street systems. Constraints generated from topography and sensitive habitats can be overcome by carefully selecting sites and by configuring streets to relate to the topography. A fundamental premise, however, must be to limit sprawl by clustering development within planned urban growth areas.

Guiding Principles

Relationship to Transit and Circulation

The site must be located on an existing or planned trunk transit line or on a feeder bus route within 10 minutes transit travel time from a stop on the trunk line. Where transit may not occur for a period of time, the land use and street patterns within a lot must function effectively in the interim.



The trunk line network represents the region's express transit system. It typically consists of either light rail, heavy rail, or express bus service, with at least a 15-minute frequency of service and a dedicated right-of-way. Providing a dedicated right-of-way, whether fixed rail or bus lanes, serves two important purposes: it ensures expedited and free flow transit travel and it represents a long-term transit commitment that allows developers to make similar investments.

The feeder bus network is a system of timed transfer local bus routes that link to the trunk line network. Transit stops on the feeder bus network should be within 10 minutes transit travel time (approximately 2 to 3 miles) from a trunk line network stop, with buses running at least a 15-minute frequency of service. 10-minute transit travel time is the maximum people are typically willing to ride prior to a mode change. In some circumstances, a feeder bus can be provided by a private transit system that meets this level of service criteria.

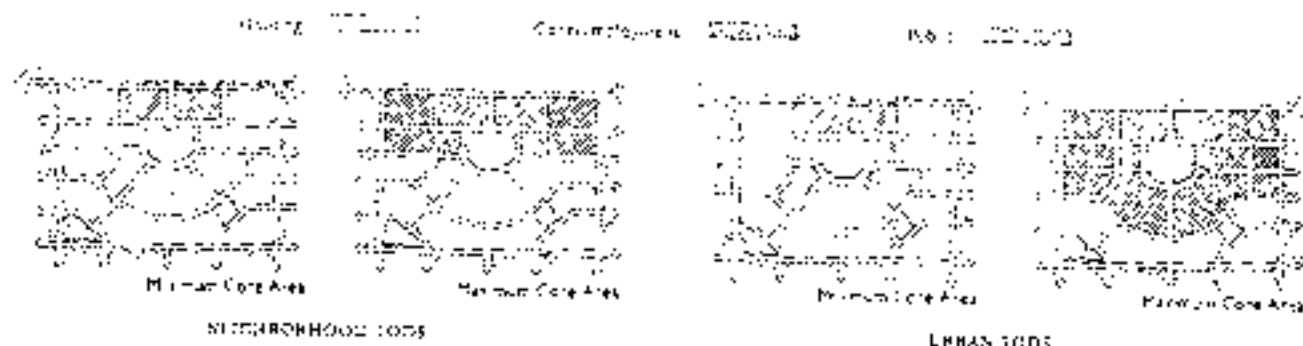
Even with an ambitious 40% non-auto mode split, 60% of all trips will continue to be via autos. The land use patterns in lots, as well as the internal street systems, must plan for on-going auto use. Adequate auto access from arterials and freeways, as well as frequent transit service, will also be an important locational consideration for the more intensive, employment-oriented lots. Not all transit stops will be transit; some stops will be developed as park-and-ride lots.

In many locations transit service is planned, but will not be implemented until well after development occurs. A region has the opportunity to guide transit planning by providing the densities necessary to support transit with advanced land use planning. In early years, express bus service can serve planned light rail lines and establish ridership clientele. Land use patterns should lead transit service planning, rather than expecting transit to come to an area that must be reoriented to provide transit-supportable densities.

Mix of Uses

All TODs must be mixed-use and contain a minimum amount of public, core commercial and residential uses. Vertical mixed-use buildings are encouraged, but are considered a bonus to the basic horizontal mixed-use requirement. The following is a preferred mix of land uses, by percent of land area within a TOD:

Use	NEIGHBORHOOD TOD	URBAN TOD
Public	10% - 15%	5% - 15%
Core/Employment	10% - 40%	30% - 70%
Housing	50% - 80%	20% - 60%



A certain minimum proportion of uses is required to stimulate pedestrian activity and to provide economic incentives for developing with mixed-use patterns. The proportion of uses is based on site area, not density or building intensity. It does not preclude additional, different uses on upper floors. At a minimum, retail, housing, and public uses are required in all TODs. Employment uses within the core commercial area may be used to augment these minimum uses, as market conditions permit. The public use component should include land devoted to parks, plazas, open space, and public facilities. The different mix of uses for Neighborhood TODs and Urban TODs is intended to reflect the variations in intensity and type of development desired at these sites.

The mix of land uses and appropriate densities should be clarified in a community or site-specific planning process, in order to address site-related issues such as context, market demand, topography, infrastructure capacity, transit service frequency, and arterial/freeway

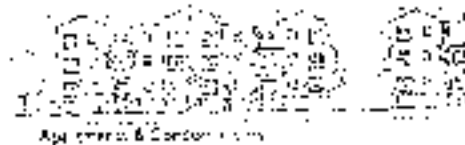
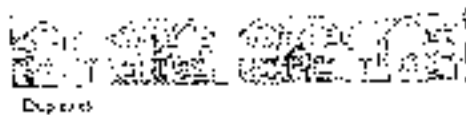
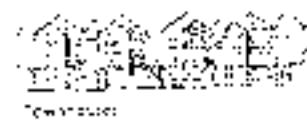
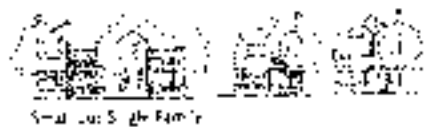
accessibility. Special care should be taken to respect the context of the site and the character of surrounding existing neighborhoods.

Vertical mixed-use buildings do contribute to a healthy pedestrian environment, but are much more difficult to implement due to current real estate practices that encourage single use buildings. For this reason, vertical mixed-use should not be solely relied upon to create pedestrian-oriented places.

If a neighborhood or employment area has local destinations within convenient walking distance, residents and employees are more likely to walk or bicycle. Furthermore, if local destinations are accessible to drivers without requiring use of the arterial street system, congestion can be reduced. The required proportion of uses is designed to encourage pedestrian activity, yet allow flexibility to create neighborhoods with different use emphases, such as primarily residential TODs (Neighborhood TODs) and TODs which emphasize job-generating uses (Urban TODs).

Residential Mix

A mix of housing densities, ownership patterns, price, and building types is desirable in a TOD. Average minimum densities should vary between 20 and 25 dwelling units/net residential acre, depending on the relationship to surrounding existing neighborhoods and location within the urban area.



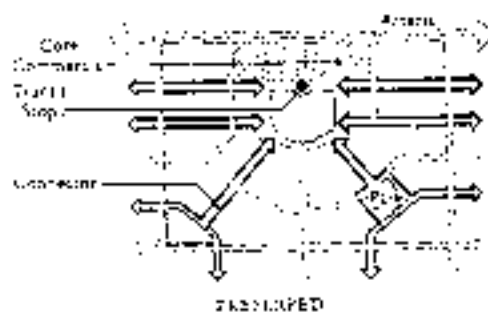
While each TOD will take on a different character and will have a different proportion of single-family and multi-family densities, care should be taken to provide a variety of housing types, costs, and ownership opportunities. Residential areas can combine small lot single-family units, duplexes, townhouses, and apartment buildings.

In order for TODs to be affordable to the diverse range of households, they must provide a mix of hous-

ing types. Single-family housing has, and will, continue to have, strong market demand in most communities. Higher density townhouses and multi-family units are, however, gaining an increasing proportion of the market share. The range of permissible residential densities can accommodate all of these household needs. Providing a mix of housing types will also result in more "cosmopolitan" communities.

Street and Circulation System

The local street system should be recognizable, formalized, and inter-connected, converging to transit stops, core commercial areas, schools and parks. Multiple and parallel routes must be provided between the core commercial area, residential, and employment uses so that local trips are not forced onto arterial streets. Streets must be pedestrian friendly; sidewalks, street trees, building entries, and parallel parking must shelter and enhance the walking environment.



The street pattern should be simple, memorable, and direct, avoiding circuitous routes. Streets should converge at common destinations, such as transit stops, core commercial areas, and parks. They should allow autos, bikes, and pedestrians to travel on small, local streets to any location in the top without crossing or following an arterial. Street connections should be designed to keep through trips on arterial streets and local trips within neighborhoods. At no time should an arterial street be the only route to and from the different land uses of the top.

Where there is steep topography or other sensitive natural resources, it may be necessary to curve streets

and create some cul-de-sacs. On street pedestrian and bicycle paths should be provided to allow residents to walk to all local destinations, rather than segregated off-street paths.

Clear, formalized, and inter-connected street systems make common destinations viable. They also provide the shortest and most direct path for pedestrians and bicyclists. With an inter-connected street system, any single street will be less likely to be overburdened by excessive traffic, thus reducing the need for cul-de-sacs. A street pattern which is circuitous and complex will discourage pedestrians; a street system with landmarks and a simple logic will be memorable and familiar.

General Design Criteria

Buildings should address the street and sidewalk with entries, balconies, porches, architectural features, and activities which help create safe, pleasant walking environments. Building intensities, orientation, and massing should promote more active commercial centers, support transit, and reinforce public spaces. Variation and human-scale detail in architecture is encouraged. Parking should be placed to the rear of buildings.

Orienting buildings to public streets will encourage walking by providing easy pedestrian connections, by bringing activities and visually interesting features closer to the street, and by providing safety through watchful eyes. Moderate-to high intensities and densities also support frequent and convenient transit service. Retail centers with pedestrian scale features and configurations will support the walking environment critical to that transit service.

With the possible exception of anchor retail stores, primary building entrances should be physically and visually oriented toward streets, parks and plazas, and not to the interior of blocks or to parking lots and garages. Parking lots should be placed to the rear of buildings. Secondary entrances, oriented toward parking lots, are permitted. Where existing viable uses



are separated from the street by large parking lots, infill is encouraged at the street. In addition, new internal streets may be constructed closer to existing entries, thus creating a "Main Street" pedestrian setting.

Core commercial areas should be intensive enough to provide a "Main Street" shopping spine. Furthermore, multi-storied buildings and structured parking are strongly encouraged in Urban tops to better utilize land adjacent to a transit line. As a region continues to grow, land economics may make future intensification desirable. Commercial area development plans should include long-term strategies for additional stories and buildings, along with structured parking. Residential infill should also be possible by permitting some ancillary dwellings in single-family residential areas.

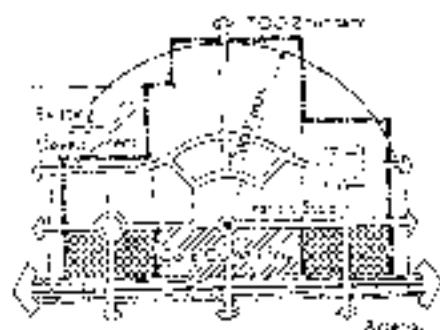
Site Boundary Definition

The size of the TOD is variable depending on the ability to provide internal, local street connections. Parcels within an average 10-minute walking distance of the transit stop shall be included if direct access by local street or path can be established without use of an arterial. To allow for a basic mix of uses, the TOD area should be a minimum of 10 acres for Redevelopable and Infill Sites, and 40 acres for New Growth Areas.

While the majority of the site should be within a quarter to half mile walking distance, the total area will vary based on parcel sizes, topography and other intervening features. Oddly shaped parcels may extend the site boundary beyond 1,000 feet to include areas which are the equivalent of a 10-minute walking distance; sites limited by topography or adjacent to freeways

or arterials may be smaller. Where a majority of a parcel is within 1,000 feet, the whole parcel should be included in the site area. The distance from the transit stop to the outer boundary of the Secondary Area should be no greater than one mile. The arterial network in a New Growth Area should be located to maximize the potential size of TODs and not bisect viable sites.

If a candidate site does not have a street system that can provide direct auto and walking connections to the core area and transit stop, the site must be strictly limited to the parcels that do or can provide connections. This site may be a single property, but may be a mini-



imum of 10 acres in size. All required uses must be provided within this smaller site area.

Sufficient vacant or redevelopable land must be available in the site to allow full application of the development standards. In Redevelopable Areas, there should be a mix of underutilized properties that could be redeveloped to more intensive uses. On Infill Sites,

the undeveloped parcel should be surrounded by uses that fit with the TOD concept. Adjacent existing uses, such as employment or multi-family housing, can essentially function as part of the TOD or its Secondary Area if their intensities and densities are consistent with the design guidelines.

Sites in New Growth Areas may consist of 40 to 160 acres of land that are wholly undeveloped or have some minor amount of existing uses. Sites may consist of parcels in multiple ownerships provided that the planning for the designated site is coordinated among the property owners.

Coordinated Planning and Specific Area Plans

Regardless of the number of property owners, development of a TOD must provide a coordinated plan for the entire site. This "Specific Area Plan" should be consistent with the Design Guidelines, coordinate development across property lines, and provide strategies for financing construction of public improvements.

TODs represent a departure from traditional single parcel/single use development and require coordinated planning and implementation of public improvements

such as streets, pedestrian paths, bikeways, and plazas. While a few sites will be owned by a single entity, many sites will consist of numerous parcels under multiple

ownerships. To ensure that the area is planned in a coordinated manner, a single plan should be developed. Property owners may jointly prepare a single development plan or work cooperatively with the local jurisdiction to prepare a Specific Plan.

There are several aspects of a Specific Plan that can expedite and reduce costs in the development process. Specific Plans allow street alignments and land use configurations to be planned across property lines in order to achieve community goals that are broader than a single parcel; standard zoning and rules cannot ensure this level of coordination. A common Environmental Impact Report may be prepared for the entire Specific Plan area, freeing individual property owners from

repetitive analyses and lengthy and expensive review processes. Specific design guidelines and development standards for the site can be prepared which replace restrictive and inappropriate elements of the local zoning ordinances, as well as encourage design qualities appropriate in mixed use areas.

Implementation plans should be prepared as part of every Specific Plan. These plans should include financing strategies to ensure that public improvements, such as schools, parks, public facilities, roads, and other infrastructure are built in a coordinated and timely manner, and that the cost of those improvements is equitably distributed among property owners and other beneficiaries.

Distribution of TODs

TODs should be located to maximize access to their Core Commercial Areas from surrounding areas without relying solely on arterials. TODs with major competing retail centers should be spaced a minimum of one mile apart and should be distributed to serve different neighborhoods. When located on fixed rail transit systems, they should be located to allow efficient station spacing.

Appropriate TOD spacing provides convenience retail opportunities that are within an easy walk for most residents, ensures the viability of the retail centers, and better links transit stops to concentrations of residents and core commercial services.

TODs should be distributed throughout a New Growth Area in a pattern that allows the greatest number of residents and workers access to a variety of shopping opportunities. They should also be



distributed to permit residents to walk to retail and public facilities without having to cross an arterial street, whenever possible. The one-mile spacing guideline relates to the market area necessary to support a grocery store (often the anchor store in a neighborhood shopping center), as well as being a typical spacing for transit stops. Shopping centers with uses that are not directly competing may be sited closer than one mile apart.

Redevelopable and Infill Sites

Redevelopable and Infill Sites should develop underutilized parcels with new uses that allow them to function as walkable, mixed use districts. Existing uses which are complementary, economical, and physically viable should be integrated into the form and function of the neighborhood. Existing low-intensity and auto-oriented uses should be redeveloped to be consistent with the town's compact, pedestrian-oriented character.



BEFORE



AFTER



BEFORE



AFTER

As land values increase over time or as the result of transit investments, older neighborhoods may gradually transition to new uses and economically underutilized areas may redevelop to more intensive uses. Towns may be able to take advantage of this change to reinforce the transit system with pedestrian-oriented land uses. Existing on-site uses that are economically viable can serve as the starting point and in some cases will

represent the nucleus for future economic revitalization. The condition, decay, and intensity of these existing uses must be compatible or be made compatible with pedestrian and transit travel. New uses which are missing from the ideal mix of land uses can be introduced. Uses which rely solely on auto trips, such as gas stations, car washes, storage facilities, motels, or low-intensity industrial uses, are not likely to contribute to pedestrian-oriented development.

man activity in the TOD and should be discouraged. Intensification and redevelopment must, however, be balanced with sensitivity to protecting existing neighborhoods and to the problems of gentrification.

Site plans should integrate existing uses by respecting their on-going operations, basic access requirements, and, if appropriate, existing building massing and architecture. Site improvements may be required to make these properties more pedestrian-oriented. Infill buildings may be needed to meet density and intensity requirements and to buffer address streets. Safe, direct and pleasant pedestrian connections should be provided to surrounding areas. Site landscaping and building frontage treatments may also be needed to enhance streets and mitigate areas where streetside conditions,

such as parking, blank walls, and service entries, are unavoidable. If these guidelines cannot be met initially, plans for implementing necessary improvements over time should be developed.

Infill Sites represent undeveloped parcels of land that have been "skipped over" in the process of growth and are surrounded by existing development. This can occur in inner-city locations or in suburban areas. In many cases these parcels do not have an established street system, but are connected to surrounding neighborhoods or adjacent to existing commercial developments. These sites are often large enough to develop all or a major portion of a TOD, the existing surrounding neighborhood knows will then function as its Secondary Area.

New Growth Areas

New Growth Areas are typically located at the edge of the metropolitan region or on large sites which have been passed over. They may be large enough to create a network of Urban and Neighborhood TODs, as well as Secondary Areas, and should be planned in coordination with extensions of transit and an Urban Growth Boundary. New Growth Areas should not, however, be used to justify "leap frog" development or degrade sensitive environmental habitat or valuable agriculture lands.



BEFORE



AFTER

A high growth region may need to designate areas at its perimeter to handle the growth not feasibly accommodated in redevelopable or infill locations. New Growth Areas are generally free of existing urban uses and are therefore often the easiest to develop with transit- and pedestrian-oriented land use patterns. However, because they are generally located at the edge of urban development, they may ultimately spread the size of the city.

A key criterion for selecting New Growth Areas should be transit system viability once the area is fully built-out. Areas that are too distant from the metropolitan center or present expensive obstacles to transit should not be designated for new growth. Corridor plans should be prepared along planned transit lines to select appropriate sites for TODs and determine whether sufficient ridership can be generated along the entire corridor.

Development within New Growth Areas should be located along existing or planned trunk transit lines,

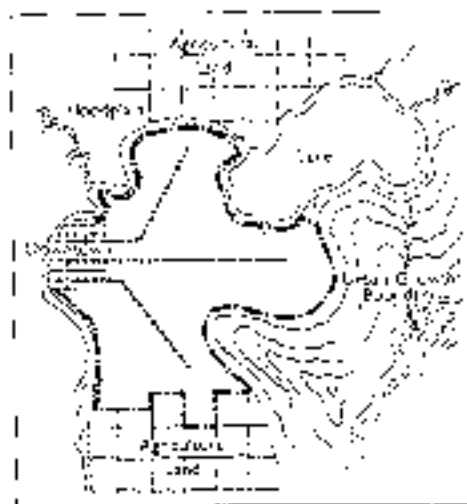
and developed as TODs and associated Secondary Areas. This is part of a strategy to maximize preservation of open space, focus development potential into pedestrian-oriented patterns that can be served by transit, and limit urban sprawl. While some sites may only have sufficient land to develop a single Urban or Neighborhood TOD, many sites are large enough to create a network of TODs, each served by transit, thus stimulating a significant positive impact in local travel behavior and congestion trends. Site-specific plans should be prepared to ensure that environmental constraints are respected.

Because it may be a number of years before transit reaches some potential sites, projects should be planned to function in the interim without strong transit service. In initial years, trunk line service may be provided in the form of express buses, with later conversion to light rail. Rights-of-way should be reserved for light rail, exclusive bus lanes, bus turn-outs, and transit stop facilities in the early phases of planning and development.

Regional Form

Regional form should be the product of transit accessibility and environmental constraints. Major natural resources, such as rivers, bays, rangelands, agriculture, and sensitive habitat should be preserved and enhanced. An Urban Growth Boundary should be established that provides adequate area for growth while honoring these criteria.

Regional growth has been largely directed by highway capacity and location. The cycle starts with housing penetrating more remote sectors of the metropolitan region in the form of bedroom communities. With the federal and state highway investments of the last thirty years, these seemingly remote suburbs and small towns became commute-accessible to the existing major job centers. The remote suburbs offered lower cost land and affordable housing



ownership, and therefore viable housing for the regional workforce. Retail, services, recreation, and civic uses followed in proportion to the demand created by the housing. At a critical mass, the new suburban areas began to attract jobs themselves and "Edge Cities," as Joel Garreau calls them, were formed. As these new decentralized job centers grew, the process began again, creating another layer of sprawl extending out from the decentralized job

centers. Today, the suburb-to-suburb commute now represents forty percent of total commute trips.

The next generation of regional growth is in crisis. Putting aside the environmental and social implications of repeating this old pattern, the highway funds are no longer present to support the next layer of sprawl. The alternative is a regional form which sets reasonable boundaries and directs growth to infill and transit-accessible locations. Natural features can contribute to a justifiable regional boundary that is reinforced from within by strongly supported internal transit corridors.

Regional form is then directed from within, by transit, and from without, by natural boundaries.

It is important that such planning be done with an eye to the long-range needs and implications of growth, and that the area defined has adequate room for urban expansion as well as infill. Constraints that are too tight can easily lead to increased housing costs, flight of working families, and the resultant exodus of jobs. Infill and New Growth Areas that are diverse in their housing profile and transit-supportive can allow a region to retain a healthy job base by providing housing that is affordable and accessible.

Criteria for New Towns

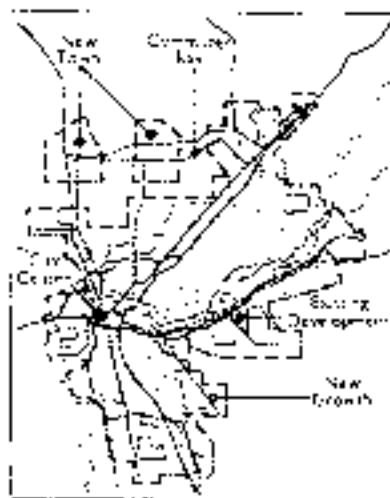
New Towns should only be planned if a region's growth is too large to be directed into Infill and adjacent New Growth Areas. They should be used to preserve the integrity of and separation between existing towns, as well as plan for a regional balance in jobs and housing. Appropriate sites should have a viable commuter transit connection and are not on environmentally sensitive lands.

In some cases, a region's growth cannot be reasonably contained within Infill and New Growth Areas. This is most common in areas with distinct small towns which want to preserve their character, but are under growth pressure from a nearby metropolitan center. Rather than simply rejecting growth and indirectly propagating piecemeal development in unincorporated or uncontrolled areas, these regions can choose to plan for a coherent New Town. This strategy can help preserve the identity and separation of existing small towns, without engaging sprawl in more remote sites.

Another circumstance for New Towns is the availability of a major site within transit access of a metropolitan center and within an Urban Growth Boundary. This type of site should be planned as a "satellite"

New Town, with a strong job/housing balance and a greenbelt separation between existing communities. New Growth Areas and New Towns are similar in this circumstance, but for the size, intensity of jobs, and greenbelt.

Such satellite towns can stabilize the edge of a metropolitan region by providing a greenbelt, while absorbing the demand which could fuel sprawl. They also have the advantage in some circumstances of lower land costs and therefore can provide housing at more affordable levels. If planned intelligently, New Towns also can provide infrastructure and services in an efficient form. In contrast, areas in which the existing infrastructure is overburdened and in need of reconstruction and major expansion often have to pay a premium for redevelopment.



Ecology and Habitat

Open Space Resource Protection

Major creeks, riparian habitat, slopes, and other sensitive environmental features should be conserved as open space amenities and incorporated into the design of new neighborhoods. Fencing and piping of creeks should be avoided and channelization should be minimized.

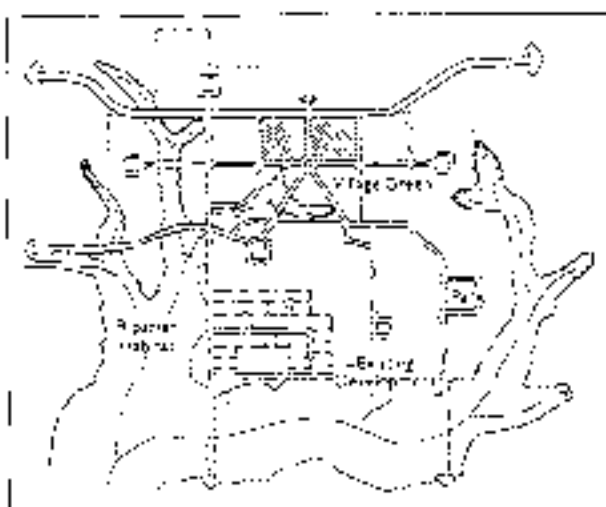
Natural features provide visual relief and establish a unique character for a community. Whenever possible, open space resources should be incorporated into the design of Major and Secondary Areas. Sensitive site planning should be encouraged so that natural habitats are protected and natural features become an integral part of the community. These resources should be treated as key amenities, rather than as edges to developments.

Natural features can often serve dual purposes, as resource protection and public access. Public access should be permitted while important natural features and sensitive habitats are

preserved. Bicycle paths can often be constructed along creek systems, thus serving a dual function of allowing public access to open space and providing paths to destinations along the edges of linear parks. Major public

facilities, such as schools, parks, and recreation centers, should be linked by these open space/bicycle trail systems.

Ridgetops and other topographic features should serve as primary urban form determinants. In New Growth Areas, there is an opportunity for open spaces to shape and enhance neighborhoods, to provide a scenic resource from roads, and to serve as permanent wildlife corridors.

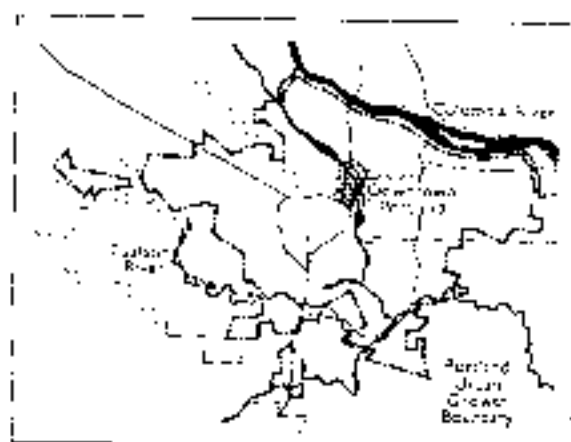


Urban Growth Boundaries

Urban Growth Boundaries (UGBs) should be established at the edge of metropolitan regions to protect significant natural resources and provide separation between existing towns and cities. Lands within the UGB should be transit accessible, contiguous to existing development, and planned for long-term urbanization.

Oregon is one of the few states that has enabling legislation for UGBs. Fundamental to such a device are regional governing bodies that have the power to establish and protect limits to growth. The problem of a single jurisdiction establishing such a line is that a simple change of the elected board can reverse or revise the line. A UGB typically has to be created in the context of multiple jurisdictions to be

meaningful. One alternative to state-level empowerment of regional governments is a joint power agreement between several jurisdictions. If, for example, a county and several cities were to agree upon a boundary and corresponding holding capacities, any change would require unanimous agreement – an unlikely political event, short of a new regional consensus.



The placement and configuration of a UGB is a complex, site-specific task. It is important that the boundary be large enough to absorb a reasonable amount of growth for a significant period of time. It should not be a mechanism for down-zoning lands immediately vulnerable to development. It is a long-term tool to direct growth and regional form. One of its purposes is to prevent investments from being squan-

dered in land speculation in inappropriate areas. It can serve to keep development intelligent and efforts focused on coherent sites. Such a boundary must respect and protect major environmental assets and integrate the needs of transit. This transit concern means that there should not be gaps in the urban fabric, and that all areas within the UGB be transit accessible.

Indigenous and Drought Tolerant Landscaping

Landscape species used on public and private lands should be indigenous or proven adaptable to the local climate. In areas with water limitations, drought-tolerant species should be used in a majority of sites. Prominent stands of trees should be preserved.

Trees and other landscaping help to establish a distinct character and quality of life for a community. Indigenous species, in particular, create a unique identity and carry forward the history of a place on a scale that is recognizable. Some sites are fortunate to have prominent stands of heritage trees which make identifiable landmarks

within the larger community and serve to establish character for newly developing areas. The use of native plants, as well as preservation of existing important natural resources, should be encouraged.



A number of the elements of mixed-use, higher-density neighborhoods also lead to the need to utilize plant species that are drought-tolerant and adaptable to the local climate. Streets lined with trees, small and frequent parks, and preserved creek corridors all make these compact neighborhoods more livable. In the context of water conserva-

tion, use of drought-tolerant species becomes essential. Public areas in particular should serve as models for the private sector in terms of appropriate plant selection and use of landscaping techniques.

Energy Conservation

Energy conservation should be a goal of site, as well as building design. Strategies such as passive solar, natural ventilation, daylighting, and simple shading should be employed when cost-effective and appropriate to the climate. Micro-climate effects can be enhanced or mitigated through intelligent building configuration and landscape treatments.

There are several strategies for energy conservation in community planning: reduced auto usage, enhanced microclimate, conservation in buildings, and climate-responsive architecture. Interestingly, they tend to overlap and reinforce one another. For example, an enhanced microclimate, through shade trees or wind barriers, can affect auto usage by creating more comfort for the pedestrian, and simultaneously eliminate the need for architectural shading. Climate-responsive buildings, with courtyards for thermal buffering or clear glass for daylighting, can add interest and safety for the pedestrian and avoid the negative microclimate impacts of

reflected glare or wind tunnel effects. Reduced auto usage can have a positive impact on building energy consumption by reducing asphalt areas and the associated heat buildup. This interaction of effects means that a careful balancing of strategies, appropriate to the climate and region, is important.

In all cases the strategies for buildings should be cost-effective and appropriate to the use and climate. For most mild and partly cloudy climates, insulation and shading are important residential features, while daylighting and natural ventilation are appropriate for commercial buildings. This means that strict solar ori-

entation is not critical in these areas. In cold sunny climates, certain passive solar heating strategies may be cost effective. Here, street and building orientation may be important. It is undesirable in mild climates to attempt passive solar orientation for all buildings, partly because this constrains the site plan too much and partly because passive solar heating in mild climate zones is often less cost effective than super-insulation or district heating systems.

Microclimate design strate-

gies provide a wealth of design concepts for community planning. The use of water and landscaping to temper local climate is a well-documented art. In some

circumstances building massing and orientation can play a role; narrow streets in hot arid climates and setbacks for solar access in cold climates are two examples. Finally, the building itself can layer the environment with buffer zones of intermediate temperatures: porches, courtyards, overhangs, and trellises are a few such devices.

