

# Marin TPLUS Pedestrian and Transit- Oriented Design Toolkit

**Transportation Authority of Marin**

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# Acknowledgements

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## What is the Toolkit for and how do I use it?

The Marin Pedestrian and Transit-Oriented Design Toolkit was developed as part of the Transportation and Land Use Solutions program in Marin County to help local planners, engineers, elected officials, and private citizens work together to develop new and coordinated approaches to addressing some of the County's most pervasive transportation and land use challenges. The Toolkit is intended to be a "living document" that can be updated and further developed over time as new opportunities and knowledge arise and as members of Marin's community continue to find solutions and tools to existing and future challenges.

The binder format was selected for the Toolkit so that new or supplemental information gleaned from references contained in the Toolkit or other sources can be added. In fact, it is hoped that users of the Toolkit from different jurisdictions will take the initiative not only to add to their own Toolkit, but also to share their updates, additions, and successful local projects with their peers around the County. One of the most important findings during the development of this Toolkit was that many creative strategies were already being employed in some part of Marin County. As jurisdictions share many of the challenges that arise from Marin's unique character and community structure, so too can creative and successful solutions be shared among neighbors and peers.

Similarly, the Transportation Authority of Marin (TAM) will continue to enhance the Toolkit through the periodic release of updates of individual tools or entire sections. Such updates may be brought to local jurisdictions and stakeholders through "Toolkit News Alerts" that advise of the availability of electronic Toolkit updates at the TAM's website. This stewardship of the Toolkit allows the TAM to stay involved in realizing transportation and land use related improvements and in catalyzing the sharing of information, tools, strategies, and success stories around the County.

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# A

## *A. Introduction*

### A - I. Executive Summary and Document Overview

This document discusses the benefits of transit-oriented development (TOD) and pedestrian-oriented design (PeD) in Marin County, California, and provides guidance for implementation in the form of recommended “best practices.” This toolkit was developed in response to a clear need for improved pedestrian, bicycle, and transit connectivity in Marin, and the desire of local jurisdictions for help in addressing this demand. It also points to the link between land use planning and transportation improvements and the benefits that can be created from addressing both planning aspects in a coordinated fashion. The toolkit is intended as a resource for county planning staff and individual local jurisdictions, for non-profit and for-profit developers, advocacy groups (housing, pedestrian, bicycle, transit, and others), elected officials, and interested citizens.

The document defines a vision and important principles for fostering positive transportation changes in the county, including improved circulation for all modes, new land use choices, and a more beautiful and equitable Marin. It looks at how these changes can be applied with sensitivity to local history, conditions, concerns, values, and goals already established by Marin’s individual communities.

The toolkit is designed to be Marin-specific. The case for TOD/PeD in Marin is supported by current population, employment, and transportation trends. The toolkit vision and principles were developed by an Advisory Committee that includes representatives from several local jurisdictions, advocacy and other groups. Issues and barriers reported by county planning staffs and elected officials related to accommodating these changes and challenges also greatly informed the content of the toolkit.

Policy and organizational suggestions are provided for County, individual or partnered jurisdictions, and transit agencies to work individually and together on advancing TOD/PeD supportive policies and planning efforts. However, the core of the toolkit is comprised of information and guidance on multi-modal streets and circulation networks, land use planning, urban design, and parking. These tools address specific needs and challenges in Marin including context-sensitive creation of activity nodes and mixed use development; increased connectivity for transit, pedestrians, bikes, and local traffic; traffic management; mobility and safety needs of children, seniors and persons with disabilities and state-of-the-practice parking tools. The final section of the toolkit is devoted to implementing and funding the recommended transportation, land use, urban design guidance.

## A - 2. Project Background

In an effort to foster livability and enhance alternatives to auto travel, the Transportation Authority of Marin (TAM) and the Metropolitan Transportation Commission (MTC) have teamed up to support and develop informed policies addressing some of Marin County's most pressing issues. These issues include congestion on Marin's streets and freeways; limited convenience and accessibility of transit; a discontinuous network of roads, sidewalks and bicycle paths; and a limited range of housing choices. In order to support addressing these issues at a more local level MTC made funding available that allowed TAM to create the Transportation Land Use Solutions (TPLUS) work program.

To provide for consistent input on development of the Toolkit from city planning, public works and other agencies as well as a variety of interest groups in Marin, TAM invited members of these agencies and groups to become members of the TPLUS Advisory Committee. The Committee not only provided the needed input, it also furnished an overarching vision covering the purpose of TOD/PeD work.

## A - 3. Marin TPLUS Vision Statement and Principles

The TPLUS Advisory Committee formulated an overall vision statement intended to set the tone for development of the toolkit document and its content (also see Appendix B: Advisory Committee and Public Outreach Process). Following is the vision statement developed by the TPLUS Advisory Committee endorsed by the TAM Board:

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**Envision a future for Marin County with a safe, efficient multi-modal transportation system and a broad range of housing choices, including housing which is affordable to the full range of our workforce and community, with a compact development footprint and minimal environmental impacts.**

---

The TPLUS Advisory Committee laid out the six principles listed below to further identify and clarify the goals of the TPLUS program, and these goals have been endorsed by the TAM Board. Each principle is associated with benefits that are expected to flow from their implementation in Marin County. A detailed discussion of each principle and specific land use, transportation, and quality of life related benefits can be found in Appendix A: Marin TPLUS Vision Statement and Principles. The principles are:

P1

### Principle 1:

**Create a well-connected multimodal transportation system and network of places that reduces the reliance on single-occupancy automobiles and integrates pedestrians, bicycles, and transit.**

P2

### Principle 2:

**Target new development to areas that are already developed, particularly locations that can be effectively served by transit.**

P3

### Principle 3:

**Create compact community places with a diverse mix of uses through infill, redevelopment, and reuse of developable property.**

P4

### Principle 4:

**Provide Marin residents and workers with quality housing choices that address their broad range of household types and incomes.**

P5

### Principle 5:

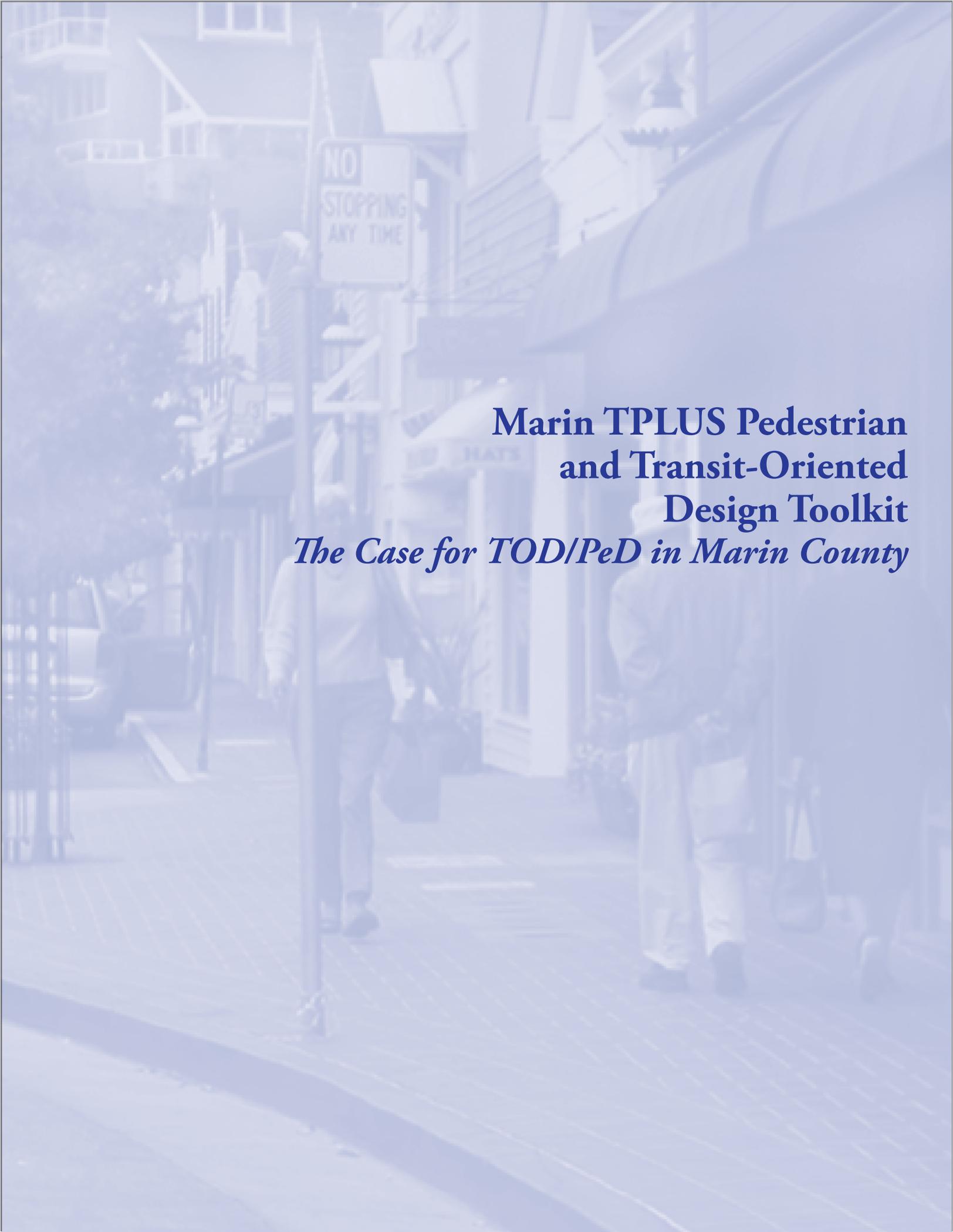
**Design a network of human-scaled places that fit the distinct character of Marin's communities and environment.**

P6

### Principle 6:

**Coordinate land use- and transportation-related planning efforts and decision making in Marin to promote the vision and principles of the Marin TPLUS program.**

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A blue-tinted photograph of a city street scene. In the foreground, a person is walking on a sidewalk. In the background, there are buildings, a sign that says "NO STOPPING ANY TIME", and a person standing near a building entrance. The overall scene is a typical urban environment.

**Marin TPLUS Pedestrian  
and Transit-Oriented  
Design Toolkit**  
*The Case for TOD/PeD in Marin County*



# B

## *B. Why TOD/PeD in Marin County?*

Transit-oriented development (TOD) and pedestrian-oriented design (PeD) can provide numerous benefits to Marin including: safer streets, more pleasant walking areas, more vibrant downtowns, less school related traffic, healthier communities, and a more environmentally sustainable lifestyle. A TOD/PeD vision for Marin County can be achieved through broad implementation of multi-modal transportation improvements, gradual intensification of uses in existing downtown mixed-use areas, smaller activity nodes, and thoughtful integration of new uses into existing single-use commercial districts. These concepts are not new to Marin County. In fact, many are already being implemented in county communities, taking advantage of historically walkable development patterns around downtown cores and village centers. In some cases, communities are implementing improvements and development along existing transportation corridors and at existing commercial centers.

The following section builds the case for TOD and PeD in Marin through, first, an analysis of historic and existing conditions and trends in Marin, followed by a discussion of the manifold benefits of TOD and PeD and the challenges that may lay ahead in realizing these benefits in Marin's unique context.

### B - I. Marin's Community Structure

Marin's unique community structure lends both challenges and opportunities to TOD/PeD in the county. Settlement patterns formed here because of the area's topography and the constraints of rail transportation. Agriculture and a resource-based economy also influenced settlement during the early history of the county. Today's blend of cities and towns, open spaces, neighborhoods, districts, and corridors is a direct result of these natural and historic influences.

The linear transportation system centered on the county's rail lines catalyzed development of distinct towns spread along rail lines and roadways. This development pattern is seen today in the Highway 101



*Figure B-1.1 Marin is a very desirable place to live, in large part due to the natural beauty of the area.*



*Figure B-1.2 The Whistlestop Senior Community Center is located in the historic train station in downtown San Rafael.*

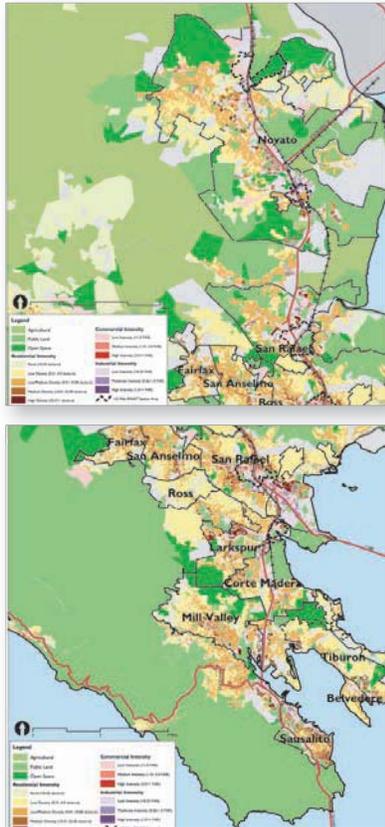


Figure B-1.3 Marin’s developed areas generally follow topography and the subsequent historic railway alignment, both of which are predominantly north-south oriented.



Figure B-1.4 Much of Marin remains undeveloped as open space and agricultural land.



Figure B-1.5 The municipal parking lot in Fairfax is on the site of the original train station, located between two roadways on the old rail rights-of-way.

corridor from Sausalito to Mill Valley, Corte Madera, Larkspur, San Rafael and Novato, and in the Sir Francis Drake corridor through Ross, San Anselmo, and Fairfax. Development patterns within the towns themselves reflect a clear relationship to the railroad as distribution hubs evolved into towns and cities. Supportive commercial uses and early neighborhoods developed within easy walking distance of rail stations to take advantage of resources brought by and to the train from surrounding rural areas. Today, many of Marin’s densest and most walkable neighborhoods and downtowns remain in these historic locations, as evidenced by the presence of an old station or the proximity of rail right-of-way.

After the Golden Gate Bridge opened in 1937, transition to a more automobile-oriented culture and landscape occurred. Within two years, the Northwest Pacific Railroad and a number of the commuter ferries, which had previously carried many Marin residents to their jobs in San Francisco, were prepared to abandon service, as too many of their former customers now drove to work each day.<sup>1</sup> As a result, subsequent development began to prioritize automobile convenience over pedestrian accessibility to train and ferry stations, resulting in development which was more single-use in nature, with residential districts largely separated from commercial uses, and commercial activity concentrated in large office and retail developments. Contrary to this development in Marin’s rail-based areas, such as the local-oriented downtown commercial and residential districts in Sausalito, Tiburon, Mill Valley, Novato, San Anselmo, Larkspur, and the more intensive downtown of San Rafael, a viable framework for increased TOD/PeD still exists in Marin.

Topographic constraints, early orientation around rail, and a strong emphasis on protecting natural resources and scenic settings, have resulted in only 11% of Marin’s land being developed. Approximately 84% of the county is protected open space, watersheds, tidelands, parks, and agricultural land. Most of the remaining 5% of potentially developable land is located within the boundaries of existing communities. The appropriate scale and geographic distribution of new land uses and major transportation infrastructure are key to protecting the county’s environmental assets while maintaining its economic vitality and social equity goals.

With 247,289 people in 100,650 households, Marin County is the second smallest of the nine Bay Area counties (ahead of only Napa). While 42 percent of the county population is concentrated in Novato and San Rafael, the remaining 58 percent is spread among Marin’s many smaller towns and communities, complicating planning for efficient transit service and transit-supportive land use patterns.

It is useful for the application of the Toolkit to consider the following place types of various scales, mix of uses, and intensities created by the combination of natural features and historic development patterns described above.

## Centers

Centers are areas of similar or related uses, such as downtown main streets, shopping centers, civic centers, or employment centers. Centers often have a strong relationship to the county's transportation network, so they are accessible to a broad cross section of the community. Centers often contain more active uses and will also define, or have an effect on, the character of neighborhoods around them. Centers can range in scale and intensity from urban downtowns to rural crossroads. Examples of centers in Marin County range from Downtown San Rafael to Point Reyes Station, from Downtown Mill Valley to the Corte Madera Town Center.



Figure B-1.6 Marin's commercial centers include many walkable small downtown areas, such as this one in Tiburon.

## Neighborhoods

Neighborhoods are the major building blocks of communities. They consist mainly of a definable collection of residential uses, parks, schools, and small clusters of commercial uses. Neighborhoods tend to be the element of community structure with which we most directly identify. Neighborhoods often have names, neighborhood groups, and clear geographic boundaries associated with them. Neighborhoods can range in intensity from intense urban districts surrounding downtowns to rural housing clusters. Examples of neighborhoods in Marin County include Sleepy Hollow, Marin Village, Ignacio, and others.



Figure B-1.7 Marin has many attractive residential neighborhoods with schools, parks, and other amenities.

## Corridors

Corridors are defined by key arterial routes traveling between centers. Corridors often contain similar land uses and activities and are the primary transportation and transit routes in Marin County. Due to the historic development patterns and natural features in Marin County, corridors have an especially prominent role in the specific transportation and land use issues facing the county. Corridors can act as seams that bring together the neighborhoods around them, but can also act as dividers that help to define edges and boundaries in the community. Corridors range in intensity from major urban arterials and primary trunk transit lines to rural highways flanked by farmland. Examples of corridors in Marin County range from Sir Francis Drake Boulevard to Highway 1, from 4th Street in San Rafael to Tiburon Boulevard.



Figure B-1.8 Marin has a number of important corridors that contain many daily destinations and connect neighborhoods and centers.

## Street Networks

Another critical element of a community's structure is its overall street network as it provides access to virtually all land uses. As is typical for places with a varied topography such as Marin's, the street network that accesses uses in confined valleys and on hillsides is branch-like and does not provide many interconnections between parallel routes. In addition, many residential subdivisions also lack interconnected streets in favor of cul-de-sacs and a street pattern that includes relatively few cross-streets.



Figure B-1.9 Some areas of Marin have good street connectivity between residential areas and interesting destinations. Some areas, however, are constrained by topography or Highway 101. (Source: Google)

## B - 2. Current Issues and Trends in Marin

The following sections discuss Marin County population, employment, housing development and transportation trends. Together, these four conditions and the ways in which they are changing help define areas of opportunity and challenge for transit and pedestrian-oriented development. Population and employment characteristics and projections indicate the type and degree of growth that the county will experience; residential development trends and the state of the county's transportation infrastructure demonstrate how well the market and local government are responding to housing and transportation needs of local residents. The following discussion describes these trends and their ramifications.

### B-2.1 Population and Household Trends

Marin County's population is projected to grow by 14.8 percent from 2000 to 2030, adding 36,711 people and 15,550 households during this 30-year period. These projections as well as recent trends in household types, both nationally and in Marin, suggest a promising future for TOD, PeD, and Marin's downtowns.

The demographic make-up of the average U.S. household has changed significantly over the last thirty years and the established trends are projected to continue in coming decades. Today, both nationally and in Marin, married couples without children and single-person households make up the two most common household types. In contrast, in 1970, the dominant household type in the U.S. was a married couple with children. Today, such traditional nuclear families represent only 24 percent of all households nationally, and are projected to comprise only 20 percent of all households by 2020. The household composition in Marin County is reflective of this national trend. Currently, only 28.9% percent of Marin households are comprised of a traditional nuclear family. The size of the average household in Marin reflects these changes in household type and has decreased from 2.94 persons in 1969 to 2.34 in 1999, closely matching the national trend during the same period.

This shift in household composition has important implications for housing markets around the country. National market studies for transit and pedestrian-oriented development indicate that many smaller households are more likely to prefer living in locations convenient to downtowns and transit than are other household types. These smaller households are typically made up of singles, couples without children, non-family households, single parents, and people age 65 and over. Accordingly, these groups comprise the

profile for the types of households most likely to generate demand for housing near transit. Households that comprise this profile exist in increasing numbers in Marin, suggesting that latent demand may exist for development that supports a more transit-oriented lifestyle.

The Bay Area Metropolitan Transportation Commission (MTC) projects that by 2030 potential demand for TOD housing in Marin county will be between 16,380 and 20,690 households based on the total number of households that fit the TOD household profile in the Bay Area. The number of potential TOD households exceeds the total increase in households in the county by 2030 because a large number of households are moving into the over-65 age cohort and a certain percentage of these households were included in the TOD demand estimate. Association of Bay Area Governments (ABAG) projections show Marin's population of people age 65 and over growing faster than any other age group within the county, and at the fastest pace of all nine Bay Area counties. ABAG predicts that, by 2030, almost 39% of Marin County's residents will be over 60, compared with only 14% in 1980 and 18% in 2000.

While existing Marin residents likely moved to the county for reasons other than the availability of transit, it is significant that many household types, including seniors, that fit the profile for living near transit are represented in strong numbers in the county. This finding suggests that while these households may not currently be transit-dependant, if given the option, they may prefer to live near transit at some point and take advantage of the opportunity to live with no car or with only one car instead of two or more.

## B-2.2 Employment Growth Trends

In Marin County, employment is clustered along Highway 101 with the largest cluster in San Rafael (44,000 jobs), a regionally-significant employment center, and smaller clusters in Larkspur (12,700 jobs) and Novato (26,500 jobs). Currently, regional connectivity to Marin's employment centers via public transit is primarily provided by Golden Gate Transit buses running to and from San Francisco via Highway 101 and the East Bay via the Richmond-San Rafael Bridge. Despite high-frequency service during commute hours, bus service is limited at other hours and even less frequent on regional and local streets outside of the Highway 101 corridor. Ferry service provides additional regional connectivity but, with the exception of bringing potential commerce to Larkspur, is primarily focused on providing connections for Marin residents to San Francisco. If the proposed Sonoma Marin Area Rail Transit (SMART) commuter rail system is implemented, it will pass through the Marin communities of Larkspur, San Rafael and Novato, increasing the connectivity of these areas

to other points in the North Bay region. Such improvements may provide opportunities for additional transit-oriented employment areas in the county.

In addition to their analysis of population growth, MTC also examined employment growth within transit planning areas. Currently, 48,690 jobs, 39% of all employment in Marin, are located in transit planning areas. According to MTC's TOD Demand Analysis, the share of jobs located near transit is projected to increase by 16,549 jobs by the year 2030 to 65,236 jobs in transit planning areas. While many of these are expected to be higher-paying technical jobs, most are expected to be lower-paying clerical, maintenance, and service sector jobs. In order to realize and support this projected employment growth, transit service must be improved to serve higher density, attached, lower cost housing close to employment centers, or other transit-rich locations that connect with transit-oriented employment centers. Since low-wage workers use transit at a higher rate than other income groups, this is a strategic opportunity to decrease future traffic congestion and encourage a higher quality of life for both service workers and those who benefit from their employment in Marin.

### B-2.3 Housing Trends and Recent Residential Development Activity

Marin's existing housing stock is dominated by single-family homes. In 2000, 68.6% were single-family homes and 31.3% were multi-family units more than two-thirds of which were located in buildings with four units or less. The predominance of single family homes, existing low-density settlement patterns, and topography result in challenging conditions for transit ridership and the realization of vibrant walkable communities. .

While many argue that the housing market in Marin is dominated by demand for large "family" homes, from 1990 to 2000, nearly half (45.6%) of Marin's housing units consisted of two bedrooms or less, while only 21.6% of all units were four bedrooms or more. Furthermore, recent development trends include a greater share of multi-family units. Almost half of the residential projects currently in the pipeline in Marin are multi-family developments. The current body of projects in the development pipeline includes the following:

**Table B-2.3**

Type of Project	Size	% of all Proposed
<i>Residential:</i>		
Single-family	1,699 units	54.5%
Multi-family	1,414 units	45.4%
Projects with Below Market Rate units	1,275 units	40.9%
<i>Commercial:</i>		
Industrial	448,173 square feet	17.8%
Office	1,825,383 square feet	72.5%
Retail	244,076 square feet	9.6%

Source: Marin County PropDev 41: Semi-Annual Proposed Development Survey, March 2006

From February 2002 to March 2006, the date of the most recent development inventory in Marin at the time of publishing of this document, the percentage of multi-family units in the pipeline never dropped below 45.4% and was as high as 53.2% in March 2003.

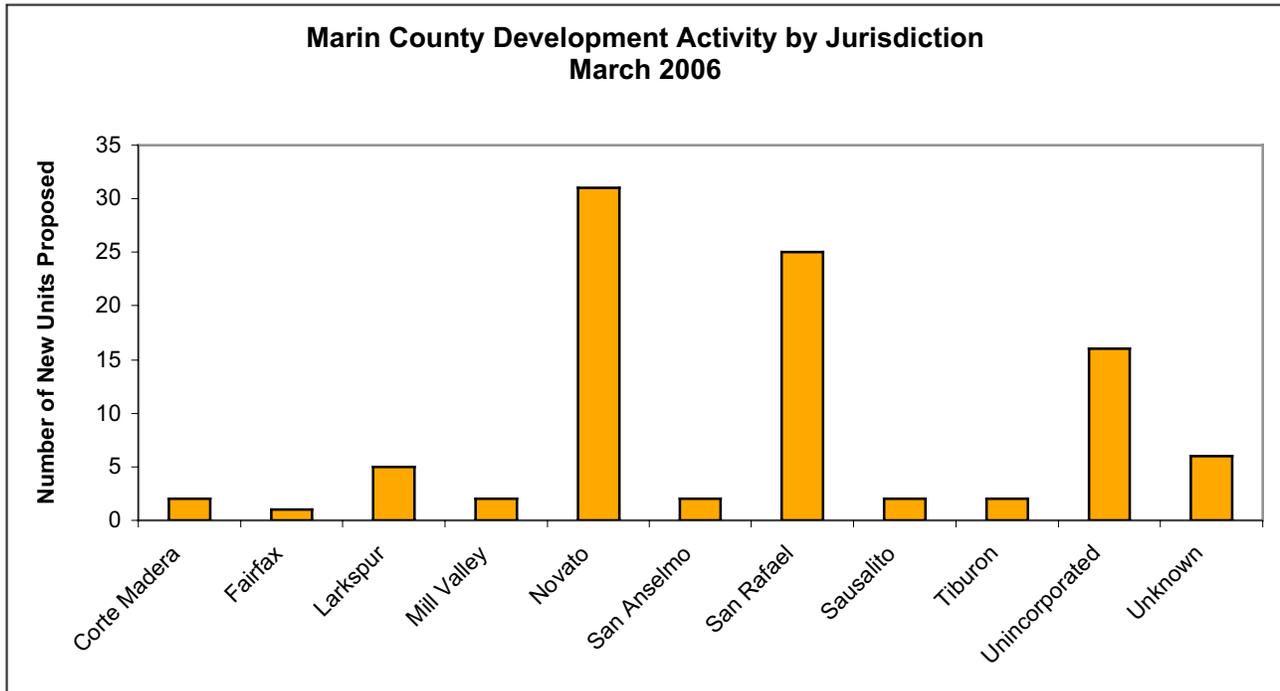


Figure B-2.3.1 Source: Strategic Economics, Marin County PropDev 41: Semi-Annual Proposed Development Survey, March 2006

The above chart depicts where proposed housing unit projects were to be located within Marin County in March 2006. The most active areas were San Rafael and Novato, the existing centers of highest density in the county.

## Cost of Housing

The median home price in Marin County in 2006 was \$940,000, which would require a traditional 30-year monthly mortgage payment of \$6,572. In order to afford this mortgage, a homeowner would need an annual income of \$262,880. In contrast, the median income in Marin County in 2006 was \$81,010, a discrepancy of \$181,870 between median income and the income required to purchase a median-priced home. While an increase in availability of non-traditional mortgages in recent years has allowed potential buyers to consider homes that were unaffordable with traditional loan terms, a broader solution is required to address the issue of housing affordability. Creation of more moderately-priced attached housing could add the necessary diversity to the housing market which would begin to address this problem.



Figure B-2.3.2 Most Marin residents use Highway 101 to commute and for a large number of daily trips as well.

### Travel Characteristics in Marin

- 79% of daily car trips are within Marin County.
- 58% of all trips are from home to work.
- 21% are from home to school.
- Single-occupant vehicles account for 71% of all car trips in Marin.

Source: Marin Traffic Model, 2001



Figure B-2.3.3 Golden Gate Transit bus service connects many of Marin's towns to San Francisco.

## Transportation Trends

Marin's existing transportation system is primarily focused on facilitating mobility of the automobile. Over the past several decades, this has led to fewer public transit alternatives and to roadways that are increasingly congested with automobiles and poorly accommodate pedestrians and bicycles. Transit-oriented development can help to address existing and future congestion issues.

## Transit Ridership

Currently, only 9 percent of trips are traveled by bus, 2 percent by walking, 1 percent by bicycling and 2 percent by ferry. While equivalent to the average for the 9-county Bay Area, this low rate of transit ridership and relatively limited range of transit service do not reflect Marin's proximity to San Francisco and orientation on multiple existing and potential transit corridors. While commute hour service to San Francisco is relatively well developed, high-frequency bus service to local destinations is not available enough to effectively reduce the number of daily vehicle trips. The resulting dependence on the private automobile has broad ramifications for quality of life in Marin.

According to the Marin County Department of Public Works, congestion in Marin is growing at almost two times the rate of population growth. These figures suggest that if better transit can be provided for more people at their origin and destination points, namely: work, school and home, then significant strides can be made to reduce overall congestion.

Many Marin residents are supportive of transit improvements, and are willing to support transit with ridership, votes and funding. In a recent poll of ferry riders, 60% of respondents said they would ride a shuttle to the ferry if such a service were available. In 2004, Measure

A, a transportation sales tax measure funding various transportation improvement, passed by over 70% and made Marin a transportation “Self Help” county. This funding not only assures that transit service will not decline in coming years, but will have opportunities for growth and development.

### Commuting and Local Trips

Though members of Marin’s workforce who cannot afford to live in the county must commute in, and many Marin residents commute out to San Francisco and other nearby employment centers, 79 percent of all daily trips in Marin begin and end within county borders . This high number of local trips has led to more congestion on local streets, added more short trips onto the County’s main north south route, Highway 101, and resulted in longer peak traffic periods.

National studies of commute patterns, have correlated income levels and use of public transit. Access to quality public transit is an important necessity for low-income travellers, who often make up a significant portion of transit ridership and provide a stable base of riders to support the public investment made for transit. As discussed in Section B-2.2, Employment Growth Trends, this is a significant growing demographic in Marin’s employment sector, and transit connectivity to employment centers of all sizes may have a significant impact on economic development in the county in coming years.

Schools in Marin County also generate a high number of vehicle trips: 21 percent of all AM peak hour trips are home-to-school trips, as compared to 58 percent which are home-to-work trips. Public transportation improvements and programs that would reduce the number of school related vehicle trips could result in a significant decrease in AM peak hour trips. Programs to encourage walking and biking would also further this goal.

Marin’s low-density commercial areas, characterized by single-use buildings surrounded by surface parking, often generate an additional automobile trip for each activity a person undertakes in an outing, such as multiple stops on a shopping trip. Similarly, newer residential neighborhoods, primarily composed of single-family homes, are often inadequately connected to older neighborhoods and downtowns and therefore generate a significant proportion of vehicle trips countywide.

Low interconnectivity of streets in many of Marin’s neighborhoods built after 1950 funnels cars onto local collector streets and arterials. Because of their low density and interconnectivity, these areas are the hardest to serve by transit.

#### Marin Transit

Marin Transit is responsible for providing local transit trips within Marin county. Marin Transit contracts with providers such as Golden Gate Transit and Whistlestop Wheels to provide local fixed route and paratransit service. Marin Transit is also responsible for other local services such as the West Marin Stagecoach and local shuttles in Santa Venetia, the Twin Cities, and Marinwood. More information is available at: <http://www.marintransit.org>



Figure B-2.3.4 Ferry terminals connect Marin’s commuters to downtown San Francisco.

## Improving Conditions

The county is encouraging development of both infrastructure and educational programs that can begin to alleviate some of the burden of these trends. The significant and continuing success of Marin’s nationally renowned Safe Routes to School Program is one example of a cost-effective and easily realized program which has made a difference. Historically, 50% of school children in America walked or biked to school. The average today is closer to 15%. In its first year alone, Marin’s Safe Routes to School Program spurred an increase of over 50% in the number of children arriving to school by bike or on foot, and a decrease of nearly 30% in the number of cars dropping off a single child. Continued improvement in the performance of this program can markedly reduce the number of intra-Marin trips generated in the morning commute hours.

Ongoing pedestrian and bicycle planning at both the county and local level, such as the 2001 or 2007 Marin County Bicycle and Pedestrian Master Plan, will continue to improve pedestrian and bicycle infrastructure to provide a safer and more efficient multi-modal network throughout the county.

Finally, the SMART commuter rail system, proposed to begin operation early in the next decade would improve commuter transit-connectivity for Marin’s most heavily populated areas. While it would also connect commuters to San Francisco via the Larkspur ferry terminal, it would be a significant resource for intra-Marin travel along the Highway 101 corridor, and potentially encourage transit-oriented development for improved pedestrian and bicycle conditions and transit ridership in areas this system will serve.

Continuing pursuit of opportunities to increase pedestrian and bicycle safety and access to transit will encourage more of the population of Marin to choose these modes of travel for running an errand, dropping children at school, commuting to work, or any other task which previously depended on the use of a car. A number of new programs and planning efforts are afoot to support this positive trend in transportation opportunity in Marin.



Figure B-2.3.5 and B-2.3.6 The proposed SMART commuter rail system will add significant new transportation opportunities in Marin. (Source: SMART)

## B - 3. The Role of Transit in Marin

Although the current transit ridership in Marin does not exceed the 9-county Bay Area average (see discussion above), there are many residents who use transit every day to get to school or work, to do errands, or to move about their towns and the county. Marin's many shuttles, buses and ferries provide thousands of residents with a more convenient way to undertake their daily business. Furthermore, important national and local issues, such as the steady increase in green house gases, congestion on Marin's street network, and the desire to maintain the quality of life afforded by Marin's built and natural environment may require future upgrades and improvements to today's limited transit services. Understanding how current and future transit fit into land use, urban design, and life in Marin is an important factor in understanding the case for many tools presented in this toolkit. Of particular importance in this context is the link between the quality of pedestrian environments and travel and transit networks and services.

### B-3.1 Benefits of Transit

Transit has numerous benefits for both those who use it and those who do not. Some commonly accepted benefits of transit include:

- Reduces the number of vehicles on the road, which decreases traffic, improves air quality by reducing CO<sup>2</sup> emissions, reduces the need for large unsightly parking lots, and decreases auto collisions and accidents with pedestrians and bicyclists;
- Improves community vitality and public health by encouraging walking and improving air quality;
- Provides mobility to all residents, including youth under 16, the elderly, persons with disabilities, low-income families and individuals, and those who voluntarily live without a car; and
- Reduces cost of living by an estimated \$9,000 per household per year, allowing families and individuals to spend more on housing, food, or other things.

#### *Definitions of Transit Types*

**Fixed Guideway** systems typically follow tracks or other dedicated rights-of-way that are immovable. As a result, transit vehicles cannot alter their course beyond the predefined system of tracks or dedicated lanes where the necessary infrastructure is present. Common examples include commuter rail, light rail, monorails and streetcar systems as well as electric catenary bus, and some Bus Rapid Transit (BRT) configurations. Because many fixed guideway systems operate in dedicated rights-of-way, their performance is less affected by traffic and roadway conditions, allowing for higher speeds and more consistent on-time performance.

**Fixed Route** systems follow a regular route and have defined stop locations, similar to fixed guideway systems. However, fixed route vehicles typically operate in regular travel lanes, allowing flexibility to change routes as demand changes. Fixed route systems typically use tire-based vehicles and are significantly less expensive to implement than fixed guideway systems. Common examples include busses and shuttles with pre-determined stop locations, including airport and commuter shuttles.

**Flexible Route** transit vehicles do not follow pre-determined routes, or may follow general routes but have the ability to alter course or stop as necessary to make dedicated trips to specific locations. Flexible route services include paratransit, many senior and door-to-door shuttles, taxis, and dial-a-ride services.

## B-3.2 Transit and Land Use

Transportation and land use are inextricably linked. The way people travel to and through a place can determine to a large degree how development occurs there. Historically, when rivers were the primary arteries of long-distance transportation, cities and towns developed at the convergence of waterways, or at bends in rivers where land was defensible. Later, trains became the primary mode of shipping and long-distance travel, and cities and towns developed around rail stations. In each case, the highest densities of development and services were typically located closest to a town's port or rail station. As the private automobile became the dominant mode of transportation, lower-density development sprawled across undeveloped land, and uses such as industry, housing, and shopping became separated from each other due to the ease of individual travel provided by the automobile.



*Figure B-3.2.1 Downtown Sausalito, one of Marin's most vibrant and walkable areas, is connected to multiple bus routes and has a ferry terminal in downtown.*

In light of today's common woes of time and energy consumed by travel on congested freeways and arterials, many urbanized areas in America are re-examining the benefits provided by fixed-guideway and fixed-route transit. These more permanent transit systems provide the opportunity for establishing development and services along their routes that are less dependent on automobiles. In this process, the perceived permanence of a transit system influences the type and intensity of land uses. Transit systems that are more permanent, due to extensive infrastructure investment, engender more substantial land use investments adjacent to them. The more established and robust a bus or rail transit system becomes, the more investment near its transit stops can be expected. This process can help to strengthen the quality and economic vitality of land uses along existing transportation corridors. If properly planned for, it does not mean an encroachment of higher densities into established residential neighborhoods.

The legacy of development and land use organization that occurred as a result of rail and waterway transit - is evident in Marin today, where many towns line up along historic rail rights-of-way, and walkable downtowns surround the locations of former rail stations. Though public transit is limited in Marin today, residents have shown their support for improved transit by voting for Measure A (see sidebar). Current and future improvements in transportation can support and be supported by decisions about land use, as detailed in Toolset LU: Land Use Guidance. Existing major transportation corridors connecting major destinations, connections between existing transit routes, and areas where more dense residential and commercial development is programmed can all be targets for new transit routes and connections or enhanced service. Similarly, where new transit is planned or enhanced in frequency of service, zoning for mixed-use development, higher densities, and reduced parking

requirements can all support transit use. Many tools throughout this toolkit include strategies and guidance for such improvements to both the transportation system and land use patterns, and where these improvements are made, new fixed-route services and even fixed guideway services can expand the areas and neighborhoods in Marin that are effectively served by transit and benefit from the many benefits presented by a link between transit- and pedestrian-oriented design and land use.

### B-3.3 Transit Providers in Marin

A number of local agencies are involved in providing transit service in Marin.

Marin Transit is responsible for local transit and paratransit services within Marin County. Although Marin Transit has responsibility for local services, it does not own any buses or facilities and does not employ its own drivers. Instead, Marin Transit contracts with other providers, including but not limited to Golden Gate Transit, West Marin Stagecoach and Whistlestop Wheels. Marin Transit sets routing, level of service, and fares for bus services operating within the county. Marin Transit recently underwent a complete rebranding to differentiate itself from other transit providers and plans to expand to include new local routes in partnership with local jurisdictions through the Local Incentives Program, detailed in section C-5.

Golden Gate Transit provides regional commuter transit service between counties, such as to San Francisco, Sonoma or Contra Costa. This service is provided through buses and ferries that connect cities and towns along the Highway 101 corridor to San Francisco and the East Bay. Golden Gate Transit is also the operator hired by Marin Transit to operate the majority of local routes in Marin County.

The Metropolitan Transportation Commission (MTC) is the primary regional funding agency for transit services in Marin. MTC administers state and federal funding to transit providers in Marin. The Transportation Authority of Marin (TAM) administers local funds collected through sales tax revenues approved by Measure A and other funding sources to provide for Marin's transportation needs. Detail on many of these and other funding sources can be found in chapter C-5 of this Toolkit.

#### Measure A: Funding Marin's Transportation Future

In 2004, Marin County residents approved Measure A, a half-cent sales tax increase with the goal of enhancing mobility for everyone who lives and works in Marin County by providing a variety of high quality transportation options designed to meet local needs. The measure will improve transportation by expanding bus service, completing the Highway 101 carpool lane through San Rafael, and providing roadway improvements and safer access to schools. The plan is expected to raise \$16.5 million per year or \$331 million over 20 years.



Figure B-3.3.1 The Golden Gate Transit system map shows existing routes on Marin's major corridors. (Source: Golden Gate Transit. Map available for download at [www.goldengate.org](http://www.goldengate.org))

**Benefits of TOD and PeD:**

- Create a walkable and human-scaled environment that encourages walking, bicycling, and transit use.
- Encourage transit use by providing safe and direct connections between transit stops and destinations.
- Maximize access to existing land uses.
- Advance public health by providing opportunities for walking to improve personal physical health
- Improve air quality by reducing the number of trips by single-occupancy vehicles.
- Improve access for children, seniors, and disabled persons.
- Reduce the number of short distance trips that contribute to congestion on arterial roads by making areas more efficient destinations once people have arrived.
- Promote the vitality of business districts and neighborhoods by directing development and investment into existing areas.
- Increase opportunities for affordable housing as low-income households can reduce their spending on automobile transportation.

## B - 4. Transit-Oriented Development and Pedestrian-Oriented Design in Marin

Transit-oriented development, or TOD, commonly refers to a district or neighborhood where a dynamic mix of residential, commercial, and employment uses are centered around a transit resource with features which are designed to maximize use of public transit to and from that area, and where pedestrian and local transportation are prioritized to connect people to transit. In Marin, where many existing neighborhoods are considered built-out, the term is understood to refer to assessing local conditions and needs and strategically locating transit amenities near the highest existing densities or most desirable destinations, and improving local connectivity to those destinations and their transit amenities.

Pedestrian-oriented Design, or PeD, refers to design that prioritizes the comfort and safety of the pedestrian over, or at least equal to, the convenience of automobiles. Marin is a heavily auto-dependent county, despite good weather and convenient and interesting town centers that provide exemplary conditions for walkability. PeD in this context refers to improving conditions for pedestrian (and bicycle) access and safety in order to encourage a healthier balance between walking and driving.

While most TOD efforts in other areas focus on land use in relation to rail transit, Marin’s bus transit corridors can provide a high-level of transit accessibility and amenity to support TOD. Some of Marin’s larger municipalities, such as Novato and San Rafael, have more local-serving bus service, and many of Marin’s smaller downtowns and centers are served by regional routes, which provide opportunities for the implementation of TOD and PeD supportive projects. The Marin County Transit District’s Short Range Transit Plan, adopted in 2006, proposes many service changes and improvements that jurisdictions can plan around and capitalize on, such as more frequent bus service in certain key corridors, for the realization of TOD.

The proposed SMART rail system would add to the range of available transit and commute choices for Marin residents, providing significant new opportunities for TOD and PeD improvements in the areas surrounding the five proposed stations in Larkspur, San Rafael, and Novato. MTC is currently working with these jurisdictions to study opportunities for TOD in the station areas and could make funding available through Station Area Planning grants, as well as Housing Incentive Program (HIP) and Transportation for Livable Communities (TLC) capital grants, to cities looking to take advantage of opportunities for TOD.

Opportunities to implement some TOD projects need not wait for improved bus service or SMART however, as residents already have the ability to commute by bus and achieve many, though perhaps not yet all, daily trips by foot, bicycle or transit. Implementation of PeD and local circulation improvements, such as improvement of the network of multi-modal streets, can provide transportation and quality of life benefits independent of transit investment. PeD improvements are also precursors to and will help to implement TOD, especially if these projects are targeted to areas that are likely to get improved transit service as increases in transit funding occur. Safe multi-modal streets and interconnected networks of streets and paths can reduce the number of school-related automobile trips as well as serve other broader access and pedestrian bike/safety concerns.

The goal of creating trip destinations that offer a mix of uses and the conversion of single use districts into walkable areas with multiple destinations and uses is common to both the TOD and PeD approaches. Creating more mixed use, walkable districts and activity nodes will help to reduce the number of daily trips in Marin by making these areas more effective destinations as people who have arrived there, regardless by which mode, will be better able to achieve multiple tasks on foot. Mixed-use PeD environments afford both the young and old with valuable and accessible destinations as well as new transportation choices.

TOD and PeD projects of any scale, small or large, have the opportunity to maximize the value of existing places and resources by making them more accessible and useful to Marin's residents. The following discussion looks at conditions, opportunities, and impediments to realizing TOD and PeD in Marin.

## B-4.1 Transit-oriented Development, Pedestrian-oriented Design and A Multi-modal Approach to Street and Network Design in Marin

If alternative modes are to succeed in reducing the overall number of vehicular trips made by residents, employees, and visitors in Marin, some critical changes have to be made to the transportation system. These changes are largely related to the concepts of connectivity and the capacity of streets to provide balanced accessibility and mobility for more than one transportation mode.



*Figure B-4.1.1 The Golden Gate Ferry Terminal in Larkspur is a significant existing transit resource which does not presently cater to TOD or PeD.*



*Figure B-4.1.2 The San Rafael Bettini Transit Center is located in close proximity to a major mixed-use downtown.*



*Figure B-4.1.3 Downtown San Rafael has a comfortable, well-designed, pedestrian-realm which encourages walking to and in the downtown.*



*Figure B-4.1.4 Novato's downtown corridor on Grant Avenue concentrates housing, employment, and retail/entertainment destinations.*

**Benefits of a Well-connected Circulation Network**

**A Walkable Environment:**

- Helps to improve public health by providing opportunities for walking to improve personal physical health.
- Discourages crime by making streets more active by providing additional “eyes on the street.”
- Improves air quality by reducing trips by single-occupancy vehicles.
- Improves access for seniors and disabled persons.

**Interconnected street networks:**

- Provide shorter routes for pedestrians and bicyclists.
- Distribute traffic allowing limited rights-of-way to serve multiple modes.
- Reduce the number of short distance trips that have to use already congested arterial roads.



Figure B-4.1.5 and B-4.1.6 A well connected roadway system maintains short distances between points to encourage walking and biking.

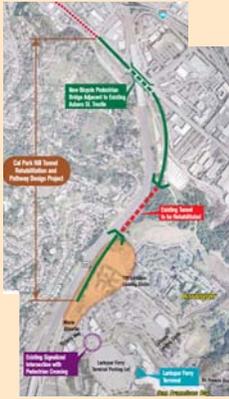
**Creating A Well-connected Circulation Network**

A high level of connectivity between residences and places of retail, business, employment, education, and social activity is essential for pedestrians, bicyclists, and transit users alike. However, a well-connected circulation network is also beneficial for vehicular traffic, as it tends to allow for alternative routes and for a separation of local and sub-regional and regional trips. Topography and suburban development patterns have resulted in a branching roadway system in most areas of Marin. This has focused the full range of local to regional transportation functions onto individual arterials serving a string of communities, while the branch-like roadway network has created circuitous and indirect routes that tend to discourage people from walking and bicycling. Similarly, indirect routes to bus stops and other transit-related facilities discourage people from use of transit.

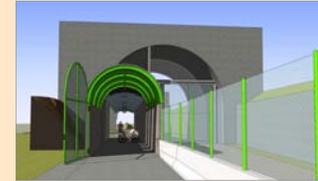
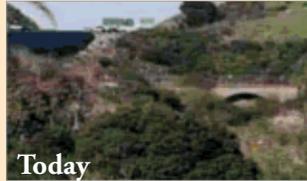
Creating mode-specific (bicycle and/or pedestrian) and integrated multi-modal transportation routes that provide alternatives to overburdened arterials is another important aspect of increasing the connectivity of Marin’s transportation system. This applies particularly to routes that parallel major arterials and State Highway 101. Such routes could reduce the number of strictly local trips on arterials or the freeway. Shifts of trips onto such parallel routes need to be critically evaluated for their effects on potential cut-through traffic in residential neighborhoods adjacent to the major arterials. For this reason, traffic calming measures that discourage cut-through traffic are included in the toolkit. In addition, bicycle routes that parallel busy arterials allow less experienced riders to bicycle away from the perceived hazards of a busy arterial and also help in situations where the available right-of-way for multi-modal improvements does not allow for inclusion of bicycle lanes.

Highway 101 in Marin produces a barrier effect for pedestrians and bicyclists. The freeway reduces the frequency of connections between the circulation networks on either side (including vehicular connections), the provision of safe and convenient pedestrian and bicycle connections across existing over- or underpasses is limited or lacking, and highway on- and off-ramps on roadways that cross under or over Highway 101 (and other freeways in Marin) create safety concerns for crossing pedestrians and bicyclists. These issues can be alleviated by building new multi-modal connections across or underneath the freeway, by building new or upgrading sidewalks and bicycle facilities (i.e. bicycle lanes) of existing over- and underpasses, and by designing freeway on- and off-ramps to maximize pedestrian and bicycle safety.

### Case Study: Cal Park Hill Multi-use Pathway and Central Marin Ferry Connection



TAM, in partnership with the County of Marin, local agencies, SMART and Caltrans, is working to improve multimodal connectivity across a number of major impediments in Central Marin County. Planning is underway for the Central Marin Ferry Connection to create a pedestrian and bicycle pathway beginning at Wornum Drive heading north up and over the Corte Madera Creek, providing access to the Larkspur Ferry Terminal and the Cal Park Hill Project. The Cal Park Hill Multi-Use Pathway will create a mile-long Class 1 pedestrian and bicycle pathway connecting southern San Rafael and northern Larkspur through a rehabilitated railroad tunnel within California Park Hill. Both projects will complete a gap in Marin's North-South Greenway and greatly improve non-motorized access in Central Marin.



Source: Marin County Bicycle Coalition.

### Creating Multi-modal Streets

Achieving a well-connected circulation network alone is not sufficient, as each individual segment of this network has to meet a range of safety and design criteria specific to each mode that uses the respective segment. Therefore, making Marin's transportation system multi-modal means that all existing and future transportation facilities (streets, bridges, paths, sidewalks, etc) need to be evaluated for their capacity to safely carry multi-modal trips.

While many of Marin's residential streets with sidewalks and low vehicular traffic can accommodate pedestrians and bicyclists, this may not be true of streets that do not have curbs and sidewalks, and along major collector streets and arterials with high volumes of vehicular traffic. Marin's heavily traveled arterials should be particularly high priority targets for efforts to make streets multi-modal, as topography often renders these streets as the only connection between adjacent neighborhoods or even entire communities. In most cases, safe accommodation of pedestrians and bicyclists on arterials will involve providing curbs, wider sidewalks, improved crossings, upgraded bus stops, and bicycle lanes. In some cases, it may not be possible to meet all safety and design criteria within the available (or acquirable) right-of-way. Then, on a case-by-case basis, and with the involvement of all affected stakeholders, trade-offs will have to be made to determine which and to which extent individual modes can be accommodated. Trade-offs involved in this process may include the responsible reduction of space available for vehicular traffic, the accommodation of some modes at the minimum end of applicable design criteria ranges (i.e. width), or the routing of bicycle traffic on alternative parallel routes (if available).

#### Benefits of Multi-modal Streets:

- Enhance mobility by encouraging and supporting walking, bicycling, and transit use as competitive alternatives to driving.
- Increase "person-trip" capacity of the existing street system.
- Provide enhancements to bicycle circulation and safety such as bike lanes and paths
- Improve safety for all, including vehicle drivers
- Encourage vehicles to travel at the speed limit
- Create the opportunity to improve the fit between streets and the communities they pass through



Figure B-4.1.7 Redwood Boulevard in Novato is multi-modal corridor with transit facilities, bike lanes, sidewalks, and auto lanes for local and regional traffic.

**Benefits of Place-making in the Public Realm:**

- Well-designed and appropriately scaled buildings are more likely to be supported by the community.
- Enhancing existing transportation facilities for multi-modal use provides opportunities for streetscape beautification specific to the locale.
- Introducing pedestrian-oriented streetscape elements makes larger roadways more compatible with small and medium scale communities and the natural environment of Marin.

**Place-making in the Public Realm**

In addition, it is critical to the functionality and acceptability of modes alternative to the automobile that facilities and amenities associated with walking, bicycling, and transit use be attractive and designed to fit well with the existing or desired future character of the area. Attractive, safe and functional bus stops, for instance, will further advance transit use by projecting a positive image of this mode, a fact supported by recent improvements to many bus transit systems around the country. Consideration should be given to how stops along key arterials and within the Highway 101 right-of-way can be upgraded not only in accessibility but also in their attractiveness and overall image. Similarly, a well-buffered, attractive sidewalk that accommodates activities likely to occur in a given land use context, will invite people to walk to destinations in their neighborhood, or along an arterial that may also function as the main street of their neighborhood or community.

**B-4.2 Why Multi-Modal Streets and a Well-Connected Circulation Network are Essential to TOD/PeD**

A well-connected circulation network and multi-modal streets are the two most critical concepts for advancing TOD/PeD in Marin. While a well-connected circulation network will create the connectivity required to successfully encourage residents to walk or bicycle to nearby destinations or to walk to transit, multi-modal streets are designed to safely accommodate the varied needs of all included transportation modes. These needs involve not only functionality and safety but also the need for attractiveness and a sense-of-place. The place-making afforded by well-designed streets can create a network of high quality environments between residences and places, nodes, and districts in a community.

Establishing a well-connected street network and building multi-modal streets will also support a community’s efforts to establish compact, sustainable development that maximizes the benefits of already existing infrastructure and preserves resources at the urban and suburban fringe. In communities that are interested in multi-modal improvements and their benefits, but not yet ready to approve higher density housing or mixed-use development, connectivity and multi-modal improvements create a pedestrian-supportive and bicycle-accessible environment that can serve as a precursor to transit-oriented development and render an area “TOD-ready”.

In addition, the retrofitting of strip development and single-use employment areas (along major arterials and along Highway 101) with a well connected pedestrian circulation network can prepare



*Figures B-4.2.1 and B-4.2.2 Dangerous and uncomfortable conditions and difficult to reach locations at many of Marin’s existing transit facilities discourage potential riders from using transit.*

such areas for an increase the mix and variety of uses (i.e. introduction of employment and housing uses in commercial areas and retail and service uses, and possibly housing, in employment areas) and creates the potential for people to include walking trips to stores or services into their daily routine that so not require additional vehicular trips beyond the initial commute or trip to the destination.

Jointly, improved connectivity and multi-modal streets will help to reduce the number of trips made by automobile.

### B-4.3 How TOD/PeD Create Opportunities for New Land Use Choices

As a result of a broader array of transportation choices, TOD and PeD can also catalyze creation of new land uses that were not feasible in previously existing markets. Two concepts are central to the land use component of TOD and PeD:

1. Creation of places that offer a variety of complimentary land uses; and,
2. Intensification of land uses in places –
  - a. Served by transit to the full extent afforded by the existing or planned level of service.
  - b. Served by a well-connected network of appropriately designed pedestrian and bicycle facilities.

Concepts 1 and 2b are critical as they allow communities and districts in Marin that have minimal or no transit service to create walkable districts and neighborhoods that can reduce overall auto use and create vibrant centers by providing multiple activities in a single location. Even if such a location is reached by automobile, additional trips may be saved if a variety of shopping, service, civic use, or other destinations are located within walking distance of where a car is parked. Implementation of PeD (Pedestrian-oriented Design) principals also makes places safer for children, seniors, and others to walk to shopping to school, for recreation, or just to visit friends.

Additional benefits are gained along a sliding scale of increasing transit service levels, with the most benefits realized in transit-rich areas with commuter rail, ferry, and high-frequency bus service that is matched by an interconnected circulation system of pedestrian and bicycle facilities.



Figure B-4.2.3 Bridgeway Avenue in Sausalito is a good example of a Marin-appropriate multi-modal street, including auto-lanes, bike lanes, sidewalks, and transit service.

#### Benefits of TOD and PeD creating new land use choices:

- Promotes the vitality of business districts and neighborhoods by directing investment into existing areas.
- Supports better transit service by concentrating jobs and housing, creating a larger transit customer base, which justifies more frequent transit service throughout the day and into the evening. This attracts additional customers, particularly those sensitive to time and convenience of service.
- Slows down the process of land consumption for new development.
- Supports walking, ridesharing, cycling, and transit use by enabling people using these modes to make other trips conveniently.
- Generates off-peak transit use because trips to and from TOD occur throughout the day and into the evening.

**Benefits of TOD and PeD creating new land use choices (continued):**

- Adds to the economic vitality of business districts by increasing the diversity of retail and commercial services offered, providing a convenient mix of goods and services to employees during the day and residents in the evening.
- Contributes to neighborhood livability by providing activities within easy walking distance of neighborhoods.

**Case Study: Location Efficient Mortgages**

Locations Efficient Mortgages (LEMs) are currently available in San Francisco, Los Angeles, Seattle, and Chicago (as of July 2007). Typically, a traditional mortgage will allow a borrower to pay up to 35% of their income toward the cost of housing, and 45% toward the cost of all debt. A LEM might allow a person to pay as much as 40 and 50% of their income in each respective case, making homes in these transit rich environments far more affordable. (source: Fannie Mae and the Institute for Location Efficiency, [www.locationefficiency.com](http://www.locationefficiency.com))

Many developed areas in Marin today are places of single-use, comprised of or dominated by either residential, retail, employment, or civic development. However, opportunities exist to transform many of these areas into places that offer a mix of uses and destinations. Depending on local conditions this can occur through addition of uses in the form of horizontal and vertical mixed-use infill development, addition of floor area to existing buildings, conversion of existing single-use buildings into mixed-use buildings, and conversion of surface parking lots into new development with structured parking. Any such retrofitting of single-use retail, employment, or civic areas should be combined with appropriate improvements to the pedestrian, bicycle, and transit infrastructure and under consideration of TOD/PeD urban design principles described in Section C-2.

As well, mixed-use and transit-oriented housing can be important factors in addressing the equity-related goals of the TPLUS program. Greater opportunities for intensification of residential uses (stand-alone residential and residential mixed-use projects) exist within a one-quarter to one-half mile walking distance of a station with high-frequency transit and commuter service. Case studies have shown that car-ownership and usage within these areas is reduced and households are less burdened with the associated expenses. In many such areas, Location Efficient Mortgages are available to aid homebuyers in purchasing homes where they ordinarily would not qualify for a conventional mortgage. Location Efficient Mortgages (LEMs) recognize that people located in transit-rich locations save significant amounts of money by using a car less, or not at all, which allows them to pay a greater portion of their income towards their mortgage. Similarly, affordable housing located in these station areas is particularly desirable and beneficial for families and individuals who cannot afford to own a car. TOD and PeD create conditions in which a broader range of housing and other land use types are made available.

## B-4.4 Issues and Barriers for TOD/PeD in Marin

Previous sections have focused on the usefulness of TOD and PeD approaches for solving pressing transportation and quality of life issues in Marin. It is equally important to identify issues and barriers to implementation. This occurred through an outreach effort targeted at high-level local planning, public works, and economic development staff and elected officials in Marin's individual jurisdictions and at the county level.

Input was consistent regarding some of the most common challenges. The constraints, both real and perceived, of existing conditions, infrastructure, policy, and public opinion often hamper the implementation of a more transit-oriented and pedestrian friendly Marin. The clarity of and agreement upon these issues and barriers is encouraging, as it means that concrete steps can be taken to address specific issues in ways that will be valuable throughout the County. Many, if not all, of these concerns and impediments can be overcome through discussion, education, and development of a coordinated vision across jurisdictional boundaries.

Following is a summary of the most frequent and pertinent comments, organized by issue area or subject to which they pertain. Some tools directly related to addressing each issue area are listed in the sidebar of each subsection, though, in any given context, a different assortment of tools from the toolkit may be found more appropriate. A complete summary of the outreach process and specific comments can be found in the appendix of this document.

### Smart Growth and TOD Development

Comments from public works and planning staff echo the sentiment that Smart Growth and TOD concepts are simply too different from what exists in Marin now, particularly with respect to the quality and frequency of available transit services and the context of past and current development. Be it due to current development demands, market conditions, or policy constraints, the present frameworks and realities of Marin obscure perceptions of what can realistically be built and successful in Marin.

A primary concern is that demand for Smart Growth and TOD is challenged by existing city and county policies. Construction defect litigation issues pertaining to multi-family housing, the demands of CEQA permitting with regard to traffic impacts or parking requirements for higher density projects, and other local and county policies make transit supportive projects difficult to realize.



*Figure B-4.4.1 Constrained rights-of-way prevent the creation of multi-modal roads in many of Marin's major transportation corridors.*



*Figure B-4.4.2 Highway 101 is a major physical barrier to east-west connectivity in the county.*

#### **Tools in this Toolkit that address Smart Growth and TOD development include:**

- LU-1 Density and Intensity
- LU-2 Mixed-use
- LU-E TOD Supportive Land Uses, Zoning, and Urban Design
- UD-1 Site and Project Design
- UD-2 Building Design
- T-1.1 Multi-modal Network of Roads
- T-1.3 Pedestrian and Bicycle Linkages to Transit
- T-3.1 Appropriate Widths for Traffic Lanes
- T-3.9 Enhancing Transit Facilities
- T-4.1 Mobility Needs of Seniors

Additionally, there is broad concern that affordable housing options won't serve the local workforce who these new housing options are intended for

Uncertainty about improving relatively poor existing transit systems and the belief that communities are already mostly built-out are two of the most common reasons given for lack of support for TOD projects. Also, the divisive nature of the politics of growth extends to transit, where some oppose expansion, believing it brings additional growth, while others are opposed, believing there is not the density to support more service.

### Local Public Opposition to TOD-type Development

Another widespread concern among Marin's planning and public works staffs is that even as policy barriers are negotiated away, the climate of public opinion will hinder realization of TOD-type projects. Past projects that have attempted higher densities, even within the range of existing zoning, have come up against significant opposition in public hearings and were only implemented after reducing density. While residents may support transit-oriented development, work force housing, and other higher-density projects as concepts, they are resistant to such projects near their own neighborhood because of concerns about change to the character or quality of life in their community. However, it appears that where mixed-use and higher density projects already exist, there is support for more such projects.

Concerns about the density of such projects and the architectural quality of design are two common sources of public opposition. Worries that multi-family housing will not fit in, in terms of scale, aesthetics, or quality of construction, are frequent.

Foremost among public concerns about new development, and particularly higher density multi-family development, are worries about increased traffic and parking demand. Because of the congestion of Highway 101 and major arteries throughout Marin, there is widespread trepidation about any new development. Residents also worry about demand for on-street parking, both in town centers and on residential streets, and feel that the limited supply of parking is already far over-taxed. The inconveniences and environmental and aesthetic impacts of additional vehicles in Marin are a major source of opposition to any new development, especially higher density housing, despite evidence from MTC showing lower levels of car ownership and usage among residents of TOD.<sup>2</sup>

**Tools in this Toolkit that address local public opposition to TOD include:**

- LU-1 Density and Intensity
- LU-2 Mixed-use
- UD-1 Site and Project Design
- UD-2 Building Design
- T-2.1 Speed Management/Traffic Calming
- T-2.2 Cut-through Traffic
- C4 Parking Guidance
- C-5.2 Development Project Approvals Process

## Transportation Issues

A combination of physical, political, and behavioral issues challenge improvement of Marin's vehicular roadway network. Marin's unique topography results in unusual intersection and constrained roadway configurations. It forces residents of hilly areas to conduct most trips by car and restricts options for connectivity between towns. All of these factors contribute to the funneling of more trips to already overwhelmed arterials and Highway 101. While solutions to many of these problems could be found in roadway redesign or creation of alternative routes, public opposition to local impacts of changing the roadway network often impedes improvements for willing local public works staff.

The particularly high frequency of speeding on local roads, especially around schools, the problem of cut-through traffic, and the high number of cars on many roads of the network are primary concerns for Marin residents. Neighborhoods are concerned that roadway improvements may bring the negative impacts of these behaviors to bear on local streets.

The propensity of Marin residents to drive for all trips, whether because of the hills or simply because of current culture and conditions, impact the viability of and attitude toward transit in Marin. The predominantly north-south orientation of Highway 101 and the east-west orientation of the major arterial network also characterizes the existing transit network. As demand for intra-Marine trips has increased, transit service has remained focused on north-south commuting. A lack of east-west roadway options thereby constrains the travel time of transit service and contributes to low transit ridership. Public perception that transit is not a viable option now, and skepticism about the benefits of transit and TOD are a significant detriment to their future potential. Awareness that improved transit and TOD and PeD tools offer solutions to many transportation problems that concern Marin's residents most could dramatically improve the potential for these solutions.

The focus on automobile transportation in Marin has been at the expense of pedestrian and bicycle travel. City and County staffs recognize that safety and connectivity are both lacking to an extent which significantly reduces the viability of these modes. Poor or nonexistent infrastructure in many areas, particularly across major intersections and Highway 101, results in widespread concern about the safety of pedestrians at crossings and along major auto thoroughfares. Again, the lack of routes alternative and parallel to existing confined rights-of-way channels bicycle and pedestrian traffic to roads already heavily trafficked with automobiles. In many cases, meeting the needs of pedestrians and cyclists, residents, utility and travel infrastructure, and ADA guidelines is impossible within

### Tools in this Toolkit that address transportation issues include:

- T-1.1 Multi-modal Network of Roads
- T-1.2 Bicycle and Pedestrian Non-Roadway Network and Facilities
- T-1.3 Pedestrian and Bicycle Linkages to Transit
- T-2.3 Design of Roundabouts
- Toolset T-3 Multi-modal Arterial and Neighborhood Street Design
- Toolset T-5 Transit, Bicycle, and Pedestrian Access to Schools
- Land Use and Transportation Implementation and Funding



*Figure B-4.4.3 Marin's steep hillsides are a common impediment to walking, biking, and transit, as well as to access by persons with disabilities.*

available right-of-way. Past attempts to address these challenges have met with many policy barriers, including conflicting goals and approaches of different, local, county, and state jurisdictions.

Marin’s Safe Routes to School (SR2S) program has been successful at increasing pedestrian and cyclist safety around schools in Marin. If the SR2S approach could be coordinated between jurisdictions its success could be broadened and its impact on addressing pedestrian and bicycle safety and connectivity around schools intensified. More detail regarding the design and implementation of safe routes to school is provided in Toolset T-5: Transit, Bicycle, and Pedestrian Access to Schools.

**Tools in this Toolkit that address ADA-related issues include:**

- T-4.1 Mobility Needs of Seniors
- T-4.2 Basic Network of ADA Compliant Routes
- T-4.3 References to Other ADA-Requirements Applicable to Public Rights-of-Way
- C-5.1 Land Use and Transportation Implementation and Funding

**Tools in this Toolkit that address funding and staff resources include:**

- LU-E TOD Supportive Land Uses, Zoning, and Urban Design
- UD-E Urban Design of TOD
- T-4.3 References to Other ADA-Requirements Applicable to Public Rights-of-Way
- C-5.1 Land Use and Transportation Implementation and Funding
- C-5.2 Development Project Approvals Process

### ADA Related Issues

Marin’s local jurisdictions struggle to implement ADA guidelines and improvements because of a lack of resources and a lack of flexibility in the guidelines themselves. Some are difficult to implement “to the letter” in Marin’s context because of steep slopes and confined rights-of-way. Some jurisdictions contend that ADA-compliant aesthetics and materials do not fit existing character and improvements in towns and neighborhoods. While Marin’s planning staffs seek to dedicate resources to addressing these issues, they are constrained by funding limitations and their time being dominated by complaints and lawsuits. The latter often force implementation of improvements in a haphazard rather than planned fashion, with a focus on areas that have the highest level of activity and therefore need for such improvements.

While local jurisdictions in Marin are committed to maximizing accessibility for people with disabilities, issues related to Marin’s rural character, steep slopes, and confined rights-of-way often make compliance challenging. The current update of the County Transition Plan will provide much improved opportunities to prioritize and achieve accessibility goals. Increased training and education of planning staff will further contribute to the local jurisdictions’ ability to improve accessibility in the public right-of-way.

### Funding and Staff Resources

Concerns about funding and staff resources are common to discussions of TOD and PeD with Marin staff. Planners and Public Works officials with more knowledge, funding, and time resources would be better able to address ADA improvements, new development types, pedestrian and bicycle planning and other multimodal transportation planning and improvements. Too often, however, staff is overburdened by low staff resources, a cumbersome project process, and lengthy project-by-project discretionary review,

making it unable to approach larger coordinated planning efforts or undertake valuable collaborative public processes that improve the results of planning efforts.

### Coordination Between Marin’s Jurisdictions

As many of these challenges to TOD and PeD are related to transportation corridors that pass through multiple municipalities in Marin, they could be addressed more efficiently if addressed jointly and cooperatively. In transit and capital improvement projects on corridors that connect multiple jurisdictions, Public Works directors try to assign a single project manager to oversee the improvements for all. Similar coordination has not been realized in land use planning or the project approvals process, however. Regular sharing of knowledge and resources, similar to the effective model exemplified by Public Works directors cited above, could cut down on multiple jurisdictions doing the same work, and help to create more unified vision, goals, and policy, which would avoid time consuming conflicts and streamline multiple similar projects.

#### ***Tools in this Toolkit that address coordination between Marin’s jurisdictions include:***

- County-wide use of tools from TPLUS Toolkit to address TOD and PeD related projects and improvements
- C-5.2 Development Project Approvals Process

#### ***Safe Routes to School: A Marin County Success Story***

Marin’s Safe Routes to School Program has become a national model for how grassroots activists and City Staff can work together to improve safety, address traffic concerns, and create a healthier environment and community. For more about Safe Routes to School in Marin, see section C-3.5.

## Chapter Notes

<sup>1</sup> Scott, The San Francisco Bay Area. p.238

<sup>2</sup> US Census Bureau, 2000 Census.

<sup>3</sup> US Census Bureau, 2000 Census.

<sup>4</sup> US Census Bureau, 200 Census; 1970 Census.

<sup>5</sup> In regional studies involving Marin county, “near transit” refers to those areas shown on the Marin Transit Zones Map, Figure B-2.1.

<sup>6</sup> *Hidden in Plain Sight: Capturing the Demand for Housing Near Transit*, Center for Transit-Oriented Development, April 2005

<sup>7</sup> *Transit-Oriented Development Demand Analysis*, San Francisco Bay Area Metropolitan Transportation Commission, July 2005

<sup>8</sup> *Preserving and Promoting Diverse Transit-Oriented Neighborhoods*, Center for Transit Oriented Development, August 2006.

<sup>9</sup> ABAG Projections 2005

<sup>10</sup> ABAG Projections 2005.

<sup>11</sup> The MTC projections do not account for supply in the sense that they do not project based on the desirability or quality of Marin’s existing or proposed transportation systems. They do however, build from the percentage of the population that currently lives in transit planning areas within Marin and make projections based on the those numbers. The basic assumption guiding this methodology is that the transit planning areas in Marin will capture the same share of each household type/age group in 2030 that they captured in 2000. The only exception to this rule was that households with headed by a person age 65 and older were assumed to have an increased preference for living near TOD. This, alone, results in a conservative estimate. As well, the demand estimate may increase further if more stops or additional lines were added in the future.

<sup>12</sup> *Transit-Oriented Development Demand Analysis*, San Francisco Bay Area Metropolitan Transportation Commission, July 2005

<sup>13</sup> *PROPDEV 41: Semi-Annual Proposed Development Survey*, March 2006. This is the forty-first in a series of surveys of proposed development projects in Marin County. The survey includes information on project locations, size, sponsor and the status of the project. *PropDev* surveys inventory projects that are proposed, approved, under construction or constructed in the last year. Residential projects must contain five or more units and commercial projects must have 5,000 square feet or more to be counted.

<sup>14</sup> Unknown projects represent projects without proper addresses which could not be attributed to a specific jurisdiction. Some jurisdictions, including Ross and Belvedere, had no projects in the development pipeline at the time of PropDev 41.

<sup>15</sup> *Marin County Real Estate Report* by Vision Real Estate, July, 2006.

<sup>16</sup> Figures assume a 7.5% interest rate, 30 year amortization period and that the payment amount is 30% of the homeowner’s income. These figures do not include property taxes or insurance.

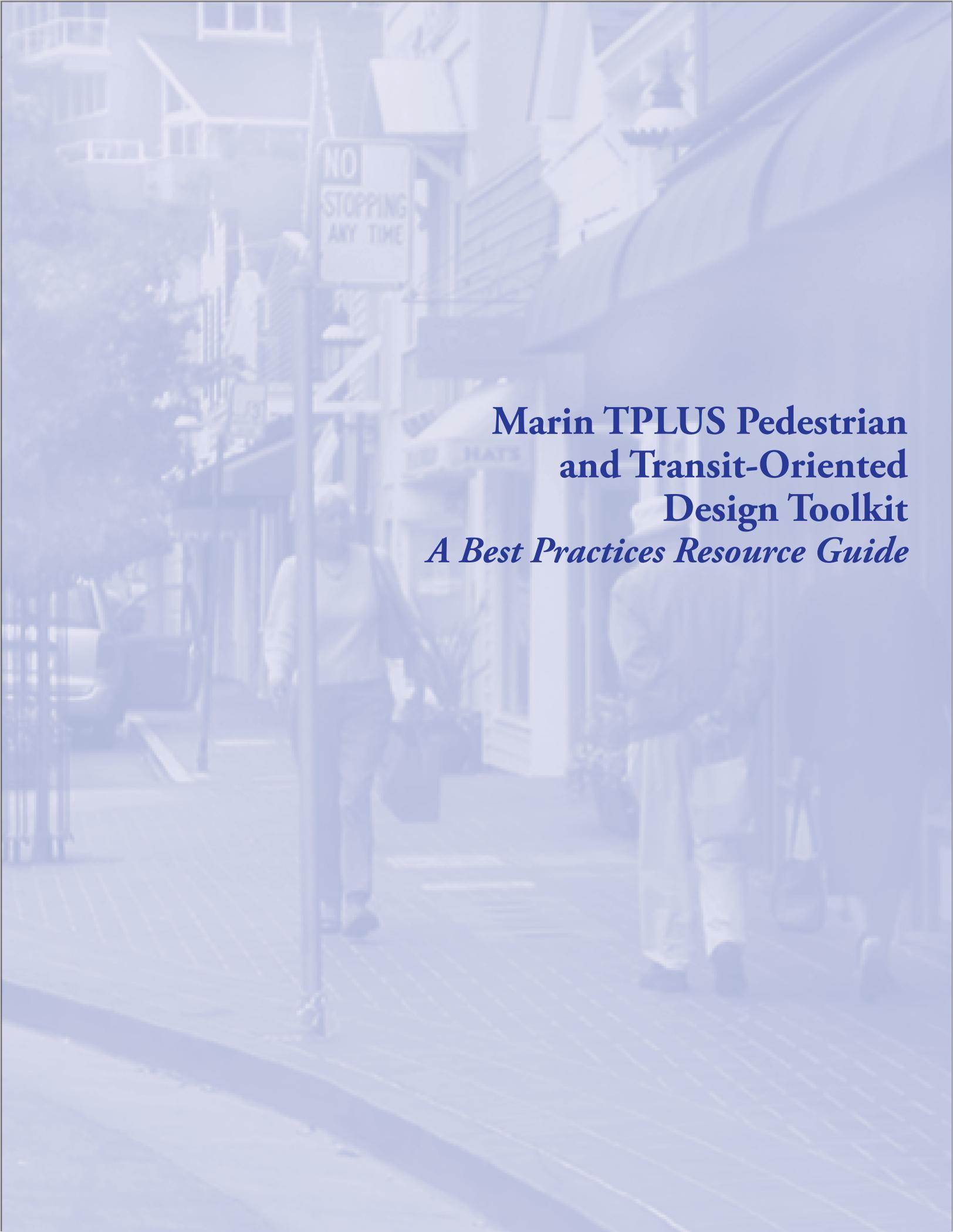
<sup>17</sup> Source: Commute Profile 2001; RIDES for bay Area Commuters, Inc.

<sup>18</sup> Source: *ibid.*

<sup>19</sup> Source: Marin Traffic Model, 2001

<sup>20</sup> Countywide Plan, Built Environment - ‘Key Trends and Issues’, page 3-3

<sup>21</sup> SMART awaits passage of a ballot initiative approving a sales tax that would support implementation of SMART commute rail service. The ballot initiative is expected to be voted on in November of 2008.

A blue-tinted photograph of a city street scene. In the foreground, a woman in a light-colored sweater and dark pants walks towards the camera. To her right, a man in a light-colored jacket and pants walks away from the camera. Further right, a person is pushing a stroller. In the background, there are buildings, a street sign that reads "NO STOPPING ANY TIME", and a car. The overall scene is a typical urban sidewalk.

**Marin TPLUS Pedestrian  
and Transit-Oriented  
Design Toolkit**  
*A Best Practices Resource Guide*





# C. Toolkit

## C - I. Toolkit Introduction

The TOD and PeD tools of this toolkit respond to challenges and issues found in discussions with planning staff of local jurisdictions, elected officials, and professionals,

### *Toolkit Organization*

The Marin TOD/PeD Toolkit is organized into four sections:

#### **C-2. Land Use and Urban Design Guidance**

Outlines TOD/PeD-supportive land uses, land use mixes, and (target) land use density ranges for different Marin place types, advances walking, bicycling, and transit as alternative transportation choices, and provides key tools to create built environments that are compact and scaled to be supportive of walking, bicycling, and pedestrian activities.

#### **C-3. Multi-modal Streets and Circulation Networks**

Discusses and provides concrete tools on how existing circulation networks can be improved to provide better connectivity for pedestrians and bicyclists, and how neighborhood and arterial streets can be turned into streets that function well not only for automobiles but for pedestrians, bicycles, and transit.

#### **C-4. Parking Guidance**

Addresses alternative approaches to accommodating parking needs in TOD/PeD environments.

#### **C-5. Implementation and Funding Guidance**

This final section of the toolkit lists a series of short-, mid-, and long-term implementation steps associated with recommendations contained in the toolkit, and provides an overview of TOD/PeD funding sources available to Marin County and local agencies.

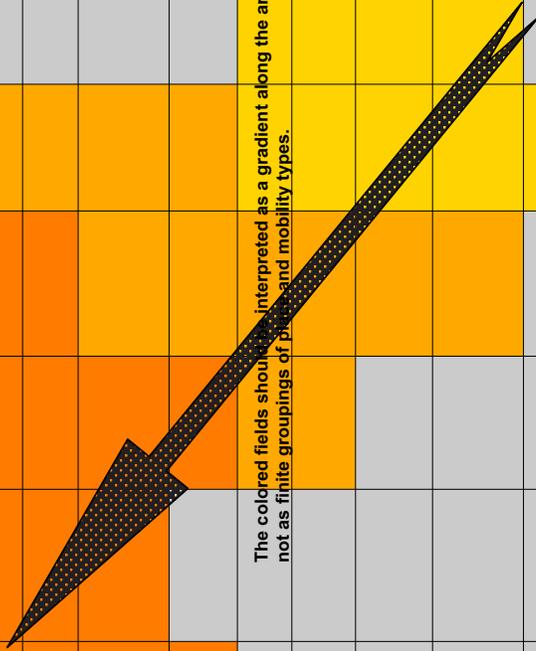
## *How to use the Toolkit*

The Place Types/Mobility Matrix (on the following page) is intended to direct the toolkit user to design and planning tools applicable to the user’s location and needs. Listed on the Y-axis of the matrix are key Marin place types for which the content of the toolkit has immediate or future applicability. These place types refer to general development patterns and intensity rather than to a specific status of incorporation. The X-axis across the top of the matrix differentiates between different transit mobility types. The transit mobility types were chosen as an organizational element of the matrix as the availability of certain transit services closely correlates with land use intensity levels and therefore potential pedestrian (and bicycle) activity levels. The colors and recommendations are meant to suggest a conceptual intensity of the applicability and effectiveness of tools. The colored fields of the matrix should not be interpreted as a “hard” delineation of applicability but rather as a gradient along the arrow, which indicates a continuous increase in the intensity and extent of the suggested transportation, land use, urban design guidance provided in the various sections of the toolkit. Each jurisdiction or toolkit user may find tools of value to a particular challenge or context, and the hope is that larger and more multi-modal jurisdictions will find more tools valuable to their needs and more value in each of the tools.

For example, a jurisdiction such as Point Reyes Station or Sleepy Hollow might consider ways to improve pedestrian and bike connectivity to surrounding and distant activity centers through tools such as pedestrian non-roadway connections. Corte Madera, on the other hand, might consider these same tools in some areas, as well as tools related to access to transit, connectivity across Highway 101, and some parking tools. Much of the TOD-focused tools and parking guidance may be most applicable to San Rafael and Novato, however, these same concepts and tools are useful in the more dense blocks and major local streets of downtowns of a variety of sizes throughout Marin.

Table C-1: Place Types/Mobility Matrix

Place Types (Y)	Place Type Characteristics	Transit Mobility Types (X)							
		Commuter Service	Multiple Transit Services	High-Frequency Bus/BRT	Local/Secondary Bus Services	Express Bus	No. or Minimal Transit Service		
City	Highest Ped Activity	"Downtown" Center (includes Large Employment Centers and Regional Retail Centers)	Fixed-route heavy or light rail (1/2-mile station areas)	Transfer stations and/or hubs (bus only?) (1/3-mile station areas)	15-minute headways max. (1/4 to 1/3-mile station areas)	Peak and off-peak service (1/4-mile stop areas)	Peak-hour service only (no discernable station area)	No or minimal transit service.	
	Town	Medium/High-Density Neighborhood (multi-family)	Residential with sporadic local-serving retail	Larkspur Ferry Terminal; Tiburon Ferry Terminal; Sausalito Ferry Terminal	Downtown San Rafael; Novato and Marin City centers	Miracle Mile, San Rafael-San Anselmo, East Francisco, SR-Canal	lots of examples	Current: Local pickup areas. Future service could focus on Park-and-Rides.	lots of examples
		Mixed-Use Corridor	Residential w/local- and community-serving retail	Examples					
		Town Center (includes Small Employment Centers and Clusters of Groceries & Services)	Mixed-use, high density residential and/or office	Downtown San Rafael; Downtown Novato Specific Plan					
		Medium-Density Neighborhood (Townhomes, Small-lot single family)	Residential with sporadic local-serving retail	Neighborhoods around Downtown San Rafael					
		Local-Serving Commercial Corridor	Residential w/local- and community-serving retail	Sr Francis Drake in San Anselmo, Bridgeway in Sausalito					
		"Main Street" Village Center	Mixed-use, high density residential and/or office	Midsized downtowns: San Anselmo, Mill Valley					
		Low/Medium-Density Neighborhood (single-family detached—small and medium lots)	Residential with sporadic local-serving retail	Periphery or many larger towns and cities, including San Rafael, San Anselmo, etc.					
		Suburban Corridor	Major roads passing between neighborhoods	Miller Ave., Mill Valley					
		Rural Center/ "Crossroads"	Small scale retail/mixed-use	Fairfax, downtown Tiburon					
Lowest Ped Activity	Low/Rural Density Neighborhood (large lot single-family)	Low-density residential							
Rural	Rural roads w/ little to no development	Various hilltop high-density residential pockets, such as Donahue Dr., Marin City, Eliseo Drive area, Larkspur							
		All West Marin towns.							
		Ross, Sleepy Hollow, Bel Marin Keys, Peacock Gap							
		Most of West Marin							



The colored fields should be interpreted as a gradient along the arrow and not as finite groupings of place types and mobility types.

**Tool Applicability**

Tool use should focus at community crossroads and other destination areas where, once arrived by car from surrounding low density areas, tools can increase safety, comfort, and desirability of walking between uses.

Tools focus in areas of existing activity and opportunities to connect neighborhoods and surrounding uses to these active areas. Comprehensive application of tools, through policy adoption, specific plans, interjurisdictional cooperation, can result in transformation of the transportation and land use patterns in ways transform quality of life in these areas.

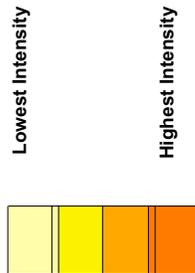
High applicability of tools in all areas in and around these transit and amenity rich downtowns and bustling centers. Tools can increase the viability of walking, biking, and transit for realizing all daily trips.

**Transit and Pedestrian Resources and Activity Level**

Places with minimal or no transit service and very low pedestrian activity, including rural and very low density areas.

Places with regular and high frequency bus service and access to other transit services and pedestrian walkability to town and city resources.

Places with high level of bus and transit services and high pedestrian activity, such as "downtown" centers.



**Lowest Intensity**

**Highest Intensity**

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## C - 2. Land Use and Urban Design Guidance

In order to achieve the full range of benefits associated with implementing TOD and PeD, multi-modal transportation improvements (discussed in section C-3.3 of the Toolkit) should be accompanied by and occur simultaneous to a complementary approach to land use planning and design of individual development projects at the site, building, and detail level. The land use and urban design guidance section of the toolkit provides some recommendations with respect to these aspects of TOD and PeD.

### C-2.1 Toolset LU: Land Use Guidance

Following is a series of recommendations with respect to land use planning at the community center; neighborhood, district, or station area; and corridor scales, which correspond to the second tier of place types on the place types/mobility matrix:

#### Community Center Scale:

- Conceive of a “community structure” that creates a pattern of walkable, bikeable, and transit accessible districts, neighborhoods, corridors, and centers that work with the community’s patterns of open space and topography – as well as patterns of existing development and its transportation network;
- Match residential densities and land use mixes to available transportation resources;
- Coordinate land use and transportation planning with neighboring communities;
- Allow for local-serving commercial uses to be located within designated nodes in predominantly residential areas;
- Cluster civic facilities, such as libraries, community centers etc. on transit corridors and in locations easily accessible by walking to produce a synergy with retail and service uses in the area in order to create an activity node; and,
- Consider protection of environmental features in the land use decision-making process (i.e. stream crossings, riparian corridors, topographic features).

#### Neighborhood, District, or Station Area Scale:

- Zone for mixed-use development in currently single-use employment and retail districts;
- Reduce parking requirement for transit station areas;
- Create networks of connected sidewalks and optimize bicycle access (see Multi-modal Streets section of Toolkit);
- Create a network of streets to allow for more convenient walking and bicycle access – distance between intersections, mid-block crossings, or pedestrian/bicycle pathways should not be more than 500 feet;
- Create a strong identity for districts and station areas by incorporating and building on elements important to the community such as a particular open space, natural features, such as creeks, or an important building or structure;

- Identify development or revitalization opportunity sites in close proximity to transit amenities that are likely to catalyze further reinvestment in the area;
- Provide public plazas and greens as gathering places within the fabric of districts and neighborhoods;
- In most instances maintain a consistent use and thereby scale of development on both sides of a street – make significant land use changes at mid-block; and,
- Provide variety of use along a street at walkable distances – no more than 1/2 mile from any point along a corridor to a mixed-use node for example.

## Corridor Scale:

- Identify corridors suitable for transit;
- Design selected multi-modal corridors to become “seams” and not “dividers” by orienting uses towards, rather than away, from the street and by making it convenient and safe to cross the street;
- For those corridors that remain more auto-oriented, provide pedestrian and bicycle access from adjacent areas to the uses that front onto the corridors – allow the auto-oriented corridors to become edges of districts and neighborhoods that are easily “crossable” to development on the other side of the street;
- Cluster retail, service, and civic uses into nodes or segments to focus pedestrian activity and building intensity;
- Design corridor nodes and segments to reflect their context, while carrying through an overall corridor identity;
- Increase commercial, mixed-use, and residential densities in proximity to high-frequency transit service;
- Incorporate environmental features into corridor design (i.e. stream crossings and riparian corridors);
- Provide high quality public capital improvements along key corridors where this can create an incentive for corresponding high quality private investment; and,
- Provide transit facilities appropriate to the level of service provided (i.e. standard amenities with local bus service and enhanced (branded) “stations” and other amenities with high frequency/express bus services).

The above recommendations provide guidance with regard to the applicability of land use and urban design tools to place types.

Automobile parking standards associated with a given development project or use have a critical impact on a variety of project characteristics, including the possible density of residential units or other land use that can be achieved on a lot under applicable zoning standards, available open space, the length of building frontage, and the project’s financial feasibility. Because of their importance, parking policies are therefore addressed in a separate sub-section at the end of this section.

The following case studies highlight two mixed-use projects that include relatively high density and levels of activity and many high-quality urban design considerations, factors that contribute to their success. The Novato Whole Foods project, in the development process at the time of publishing this document, embodies much of the guidance provided in this Toolkit. This has resulted in broad support from the public. The Eighth and Pearl example, from Boulder, Colorado, also follows many of these recommendations on development scale and context. This sensitivity to existing context, and the physical conditions of Boulder are quite similar to conditions in many of Marin's smaller downtowns and commercial centers.

### Case Study: Mixed-Use Whole Foods, Novato CA



*Figure C-2.0.1 The new Novato Whole Foods project will focus on connectivity to downtown and surrounding transportation corridors.*

The Whole Foods development planned in Novato is an excellent example of a high-quality mixed-use development involving an anchor tenant that capitalizes on synergies with the existing pedestrian realm and downtown environment of Novato. The City of Novato has successfully negotiated with the Whole Foods Corporation and the developer Signature Properties to create a multi-story building that will contain a 53,675 square foot grocery store, 125 residential housing units, and a 387-space parking structure within downtown Novato.

This project is a model in the way it addresses the relationship of land use and a wide array of transportation needs. In order to accommodate density and provide a resource to the city, the developer negotiated a shared parking agreement between Whole Foods and the city of Novato. Parking spaces dedicated to Whole Foods during the day become public spaces, available to

residents and visitors, in the evening, helping to make up for a shortfall of parking spaces per dwelling unit. A priority in the design was the creation of good pedestrian and local transit access from Scott Court, Reichert Avenue and Grant Avenue, thoughtfully integrating transit and pedestrian connectivity.

High-quality design is critical to careful addition of density into an existing downtown context. By articulating the building to look like three smaller buildings, the architects have given the project a smaller, more human scale and effectively mitigated many negative impressions that people have regarding density or larger-scale developments. Additionally, the architects have effectively reduced the perception of the mass of the building on the street by creating a series of step-backs on DeLong Avenue. This design element prevents the building from feeling overwhelming to pedestrians. Parking is located in the middle of the building within a structured parking garage, where it will be screened by housing units, allowing for a more significant contribution to the public realm; instead of seeing parking spaces, pedestrians will have the friendlier façade of housing units and retail to look at.

Finally, the Novato Whole Foods development is a prime example of good infill density and TOD because of the role that it will play in catalyzing further development in the existing downtown.



*Figures C-2.0.2 and C-2.0.3 Novato Whole Foods mixed-use development. (Source: Signature Properties)*

### Case Study: Eighth & Pearl, Boulder, Colorado



Figure C-2.0.4 Corner of 8th and Pearl



Figure C-2.0.5 Each rowhouse is designed with a face to the street and small raised dooryards provide a connection to the landscaping.



Figure C-2.0.6 Facade changes are used to differentiate the retail and residential components of the project, creating a sense of several small buildings rather than one large one.



Figure C-2.0.7 The 8th and Pearl streetscape.

This project is a prime example of a small-scale, mixed-use infill development on a small parcel within an existing neighborhood. As many of Marin’s town centers are built out and have already established a character, new development will need to be context-sensitive, while contributing new amenities to the community. This development managed to successfully strike this balance in a context that is similar to many Marin communities.

Built on an 18,300 square foot site formerly occupied by a gas station, Eighth and Pearl was one of the first mixed-use projects in Boulder’s West End. The area, situated between the city’s oldest historic residential neighborhood and the also historic West Pearl commercial district, was a sensitive site for development because new construction had to blend into and complement the two existing historic districts. To do this, the designers worked within the 35-foot height limit of the historic residential district and within the existing context of 25-foot lots prevalent throughout Boulder to create a building that reflects the physical character of its surroundings. While designers maintained two stories throughout the development, they added a roof deck on top of the building that is stepped back 20 feet from the property line to cleverly deliver more public open space to the project. The building uses tumbled brick and façade changes to mimic the appearance of several buildings on small lots and helps to break up the scale and massing of the project.

By using a floor area ratio bonus of 1:1, up from .67:1 due to inclusion of residential units in the project, the architects were able to design 18,300 square feet of retail, office and townhomes. The Eighth and Pearl project contains 5 residential units totaling nearly 7,000 square feet, 6,300 square feet of office use, and 5,000 square feet of commercial uses. It houses local businesses including architecture offices and a bakery and café.

The project includes 40 parking spaces on the site. By taking advantage of the site’s natural grade changes, the design team buried 28 of the parking spaces into the hill and built two stories on top of the parking level. The development team used tandem parking spots for the office and residential units and allowed their retail tenants to have unassigned customer parking spaces as well as rely heavily on on-street parking.



Figure C-2.0.8 Public spaces, stepped back from the street, reduce the mass of the building and create inviting places for people.



Figure C-2.0.9 The corner of 8th and Pearl anchors the street and creates an active and attractive pedestrian realm.

## Tool LU-1: Density and Intensity

A key component of successful transit and pedestrian-oriented development is to ensure that both the land uses and the format and appearance of development contribute to the compactness and high quality of design necessary to create vital places. Density and intensity are key ingredients in the creation of walkable centers and neighborhoods.

People walking through or spending time in an activity center generate street life, making a place bustling and exciting to spend time in and providing customers to businesses. When local residents live close enough to activity nodes to walk, they create pleasant small-scale, human-centric places that are not diluted by acres of parking. Additionally, the efficiency of bus and other modes of transit depends upon the number of potential riders within a reasonable walking distance of stops: the more spread-out that residential and employment development is, the more expensive and less convenient transit becomes.

Marin has a number of sites of relative high density and intensity. While many of Marin's traditional downtowns and centers might not be considered high density in comparison to larger cities, what is more important is that they are the centers of activity for surrounding areas. Activity centers including Point Reyes Station, Ross, or even some of Marin's more significant shopping centers serve as hubs of activity and are, compared to what surrounds them, the more dense locations. In these contexts, transit stops and amenities of any scale can be located at the critical nodes of this activity to reinforce the activity and identity as a center, and to capitalize on it by linking it to surrounding locations via transit. This context-sensitive definition of density and intensity can protect the existing character of Marin's downtowns, as defined by the height, bulk, and articulation of their existing development, while at the same time encouraging TOD and PeD and multi-modal connectivity between them.

Increasing activity in existing centers then, will have the effect of making these locations more appealing destinations for transit riders to come to and depart from on a regular basis, and for new businesses and housing as a result. New businesses seeking to open in Marin will be more likely to locate in these downtowns, major corridors, and centers, infilling into existing activity centers to concentrate new development in areas where people prefer it. Rather than locating in fringe areas or far away, businesses, entertainment, activity, and new housing will concentrate in the already developed walkable and transit-connected higher intensity locations. Similarly, increased activity will support existing retail and services.

### Related Principles:

P1 P2 P3 P4 P5



*Figure C-2.1.1 Higher-density housing has a bad reputation because of the many poor examples we are familiar with.*



*Figure C-2.1.2 Higher density housing can be attractive, such as Chandler's Gate in Tiburon.*

### Related Tools:

*Tool LU-2: Mixed Use*

*Toolset UD: Urban Design Guidance*

*Toolset P: Parking Guidance*



*Figure C-2.1.3 The Mission/Lincoln project in San Rafael is a new condominium project which will have a density of over 50 units to the acre.*

## Regulatory Approaches to Densification or Zoning and Planning:

Regulatory approaches, implemented through zoning or planning efforts, allow jurisdictions to incentivize particular development characteristics by providing developers with desirable benefits in exchange for a public good. For example, such approaches have been used to encourage affordable housing and mixed use development. They can also be used to encourage development of a particular site or area within a jurisdiction. Just as these regulatory approaches can be used to achieve policy goals, i.e. affordable housing, they can also impact the physical design of a project by granting certain accommodations to developers who design their projects in a certain way. The regulatory tools discussed in this section are: Incentive-based zoning (Density Bonuses); Benefit Assessment Districts; Expedited Permitting; and Brownfield Redevelopment.

Implementing programs similar to the following would help Marin’s jurisdictions to encourage the careful and sensitive addition of density and intensity into their existing activity centers.

## Best Practice: Draft Miller Avenue Precise Plan, Mill Valley's Plan for Sustainability



Mill Valley has been proactive in supporting a higher-intensity, pedestrian- and transit-friendly environment for the core of its downtown and neighborhoods through the development of the Miller Avenue Precise Plan (this effort is still ongoing). Miller Avenue, like many major arterials in Marin, is constrained by topography and existing uses, and passes through a variety of different types of centers and neighborhoods. It also is Mill Valley's most prominent transit corridor. The *Draft Miller Avenue Precise Plan* takes this into account through context-sensitive land use and design solutions for each of four identified areas. However, while providing sub-area specific recommendations, the plan espouses the same priorities throughout the corridor: environmental and economic sustainability and community balance as its primary goals through an emphasis on civic and pedestrian activity, mixed-use and infill development, and a wide array of land use and transportation goals. The plan sets design and development guidelines which will maintain the character of the community in terms of building uses, massing, and style, but allow for increased density and encourage new development through a range of creative solutions from design to parking solutions, such as shared parking and required bike parking, to improved local and regional transit. The plan is an excellent example for locating pedestrian improvements and denser development where the highest levels of pedestrian activity and transit service are encountered in the community. Through its affordable housing overlay zone, it also provides incentives for attracting new riders to transit and therefore the reduction of vehicle miles traveled. The City of Mill Valley is working to strengthen the link between land use and transportation through the plan.

### Notable aspects of the *Draft Miller Avenue Precise Plan* include

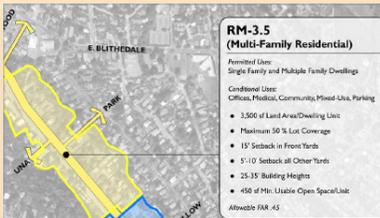


Figure C-2.1.4 Increasing residential density in appropriate transit and amenity rich areas, and creating housing opportunities for people of all income levels are important goals of the plan. (Source: Miller Avenue Strength and Opportunities Report)

#### *Fosters social sustainability:*

- Increased residential densities in transit-amenity rich areas
- Fast track permitting for projects that include affordable housing and suggestion of an overlay zone to allow higher densities for affordable housing.
- Local transit is under consideration to fill the gaps in county-wide and regional public transit systems
- Making bus stops more efficient
- Encouraging biking and walking



Figure C-2.1.5 The plan is focused on improving conditions for pedestrians, bicycles, and transit in the downtown area. (Source: Miller Avenue Strength and Opportunities Report)

#### *Encourages a more pedestrian and bicycle friendly downtown:*

- Encourages shared parking to decrease valuable downtown space dedicated to the automobile
- On-street parking along a building's frontage counts toward fulfilling parking requirements
- All new structures and uses require bicycle parking to encourage bicycle use

### Incentive-Based Zoning and Entitlement:

Jurisdictions can use incentive-based zoning to meet certain housing goals or encourage new development to locate in transit and pedestrian-oriented locations by offering rewards, like density or floor-area bonuses, to developers who meet these objectives. California has a state legislated affordable housing bonus, which allows developers to build at higher density in projects where affordable units are included. Notably, this bonus is calculated as a percentage of total units, including other unit bonuses that may result from local policies. Many localities and some states offer incentives as part of their joint development or TOD programs. Incentives typically require less up-front planning work than a station area plan, though can encompass an equally large area, and they can be more effective in a political environment in which policymakers are apprehensive about requiring mixed use projects.

#### Best Practice: Encouraging Mixed Income TOD: Massachusetts 40R Incentive-Based Zoning

The state of Massachusetts recently adopted an innovative transit-focused zoning and funding package called 40R that provides incentives for developing TOD. This state law provides for direct payments to municipalities that adopt smart growth overlay zoning districts in downtown, commercial centers, and around transit stations and issue building permits in these areas to create new opportunities for housing. The Zoning Incentive Payment is based on the number of net additional housing units allowed by newly adopted zoning. Density bonus payments are tied to the issuance of building permits for new housing units. A payment of \$3,000 is made to the municipality for each new unit that is permitted. Municipalities can use these payments to help subsidize necessary public improvements that support the project.

An affiliated state law, Massachusetts 40B (also known as the Anti-Snob Zoning Act), encourages the development of affordable housing in communities that currently lack economic diversity by allowing developers to apply for expedited permit review processes when building in these areas. It also allows developers to appeal local government decisions about permits and allows the developers to build affordable housing at greater densities than is allowed under local zoning codes. To be eligible to use 40B, the affordable homes in the development must be eligible for a state subsidy from either of two state housing agencies, which typically means that at least twenty-five percent of the units must be affordable to low- and moderate-income households. This program has helped spur construction of hundreds of new TOD units.

#### Marin County: Local Transportation for Livable Communities/Local Housing Incentive Program

Marin County's Transportation Authority (TAM) has launched a pilot program that works in conjunction with regional programs administered by the Metropolitan Transportation Commission (MTC) and is aimed at providing incentives for local municipalities to develop high-density and affordable housing near transit.

During the eighteen month pilot funding cycle, \$970,000 in grant funds was available and individual grants ranged from \$150,000 to \$500,000. TAM provides grant funding to local municipalities that approve the development of dense housing near transit in their jurisdictions. The grant amount operates on a sliding scale and as densities and the level of affordability increase, so does the amount of funding for which a project is eligible. For example, a project with twenty units to the acre containing 48 units for extremely low income individuals would earn a grant of \$3,100 a unit and a project at 60 DUA with 33 extremely low income units would earn an award of \$4,600 a unit. Funding approvals for the program are staged so that after receiving a noncompetitive allocation from the Local HIP, then the project is required to meet the Local TLC program guidelines that governs the attributes of the transportation element. This structure allows for flexibility since transportation projects do not need to be fully defined until the second phase of the process.

Local governments who receive funding from TAM use the capital grants for transportation improvements that support the developments. Typically, these funds have been used to construct pedestrian and bicycle facilities that help to physically connect the housing development to transit and adjacent amenities. Sidewalk, crosswalk and streetscape improvements to support bicycle, pedestrian and transit activities are also common uses for the funds.

## Expedited Permitting

Expedited permitting works similarly to zoning incentives in that it is a tool that accelerates a development through the entitlement process in return for meeting certain use or design considerations. Because developers devote considerable time and resources to obtaining entitlements and entitlement risk is difficult to mitigate, permit expedition is valuable to project sponsors.

### Best Practice: Austin SMART expedited permitting

In Austin, Texas, the city has created a special program to promote affordable TOD. The SMART (Safe, Mixed-Income, Accessible, Reasonably-Priced, Transit-Oriented) Housing program provides development fee waivers and expedited permit reviews to TOD projects with affordable homes. In this case, affordability is defined as affordable to households earning 80 percent or less of Area Median Income (AMI).

The average completion time for SMART Housing reviews was approximately half of conventional reviews. The city brought together many city departments to both fund the fee waivers as well as consider the impact of zoning and other regulatory processes on affordability. Among the fees waived are zoning, site plan, subdivision, building permit, construction inspection and capital recovery. During the first three fiscal years of the program, Austin waived over \$3.5 million in fees for SMART Housing developments. These waivers are done on a sliding scale.

If a builder makes this portion of a building reasonably-priced units:	The City of Austin provides fee waivers of:
10%	25%
20%	50%
30%	75%
40%	100%

Source: *Tools for Mixed Income TOD, CTOD, August 2006*

### Marin County: Expedited Permitting

Marin County has an internal policy of fast tracking affordable/TOD developments by giving first priority review to those projects. County officials estimate that this saves approximately three to four months in the permitting process. The County also waives all building and planning application fees for affordable housing and provides technical assistance to affordable housing developers. In addition, they give extra consideration to affordable housing projects located within a quarter mile of transit by reducing the project's parking requirements by 30% and allowing developers to consider tandem or off-site parking alternatives.

The City of Larkspur also acknowledges the need to incentivize affordable housing development by offering priority processing for projects that provide more than the required amount of affordable units. Larkspur city planners are empowered by their Housing Element to fast track these applications onto the Planning Commission calendar and even set up special Planning Commission public hearings to aid in expedited processing. The city of Larkspur also waives or defers processing fees for these projects if necessary to the project's financial feasibility.

## Benefit Assessment Districts

Benefit Assessment Districts provide special services—for example, water, parks, transit—to residents of a defined district in return for a revenue assessment. They are one way in which developers and landowners can invest in transit infrastructure with the expectation that it will increase the value of their properties. Typically these districts pay some of the up-front cost of the transit investment itself or provide funding for longer-term maintenance and capital expenditures.

### Benefit Assessment Districts – Portland’s Pearl District

Portland’s Pearl District offers an example of how Benefit Assessment Districts can help fund priority transit oriented development projects. In the mid-1990s, the City, local community members and property owners created a community plan and vision for the area. Property owners formed a benefits assessment district to support the construction of a new streetcar line circulating through the Pearl District. Under the guidelines of the district, property owners levied additional taxes upon themselves and allocated the proceeds toward the construction of the streetcar. While the assessments themselves were limited to helping build the streetcar line, this critical improvement led to the creation of an urban renewal plan, use of zoning incentives and Tax Increment Financing to spur higher density development, income mixing, achievement of affordable housing goals and the creation of a vibrant district.

### Marin County: Rafael Theater

Old theaters are often anchor buildings for downtown business districts and these districts are typically where the highest level of transit service in an area is available. Because of this correlation, the revitalization of theaters and downtown areas can ultimately support transit by invigorating the area and generating a ridership base among new residents, whose trips originate from the area, as well as from people who are drawn to the area as an attractive destination.

The Rafael Theatre is a historic theatre in downtown San Rafael that has survived several fires, an earthquake and finally wound up vacant in the late 1980s. At this time, the San Rafael Redevelopment Agency sought an operator for the theater because they wanted to encourage activity and life downtown. The Redevelopment Agency negotiated an agreement with the Mill Valley Film Festival to operate the site and then issued friendly condemnation proceedings on the property owner. The owner sold the property to the Redevelopment Agency who then sold it to the Mill Valley Film Festival. The terms of this sale were contained within a Development and Disposition Agreement. The Film Festival group agreed to operate the property as a theatre for 40 years and would not have to pay for the property unless they sold or ceased operations before the term was up. The Film Festival group then independently raised \$8 million to renovate and reconfigure the theater to hold 3 screens and 835 seats.

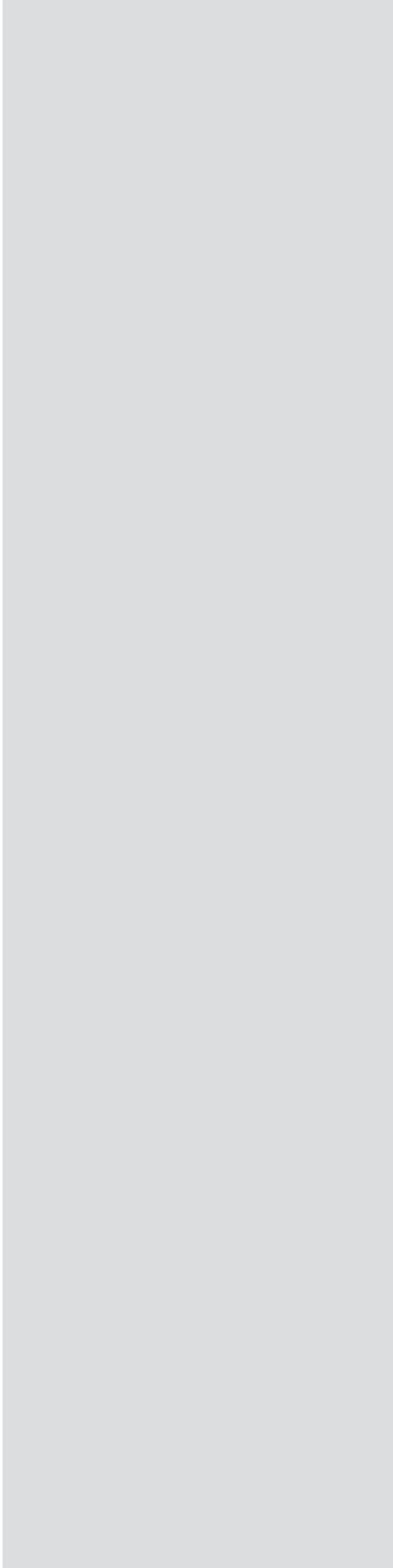
## Brownfield Redevelopment

Oftentimes the last large development opportunities within reasonable distance of the center of urbanized areas are on land formerly home to industrial uses that left the properties contaminated with various toxic substances. While liability for environmental contamination is an obstacle to infill development and reusing previously developed parcels, there are numerous programs and laws that can assist local government and developers in reducing the risks of remediation costs. These include the following:

- The State of California has several programs, including the Voluntary Cleanup Program and the Expedited Remedial Action Program, which limit the risk of liability once a landowner has cleaned a parcel. Other state-level actions include lender-liability protection legislation and Prospective Purchaser Agreements.
- Several private insurance companies offer environmental insurance policies that limit the financial risk of liability for environmental contamination

The Federal and state governments have programs that provide funds to assist developers and local governments to clean contaminated parcels. For example, at the federal level, the Environmental Protection Agency and Departments of Housing and Urban Development, Health and Human Services and Transportation all have funding or financial programs available for brownfield clean-up projects. The State of California recently established a new assessment and low interest loan program called Cleanup Loans and Environmental Assistance to Neighborhoods – or CLEAN – that helps speed up cleanup and redevelopment of urban brownfields.

**TOOL LU-1: Density  
and Intensity**



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## Tool LU-2: Mixed Use

While density and design are important components of transit-oriented development, for TOD to be truly successful, a mixture of uses within a node activates the area, creates efficiencies for transit and conveniences that reduce automobile trips. Though not every stop or station served by transit will achieve sufficient density to support retail, designated activity centers need retail to become active places. Most critically, walkable commercial districts are greatly benefited by second and third story housing or employment, or higher density housing or employment nearby. It is not always necessary to achieve this mixture of different uses vertically within single development projects. Horizontal mixed use, or different uses located next to one another as in many of Marin's smaller downtowns can also create a desired mix of activities.

Sensitive integration of neighborhood-oriented mixed-use retail into largely residential neighborhoods can help decrease vehicle trips for daily needs and services, promote walking and biking, and create community social spaces. A mix of uses also works to create an active street life in the neighborhood because when varied elements are present, synergies between land uses begin to emerge. Workers can walk to a restaurant for their lunch break and cafes and parks become neighborhood-gathering spots. Converting Marin's existing conventional strip retail centers into denser mixed-use centers connected by transit can achieve this same effect by encouraging people, having arrived by car, to walk to complete multiple tasks rather than driving to each individual destination. Several conditions are necessary for local-serving retail to flourish in a mixed-use setting:

1. There must be sufficient households within walking distance (a 10 minute walk or approximately 1/2-mile) to provide local-serving retailers with a supportive customer base. The necessary surrounding residential density depends on the types of retailers and proximity of other sources of demand (daytime workforce population, etc.).
2. Retail uses should be clustered to increase their market "gravitational" pull and place-making qualities; local-serving neighborhood retail nodes of less than 10,000 square feet will have difficulty surviving.
3. Such clusters should also be visible from an arterial and be transit accessible.
4. Commercial uses do not have to be in the ground floor of vertical mixed-use buildings to create mixed-use environments. Because many remaining infill sites in Marin are physically difficult to develop and vertical mixed-use

### Related Principles:

P1 P2 P3 P4 P5



*Figure C-2.1.6 Mixed-use developments, such as Rafael Town Center in San Rafael, support places that are vibrant throughout the day.*

### Best Practice: Panoramic Interests

Panoramic Interests, a developer of higher density infill housing in Berkeley, always includes ground floor retail space, even if the projects are not in particularly vibrant retail areas. The developer includes a café on the corner and to the extent that additional space is available, small retail shops that sell merchandise or services special enough to draw customers from a wide trade area, outside of the local neighborhood. Depending on the other components of the project, retail rents may be lowered to attract businesses and help ensure their success.

### Related Tools:

*Toolset UD: Urban Design Guidance*

*Toolset P: Parking Guidance*



*Figure C-2.1.7 Some recent mixed-use projects in Marin have successfully added new housing choices and popular destinations.*

development is complicated to design (especially separate residential and commercial parking components), it may be better to allow single-use buildings on constrained sites.

5. In general, 3,000 to 10,000 people within a one-mile radius are needed to sustain a small neighborhood commercial district. Proximity to a major transit stop, or employment center can augment existing residential demand.

6. A neighborhood retail center may consist of a café, small market, convenience store, drycleaners/laundromat, ethnic market and barber or beauty salon (depending on demographics). A neighborhood center should have five to eight stores offering convenience items and services. Depending on visibility, demographics and opportunity for expanding parking, specialty stores that offer unique products or services and draw from a wider trade area may be included.

## Challenges to Consider in Developing Mixed Use

### Challenge: Programming for Retail Development

Retail space is frequently on the verge of being overbuilt in the United States. Developers and builders of all commercial space (and retail in particular) are therefore highly sensitive to economic shifts and trends in consumer spending. Thus, local governments should be strategic in their designation of retail areas and their efforts to revive old districts or bring in new retailers.

### Challenge: Retail Dependence on Parking

Major chain retail businesses, including groceries and drugstores that provide essential services, have strict parking requirements. Even fledgling shopping districts of small businesses complain of insufficient parking. Retailers, from 2,000 to 200,000 square feet, consider parking one of the essential ingredients to a successful retail area, and avoid leasing space with less than generous parking in rural and suburban environments. Similarly, many local jurisdictions mandate unnecessarily high parking requirements for commercial land uses, even in areas with higher residential densities and frequent transit service.

Business owners are hesitant to count on transit users as a reliable customer base, although proximity to commuter rail is viewed as a definite advantage. While smaller retailers may be attracted to a transit-rich site by the promise of significant foot traffic, they will probably persist in demanding more parking than local planners and urban designers find desirable from the perspective of site design.

### Challenge: Reliance on Anchor Tenants

Savvy developers are skeptical of building significant retail space without commitment of an anchor tenant such as a major chain grocery or drugstore. Small businesses often have difficulty attracting customers unless they are adjacent to a large chain store with an established customer base or in a shopping district with a specialty niche. It can also be hard to obtain financing for significant retail (more than 10,000 square feet) without commitments from established businesses.

Securing tenancy of an anchor is not simple. Major chains have strict requirements for the size of their trade areas. For example, a typical Safeway requires 15,000 to 20,000 people within its trade area and parking to accommodate them, exclusive of competing groceries. They also have a boilerplate site design that places parking in front or to the side of the building, where it is most visible and easily accessed. Safeway is only willing to build more expensive, atypical stores if income levels and housing densities are sufficiently high enough to guarantee compensating sales per square foot above normal levels.

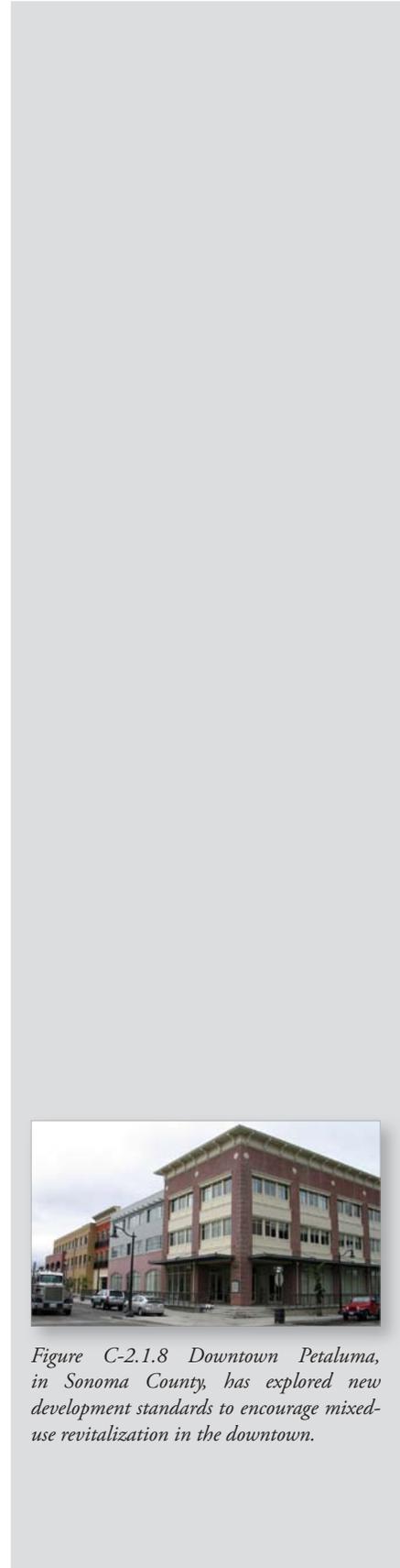
### Challenge: Creating Mixed Use Environments Rather than Isolated Auto-Dominated Developments

Few large undeveloped sites exist in Marin County, particularly sites zoned for new development. Many Marin communities do have older industrial areas that are increasingly being seen as opportunities for larger retail development. These areas are typically developed as isolated pockets of retail use that may have visibility from Highway 101 but they do not provide good transit or bicycle access and rarely provide retail uses that complement surrounding employment areas, and given the character of surrounding uses and the likelihood of hazardous contamination, these developments rarely integrate housing into them.

## Strategies for Overcoming Challenges to Mixed-Use Development

### Develop Retail Concept and Appropriate Tenanting Plan

Developers and retailers consider many factors when choosing site locations. These factors include population density, parking, visibility, access (both site accessibility and convenience to major thoroughfares and freeways), the presence of complementary or competing businesses and educational levels and income. Planners should be aware of these same factors when lobbying for the inclusion of retail in mixed-use infill sites, and should help developers and decision-



*Figure C-2.1.8 Downtown Petaluma, in Sonoma County, has explored new development standards to encourage mixed-use revitalization in the downtown.*



Figure C-2.1.9 Downtown San Rafael is an example of a successful mixed-use downtown area.

### Best Practice: Elmwood Theatre District

The Elmwood commercial district, in Berkeley, has a historic movie house complete with marquee and stand alone ticket booth. In 1993, the theater was faced with major renovation costs and dwindling revenues. Rather than lose a significant neighborhood amenity and important nighttime activity, property owners within a quarter mile of the theater formed a Business Improvement District to help pay for the costs of renovation via property assessment.

makers, as well as the general public, understand the demographics and character of the area within which they are working and what businesses are needed in the local community.

### Cross-Subsidize Retail Rents

The cost of rent is a major factor in the health of a small business, and a small subsidy can greatly increase its chances of survival. Likewise, the provision of basic convenience stores, services, and cafés on the ground floor of mixed-use development is a major boon to tenants or employees above, as well as the surrounding neighborhood. In some cases, residential and office rents can be structured to subsidize those of retail businesses downstairs, without putting them out of market range or making the project unprofitable. The more dense the project, the more this becomes possible.

### Encourage Business Improvement Districts

Business Improvement Districts (BIDs) can be used to support a wide variety of programs and physical improvements in neighborhood commercial areas. A BID is created when property owners within a defined area vote for a special assessment on property for agreed on improvements within that area. Pedestrian amenities, higher quality landscaping and lighting, banners and neighborhood festivals are often paid for by BIDs, but BID funds can be used for purposes such as market studies as well.

### Reserve On-Street Parking for Retail & Encourage Shared Parking

In order to ensure that sufficient parking is reserved for shopping customers and not occupied by transit users who park and ride, time restriction or time-limited meters should be installed at on-street parking spaces near transit stops. Shared parking arrangements should also be negotiated whenever possible. These agreements allow different parking uses at different times of day rather than having dedicated spaces that go unused during certain hours.

### Assemble Case Studies of Successful Chain Retail in Mixed Use Projects

Across the country, chains such as Whole Foods in Novato are becoming involved in mixed-use developments, using site design and architecture atypical of chain stores. Showing local residents or a resistant chain store developer examples elsewhere of mixed use developments in which a similar store has participated can be useful in getting past negative responses. Compiling case studies of projects that are mixed use, of high quality design, or involve unusual parking configurations as well as a chain anchor tenant can also be an effective tool.

## Decrease Trip-generation Estimates for Mixed-Use and Infill Developments

Many existing automobile trip-generation estimates are based in research of travel behavior in typical suburban areas with a segregated single-use pattern of development, resulting in a higher trip estimation than is appropriate to mixed-use and especially transit- and pedestrian-oriented developments. Higher-density, mixed-use, infill developments served by transit may generate up to 90% fewer automobile trips than projected using the Institute for Traffic Engineers' (ITE) Trip Generation handbook, the current industry-standard for trip generation modeling. This high auto trip-generation predicted by the handbook can be detrimental to mixed-use developments, resulting in difficulty or the demise of projects in the approvals process.

A new tool, developed by the California Regional Air Quality Management Districts and California Department of Transportation called URBEMIS, originally designed to estimate air emissions from development projects, now includes a trip-generation and mitigation component which accounts for a broader array of land use types and factors influencing trip generation. This component, added in 2004, takes into consideration the fact that living in existing centers allows consolidation of more trips into a single trip, and encourages walking and transit ridership. Using URBEMIS to estimate vehicle trip generation can help to better understand the benefits and impacts of adding mixed-use and infill development to Marin's existing activity centers.

## Designate Areas Requiring Ground Floor Retail & Limit Retail in Other Areas (Overlay Zones)

An overlay zone is a regulatory mechanism that can be used to strategically direct specific kinds of development activity to targeted areas to encourage infill development and densification. This mechanism can be used to ensure projects or plans near downtowns or transit meet certain criteria like mixed-use, pedestrian-orientation, or affordability. One common example is a "transit district" or "transit village" overlay, which incentivizes TOD near major transit infrastructure and investments. When a major transit investment is made by a city, the application of a transit district or village overlay can allow higher density development, mixed-use, or other zoning not typically allowed in such an area in order to create more favorable development climate there and to create a higher intensity use in the long run in hopes of creating a distinct area which supports and is supported by the transit investment. Also, a city can define a "floating" TOD zone, allowing them to apply such a zoning overlay when the opportunity arises rather than pre-zoning a site before the market is ready, which would potentially cause land speculation and higher costs or difficulties for existing property owners.

### Trip Generation Estimates using URBEMIS

More information on URBEMIS is available at <http://www.urbemis.com>.

Specific discussion of the trip-generation and mitigation components are available at:

[http://www.nelsonnygaard.com/articles/article\\_urbemis.htm](http://www.nelsonnygaard.com/articles/article_urbemis.htm)

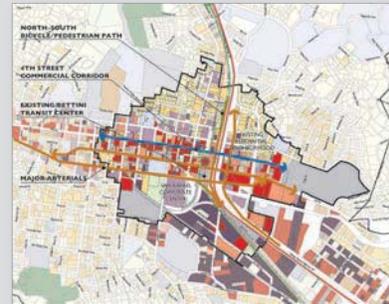
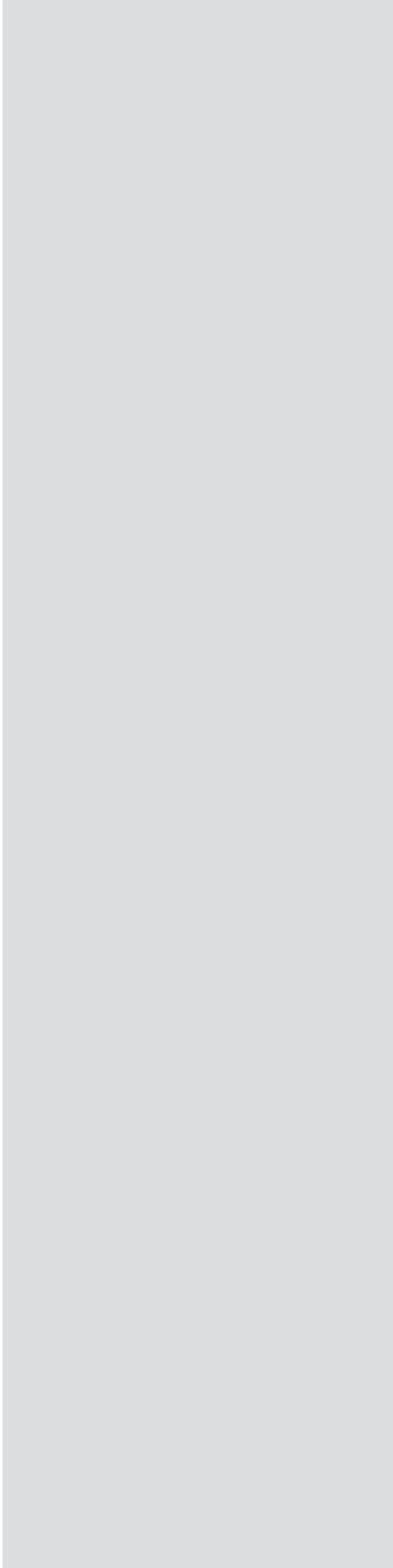


Figure C-2.1.10 San Rafael has encouraged mixed-use development and retail along its primary downtown corridors, which are rich in transit amenities.

### Best Practice: Marin County Housing Overlay

Marin County has a housing overlay district which designates environmentally sensitive areas and areas in transit proximity and allows the transfer of developable units from one to the other. This strategy recognizes the constant housing pressure in Marin and rather than simply banning potential new units in ecologically-sensitive areas, it reduces the pressure to develop sensitive areas that are critical to Marin's scenic beauty and quality of life and encourages development where it is most appropriate and serves more diverse housing needs.



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## Educational Tool LU-E: TOD-supportive Land Uses, Zoning, and Urban Design

A wealth of information and resources related to TOD, land use planning, zoning, and urban design exists on the web. The following recommended documents are available for free, in PDF format at the URLs listed below.

### ***Transit Oriented Development: Moving from Rhetoric to Reality***

available at: <http://www.brookings.edu/dybdocroot/es/urban/publications/belzertod.pdf>

Prepared for The Brookings Institution Center on Urban and Metropolitan Policy and The Great American Station Foundation (Now Reconnecting America). This document discusses precedents for TOD through the 20th century and the common roots of successes and failures as evidenced through projects today. It includes discussion aimed at planners, policy-makers, and developers with components of making successful investment in TOD. The discussion of historical transit-land use relationships and guidelines for successful investment in transit and development around transit are directly applicable to the current situation in Marin.

### ***New Transit Town, Chapter 1, excerpted***

available at: <http://www.islandpress.org/books/excerpt/NewTransit.pdf>

The first chapter of this valuable book is excerpted as a concise explanation of what TOD is, how it fits into the American landscape, and what it means to local economies and quality of life. Additional sections of this book, especially Chapter 6, Traffic, Parking, and Transit-oriented Development, provide a valuable background to arguments for TOD in Marin.

### ***Hidden in Plain Sight: Capturing The Demand For Housing Near Transit***

available at: [http://www.reconnectingamerica.org/pdfs/Ctod\\_report.pdf](http://www.reconnectingamerica.org/pdfs/Ctod_report.pdf)

This document analyzes the key trends driving demand for housing near transit and the implications of this market demand. It provides a broad foundation for the Marin-specific trends and market analysis contained in Chapter B-2 of this document, and serves as valuable further reading for persons interested in understanding the viability of TOD in the Marin market.

### ***Transit-Oriented Development in Four Cities***

available at: [http://www.reconnectingamerica.org/pdfs/TOD\\_In\\_4\\_Cities.pdf](http://www.reconnectingamerica.org/pdfs/TOD_In_4_Cities.pdf)

The chapter on the San Francisco Bay Area details characteristics and strengths of the regional market for TOD. The conclusion to this document includes a valuable section entitled, “Lessons Learned,” that discusses process of successful planning for, investment in, and development of TOD, plus a specific discussion of the relationship between transit and land use.

### ***Location Efficiency: Neighborhood and Socioeconomic Characteristics Determine Auto Ownership and Use- Studies in Chicago, Los Angeles and San Francisco***

available at: <http://www.reconnectingamerica.org/pdfs/LOCEFFIC.PDF>

This study correlated auto-ownership and per-capita wealth as predictors of transportation behaviors in major US metropolitan areas, including the San Francisco Bay Area. It argues, through in depth research and statistical analysis, that ownership and overall auto travel decrease markedly as destinations become more convenient; a central tenet of this document.

### ***Best and Worst Developments of the Bay Area: Nine counties, eighteen projects, and a platform for livable communities***

available at: [http://www.transcoalition.org/reports/b\\_w/best\\_worst.pdf](http://www.transcoalition.org/reports/b_w/best_worst.pdf)

This document summarizes 18 projects in the Bay Area, many of which are Smart Growth or transit connected. The successful Marin County example is mixed-income multi-family development in Larkspur that is adjacent to bike and pedestrian trails. Examples from other counties vary in scale and context and include a number of valuable examples pertinent to Marin.

### ***It Takes a Transit Village: How Better Planning Can Save the Bay Area Billions of Dollars and Ease the Housing Shortage***

available at: <http://www.transcoalition.org/reports/village/village.pdf>

Through analysis of local policy and development projects in the San Francisco Bay Area, this article makes the case that TOD and transit are financially sound investments for Bay Area jurisdictions.

### ***Transit-Oriented Development in the United States: Experiences, Challenges, and Prospects***

available at: [http://gulliver.trb.org/publications/tcrp/tcrp\\_rpt\\_102.pdf](http://gulliver.trb.org/publications/tcrp/tcrp_rpt_102.pdf)

This report, sponsored by the Federal Transit Administration, provides a broad examination of the state of the practice and the benefits of transit-oriented development and joint development throughout the United States. Chapters include in depth discussion of creation of the necessary policy environment for TOD, funding and implementation tools, and common barriers and impacts on ridership, land use, and the market. The depth of analysis and breadth of study of this TCRP report make it a valuable companion to the local analysis presented in the TPLUS toolkit.

### ***Transit-Supportive Urban Design Impacts on Suburban Land Use and Transportation Planning***

available at: [http://www.cts.umn.edu/trg/research/reports/TRG\\_11.html](http://www.cts.umn.edu/trg/research/reports/TRG_11.html)

This document, published by the University of Minnesota Center for Urban Design, Transportation, Environment and Urban Growth, discusses the applicability of TOD principles and urban design in a suburban setting, arguing that they improve commercial centers and walkability in valuable ways for all users, resulting in a network of suburban sites that meet city and regional goals.

### ***Transit-Oriented Development: InfoPacket No. 397, Excerpts: selected references from Table of Contents, Revised July 2004; ULI Information Services***

available at:

<http://www.uli.org/AM/Template.cfm?Section=Search&template=Ecommerce/FileDisplay.cfm&file=397TODjul04.pdf&ProductID=805>

This document, compiled by the Urban Land Institute, provides extensive text, web, and case study references on Transit-oriented Development for those interested in researching a specific sub-topic within the field.

## C-2.2 Toolset UD: Urban Design Guidance

The Toolkit's section on Multimodal Street and Network Design provides guidance on how to achieve a well-connected and well-designed network of streets and pathways that provide access for vehicles, bicyclists, and pedestrians. Prior sections discuss land use mixes and land use intensifications that can lead to an increased level of pedestrian activity and support increased transit-ridership. But it takes a third component to draw and sustain a high level of pedestrian activity and to create truly livable pedestrian and transit-supportive environments: human-scaled and well-designed development projects. The visual (and tangible) quality of a project, the human interest it generates, its contribution to the public realm of the street, and interaction between public, semi-public and private activities in and around a development result from the urban design quality of a project. These aspects of a development project are important determinants of the overall quality of community places and therefore deserve attention. The following tools on Site and Project Design, Building Design, and Parking Design outline the most fundamental guidelines that development projects in Marin should follow to provide human-scaled sites and buildings that are supportive of the public pedestrian realm and the activities generated in these public spaces. More detailed and location-specific guidelines for residential and other buildings likely exist in many jurisdictions and should be followed in addition to the guidelines provided here.

### Toolset Overview:

#### Tool UD-1 Site and Project Design

- Building Form and Massing—including height and vertical articulation
- Building Frontage—including setbacks, building breadth, and horizontal articulation
- Building and Entrance Orientation
- Transition from Public Realm to Interior Space

#### Tool UD-2 Building Design

- Visibility of Ground Floor Activity
- Building Entries
- Windows
- Detail and Materials
- Fitting with Local Community Character

#### Tool UD-3 Parking Design

- Surface Parking Design
- Structured Parking Design

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## Tool UD-1: Site and Project Design

Successful transit- and pedestrian-oriented places rely on human-scale elements to create an attractive environment that makes pedestrians comfortable. Site and project design refers to the design of individual buildings and the relationship between buildings on a site and between the site and adjacent public streets and public spaces. It is also important when designing infill projects in Marin County to ensure that site and project design characteristics reflect the context of existing commercial districts and residential neighborhoods. It should also be recognized that in some locations the existing context is suburban and auto-oriented and that new infill and reuse projects offer the potential to establish a new transit- and pedestrian-oriented character with a level of urbanism that is appropriate for the particular community in which the development is being built.

The components of site and project design outlined below include the following guidance:

- Building Form and Massing—including height and vertical articulation
- Building Frontage—including setbacks, building breadth, and horizontal articulation
- Building and Entrance Orientation
- Transition from Public Realm to Interior Space

### Related Principles:

P1 P2 P3 P4 P5



*Figure C-2.2.1 Good site design considers the relationship between buildings and open space on a site.*



*Figure C-2.2.2 Successful transit and pedestrian-oriented places rely on human-scale elements to make pedestrians comfortable.*

### Related Tools:

*Tool UD-2: Building Design*

*Tool UD-3: Parking Design*

*Tool T-3.2: Sidewalks*

*Tool T-4.2: Basic Network of ADA-compliant Routes*

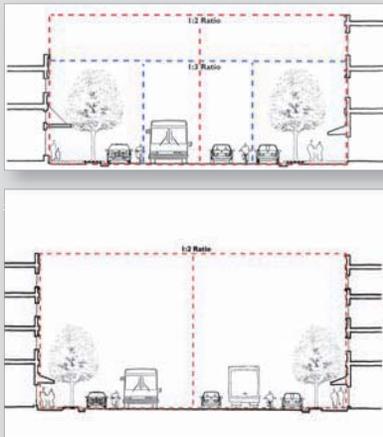


Figure C-2.2.3 Illustration of height to width ratios that create a scale on thoroughfares that is comfortable to people and encourages walking.



Figure C-2.2.4 Rafael Town Center in San Rafael reflects a scale appropriate to the level of density and activity in downtown, provides an active frontage, and creates a comfortable and well-utilized urban public space.

## Building Form and Massing

Building form and massing are characteristics of the height of buildings and the vertical articulation of uses and activities. Buildings that are appropriately scaled support activity and access, while those that are out of scale with their surroundings are either too imposing or do not provide enough space for necessary activity. Building heights can also be considered in relation to the width of adjacent streets. (Street width in this case includes both street right-of-way and any required setbacks.) Buildings that are appropriately scaled give a sense of enclosure to the street. Height-to-width ratios of 1:2-1:3 give an appropriate sense of scale to the street (see Figure C-2.2.3). Appropriate building heights should be determined on a site-by-site basis, but the following table lists general ranges appropriate for the various TOD/PeD standards as defined by the gradient on the Place Types Matrix, Table C-1, page 33.

Table C-2.2.1 Building Form and Massing

Place Types	Height	Range
“Downtown” Center	3+ stories	1:2-1:0.5
Medium/High Density Neighborhood	2-6 stories	1:3-1:0.5
Mixed-use Corridor	2-6 stories	1:4-1:1.5
Town Center	2-6 stories	1:3-1:1
Medium-Density Neighborhood	1-4 stories	1:4-1:5
Local-serving Commercial Corridor	1-3 stories	1:4-1:2
“Main Street” Village Center	2-4 stories	1:3-1:1
Low/Med Density Neighborhood	1-3 stories	<1:3
Suburban Corridor	1-4 stories	<1:3
Rural Center/“Crossroads”	1-3 stories	<1:2
Low/Rural Density Neighborhood	N.A.	N.A.
Rural Corridor	N.A.	N.A.

Vertical articulation of buildings should break down the scale of a building. Ground floor uses should be delineated from upper floors through the use of detail and potential changes in material or building plane (see Figure C-2.2.4).

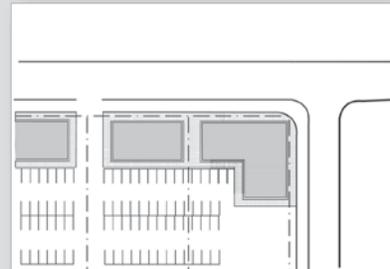
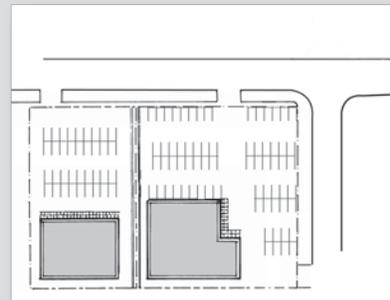
## Building Frontage

The relationship between buildings and surrounding streets is important for encouraging pedestrian activity. Building frontages should be varied enough to avoid monotony, while consistent enough to develop a sense of place. While the appropriate building frontage must be determined on a site-by-site basis with particular attention given to existing community character and the appropriate level of urbanism given the place type the building is sited within, several guidelines provide general direction:

- In more urban and retail settings, building setbacks should be minimal and where they are provided they should create useable public or private space;
- Buildings should create a consistent street wall by fronting on surrounding streets (see Figure C-2.2.6 and C-2.2.7);
- Where buildings make up a small proportion of the street frontage, other strategies, such as landscaping or low walls can create the desired effect;
- Buildings should be articulated horizontally through changes in building plane to avoid monotony; and
- Single ground-floor uses should not occupy so much of a street frontage as to become monotonous.



*Figure C-2.2.5 Smaller downtowns throughout Marin provide active centers for infill development.*



*Figures C-2.2.6 and C-2.2.7 A building's location relative to the street can radically change the character of the street it faces. A consistent street wall creates a more pedestrian-friendly environment.*



*Figure C-2.2.8 Example of liner buildings with storefronts providing street frontage along sidewalk, with parking lot behind from Grant Avenue in Novato.*

Table C-2.2.2 Building Frontage

Place Type	Maximum Setback	Minimum Building Frontage*	Building Articulation**
“Downtown” Center	0-10 feet	75-100%	36’
Medium/High Density Neighborhood	3-12 feet	65-90%	36’
Mixed-use Corridor	0-12 feet	65-100%	36’
Town Center	0-12 feet	65-100%	36’
Medium-Density Neighborhood	4-16 feet	65-85%	24’
Local-serving Commercial Corridor	0-16 feet	50-85%	24’
“Main Street” Village Center	0-12 feet	65-100%	24’
Low/Med Density Neighborhood	8-20 feet	50-75%	24’
Suburban Corridor	6-16 feet	50-75%	24’
Rural Center/ “Crossroads”	0-16 feet	50-100%	24’
Low/Rural Density Neighborhood	N.A.	N.A.	24’
Rural Corridor	N.A.	N.A.	24’

Notes:

All setback, frontage, and building articulation guidance provided herein should take existing lotting patterns and building form into account, particularly in existing pedestrian-oriented contexts.

\* Refers to the minimum percentage of each lot that should have some form of building frontage. (Adapted from VTA PTG and various TOD and other guidelines).

\*\* Refers to articulation of the vertical elements of a building façade. Articulation can include setbacks or recessed elements of the façade or prominent vertical architectural elements in order to break down the scale of buildings. (Adapted from Great Streets).

## Building and Entrance Orientation

Buildings should be oriented towards surrounding streets and public open spaces to allow for interaction between occupants and passersby. Buildings should have ground floor uses that activate surrounding streets and encourage pedestrian activity.

Building entries are an important factor in making buildings and uses accessible and interesting for pedestrians. Buildings should have frequent entries to adjacent streets in order to improve connectivity and break down the scale of development. Frequent entries from parking lots and secondary street frontages should be provided as well.

The following guidelines outline the practices that support pedestrian activity at all levels of TOD/PeD design:

- Primary entries are encouraged at street corners. Orienting primary entrances to street corners creates definition at intersections and increases the accessibility of buildings from the thoroughfare corridor (see Figure C-2.2.9).
- Storefront entries should be spaced no farther than 50 feet apart or 40 feet for storefronts with a frontage of greater than 40 feet.
- Residential entries should be as frequent as possible in all place types (see Figure C-2.2.10).
- Townhomes and single-family residential uses should have direct entries to all units from street frontages.
- Multi-family residential uses and mixed-use residential uses should have clear lobbies accessible from primary street frontages.



*Figure C-2.2.9 Corner entries emphasize important street and sidewalk intersections.*



*Figure C-2.2.10 Frequent entries in larger developments maintain the sense of high activity.*



Figure C-2.2.11 A well-defined primary entrance combined with an appropriately scaled entry plaza to this multi-family building makes the entry inviting and easy to find.



Figure C-2.2.12 This inviting entryway includes a recessed space where pedestrians can stop to look in then cross into the store or continue their walk along the street.

## Transition from Public Realm to Interior Space

A successful transit- and pedestrian-oriented place has a variety of different types of spaces. The transition between the public realm and private/interior spaces should have several transitional stages to allow for interaction between a variety of user groups. Public mid-block passageways and alleys are methods for achieving this transition on the block scale. Porches, stoops, lobbies, yards, and plazas associated with buildings are all examples of strategies to create transitions between public and private spaces on the scale of individual buildings.

The effectiveness of different uses that front onto the street can be maximized by careful attention to the treatment of the connection between the land use and the pedestrian realm. Because retail is the most interactive and open to the street, entries should front directly onto the street and should reflect these characteristics. The more public uses of office buildings should be oriented towards the street, with some buffer of open space setback between the sidewalk and building windows. Residential land uses should use more distinct setbacks, porches, grade changes, and other elements that maintain visual connection while respecting privacy of homes.

Fences or walls over 3 feet-6 inches tall should be designed to allow people to see through screening or lattice work that is approximately 50% open above the 3 foot-6 inch height up to a maximum height of 6 feet for fences and 8 feet for arbors and other overhead structures. Visual connections (described in detail in Tool UD-2: Building Design) are also a method for creating this transitional space.

### References

- Metropolitan Transportation Commission, Pedestrian and Bicycle Safety Toolbox, 2006: Planning: Design Standards and Guidelines. <http://www.mtc.ca.gov/planning/bicyclespedestrians/safety-policies.htm#design>
- City of Larkspur, Central Larkspur Specific Plan, Chapter 7, Community Design establishes design guidelines and includes discussion of improved pedestrian use.
- City of Mill Valley, Miller Avenue Precise Plan, in process as of November 2006.
- City of Novato, Downtown Novato Specific Plan, 1999. Chapter 5 Design Guidelines section UD 11.1 Site Planning
- City of San Rafael, San Rafael Hillside Design Guidelines,

## Tool UD-2: Building Design

Architecture and architectural details are important in creating a welcoming environment that supports and encourages pedestrian activity. In addition to the site planning issues described above, there are some more detailed tools to make a place more transit- and pedestrian-friendly. Also, the design character of buildings is important to creating an appropriate “fit” between new construction and the existing character of a commercial district or residential neighborhood. The key components of building design are:

- Visibility of Ground Floor Activity
- Building Entries
- Windows
- Detail and Materials
- Fitting with Local Community Character

### Visibility of Ground Floor Activity

Transparency on the ground floor of structures imparts a sense of safety, creates welcoming street frontages, encourages stop and shop traffic, and makes destinations easy to locate. While concern for privacy of ground floor residential or office uses is valid, maximum feasible visibility should be a goal for all structures. Care should also be taken in designing interior uses so that more public uses are oriented towards streets and public open spaces (e.g.; in offices - lobbies, reception areas, lunch rooms, etc. and in residential uses – living rooms, studies or at-home work areas, etc.).

Mirrored or smoked glass negatively impacts visibility of ground floor uses and should not be used. Care should be given to eliminating potential glare from glazing without impacting transparency. “Eyebrow” window shades and awnings are among a number of potential strategies for addressing this issue. Landscaping can also be used to provide filtered light into interior spaces.

The following outlines recommended minimum clear glazing on ground-floor street frontages for various uses at all TOD/PeD types:

**Table C-2.2.3 Minimum Recommended Clear Glazing**

Ground Floor Use	Minimum Glazing
Retail	75%
Office	60%
Residential	50%

**Related Principles:**

P3 P4 P5



*Figure C-2.2.13 Higher density housing can be attractive and contribute to the creation of distinct places, such as at Rafael Town Center in San Rafael.*



*Figure C-2.2.14 Outdoor dining enlivens sidewalks and other pedestrian spaces.*

**Related Tools:**

- Tool LU-2: Mixed-Use*
- Tool UD-1: Site and Project Design*
- Tool UD-3: Parking Design*

## Building Entries

Building entries at the scale of individual buildings are critical for encouraging pedestrian activity along a street as they provide a higher level of activity along the street frontage and more security through an increased sense of ownership or responsibility for the public space of the sidewalk. Special architectural attention should be given to entries to create a transition between the public realm of the street and the private realm of the building. The following guidelines outline appropriate treatments of building entries for all TOD/PeD contexts:

- Entries should be recessed from the main building frontage to allow a transition and/or entry plaza (see Figures C-2.2.15).
- Where sidewalks are narrow, small exterior entry spaces allow for entry and exit without impeding pedestrian traffic flow (See Figure C-2.2.16)
- Entries should be clearly articulated in the architectural design of a building.
- Residential, office, or other non-retail functions in mixed-use buildings should be clearly defined and distinct from commercial entries (see Figure C-2.2.17).
- The level of pedestrian activity within a place type should inform the way that land uses front the street, such that in areas of relatively high pedestrian traffic, the most active uses are exposed by the building's facade and activity level of the entry, thereby inviting pedestrians in or creating the most active environment for passing pedestrians.



*Figure C-2.2.15 This retail storefront includes a recessed space where pedestrians transitioning into and out of the store can avoid blocking pedestrian traffic.*



*Figure C-2.2.16 Residential uses should front sidewalks to allow access to transit stops on nearby arterials. Even where buildings front directly onto the sidewalk, some transitional element, such as a porch, is critical.*

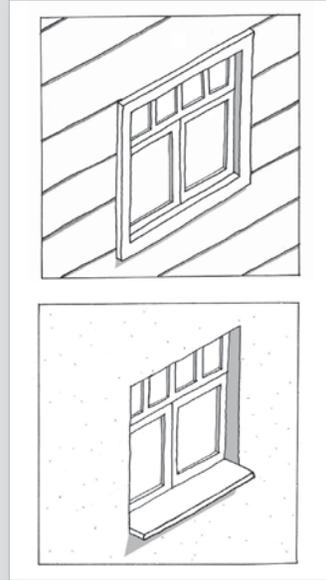


*Figure C-2.2.17 A well articulated primary residential entry is made distinct from storefront entries with color, change in materials and articulation.*

## Windows

Windows above the ground floor are important architectural features in a building and have an important impact on surrounding areas. Buildings with substantial glazing on upper stories provide “eyes on the street” that improve pedestrian safety and encourage increased pedestrian activity. Upper story windows are important in all TOD/PeD contexts. The following guidelines apply to all uses and all contexts:

- Facades that face public streets and pedestrian corridors should be lined with windows;
- Windows should be operable to increase the potential for direct interaction between interior spaces and the street (operable windows can also be an important aspect of building more energy efficient and sustainable structures);
- Window design should maximize interior daylighting while reducing glare through the use of passive shading devices that maintain visibility between the exterior and interior of the building;
- Windows should be slightly recessed into the facade to create visual interest (see Figure C-2.2.18); and,
- Window shape and proportion in the design of a building façade is an important aspect of architectural character and care should be taken in the design of infill buildings so that they appropriately relate to existing character and context.



*Figure C-2.2.18 Window recesses cast complex shadow lines, creating interest that attracts the eye of pedestrians.*



*Figure C-2.2.19 Articulation in the form of an integrated seatwall and an attractive display work with large storefront windows to increase and enhance the interaction between pedestrians and their surroundings.*



*Figure C-2.2.20 Balconies and awnings, changes in material, and other building articulation projects into the setback to create a more varied and visually engaging facade.*

## Detail and Material

In combination with scale and massing, architectural detailing and materials (articulation) are key to creating buildings that engage the pedestrian and provide visual interest. Detailing and use of appropriate building materials is also an important aspect of designing infill buildings that complement their existing context. High quality, human-scale materials are visually complex and tactile. Appropriate applications of detailing and materials include: tile, wainscoting, window and door trim, column supports for overhangs and arcades, awnings, arbors, etc.

### General

- Special architectural features such as bay windows, balconies, decorative eaves, and entry stairs may project into the building setback or public right-of-way, and entry elements, such as porches, stoops, and verandahs may project into the building setback (see Figure C-2.2.20);
- Façade elements (e.g. windows, doors, bays joints, etc.) should display a logical rhythm and order. Building articulation should be simple in form and pattern because an overly articulated and random environment can be visually confusing and fragmented, particularly in a mixed-use district where a complex level of activity is already occurring (see Figure C-2.2.23);
- Articulation of building façades should provide visual interest, protection, and shade, to reduce the pedestrian's feeling of exposure;
- In no case should any façade consist of unarticulated, blank walls;
- Articulation and detailing should entail more than color changes. Changes in materials and planes are also necessary, as color change alone does not create a feeling of permanence, authenticity, or variety and interest (see Figure C-2.2.20); and,
- Façade articulation for infill developments should complement the developments' context – this does not necessarily mean replication of existing designs.

## Materials

- To give buildings an authentic appearance, as opposed to a veneer-like quality, material changes should not occur at external corners. Rather, they should occur at interior corners or at a change in the horizontal plane (see Figure C-2.2.21);
- Materials selected should create an architectural character in keeping with regional architectural traditions, relate to the architectural character of adjacent neighborhoods and buildings, and convey a sense of durability – similar to the guideline regarding façade articulation, this does not necessarily mean replication of existing designs (see Figure C-2.2.22); and,
- A variety of building finishes and materials are appropriate for pedestrian-supportive architecture, such as wood board siding, wood shingles, tile, stucco, masonry, and higher quality curtain-wall systems that provide shadow lines and scale through mullions that create relief. Materials that do not age well or are too massive, such as scored plywood (i.e. T-111 siding), vinyl siding, thin brick materials, lower quality ‘Dryvit’ type systems, or exaggerated detailing are strongly discouraged. Other simulated materials that demonstrate a convincing realism through higher quality, color, and application are allowed.

## Roofs

- Roofs may be flat or sloping. Flat roofs should be designed with an articulated parapet. Sloping roofs should be designed to include a well-articulated overhanging eave;
- Roofs on corner lots should emphasize the corner; and,
- The design and massing of roofs, their slope, eave treatments, etc. are architectural features that typically play an important role in defining the design character of an infill project’s context. Therefore roof designs for infill projects should take cues from and complement the design and massing of roofs within their context (see Figure C-2.5.24).



Figure C-2.2.24 Buildings should step down in scale as they transition to residential neighborhoods.

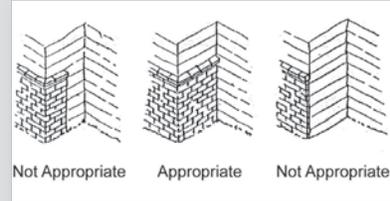


Figure C-2.2.21 Material changes that do not occur at interior corners do not result in a sense of quality or care.



Figure C-2.2.22 Chandler’s Gate in Tiburon is a relatively high density and very attractive senior housing development that uses a variety of interesting colors, materials, and architectural elements appropriate to its surroundings.



Figure C-2.2.23 Articulated rooflines effectively terminate the building and provide interest.



*Figure C-2.2.25 A building's scale, frontage, and landscaping are all critical components of fitting in with local character. Here, a restaurant has an appropriate massing to the higher level of activity of downtown San Rafael, and balances this with sidewalk seating and planters at the pedestrian scale.*



*Figure C-2.2.26 This corner building in Tiburon features vernacular architecture appropriate to its bayside location and amenities appropriate to the scale of a small town main street.*



*Figure C-2.2.27 Smaller mixed-use buildings can include simple elements such as awnings and roofs over the sidewalk to improve their character for pedestrians. They should match the style and rhythm of the street and town.*

## Fitting with Local Community Character

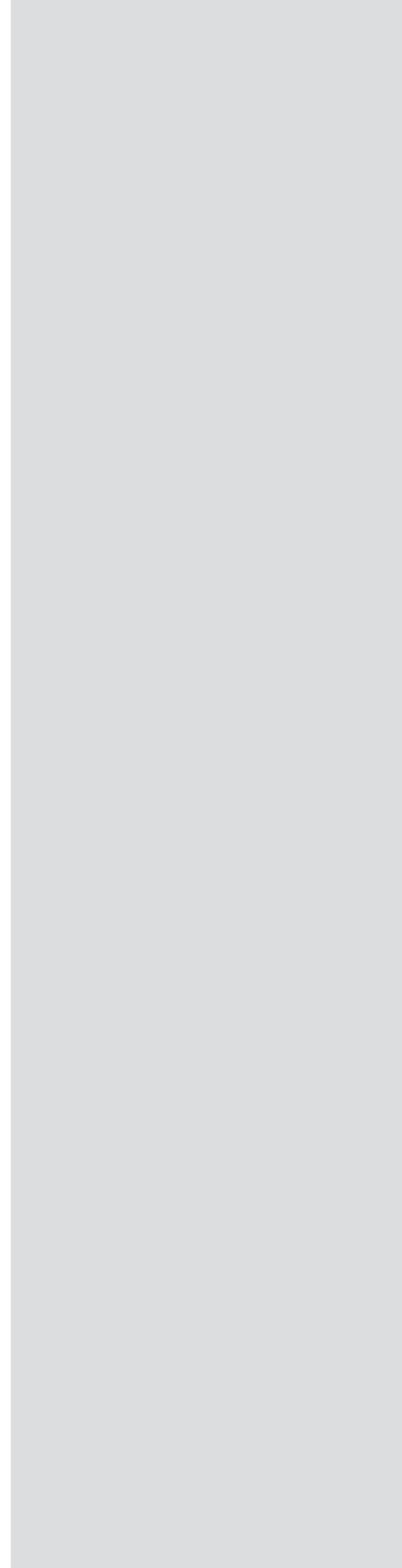
New development should take into account surrounding urban or neighborhood character. While infill development or redevelopment may bring changes in aesthetics or activity to an area, it should always be designed to enhance and respect existing elements of neighborhood form and the natural environment that are vital to an area's character and identity. This includes architectural character, overall scale and massing of surrounding buildings, spacing of existing entries, and rooflines and forms as well as natural features and topography.

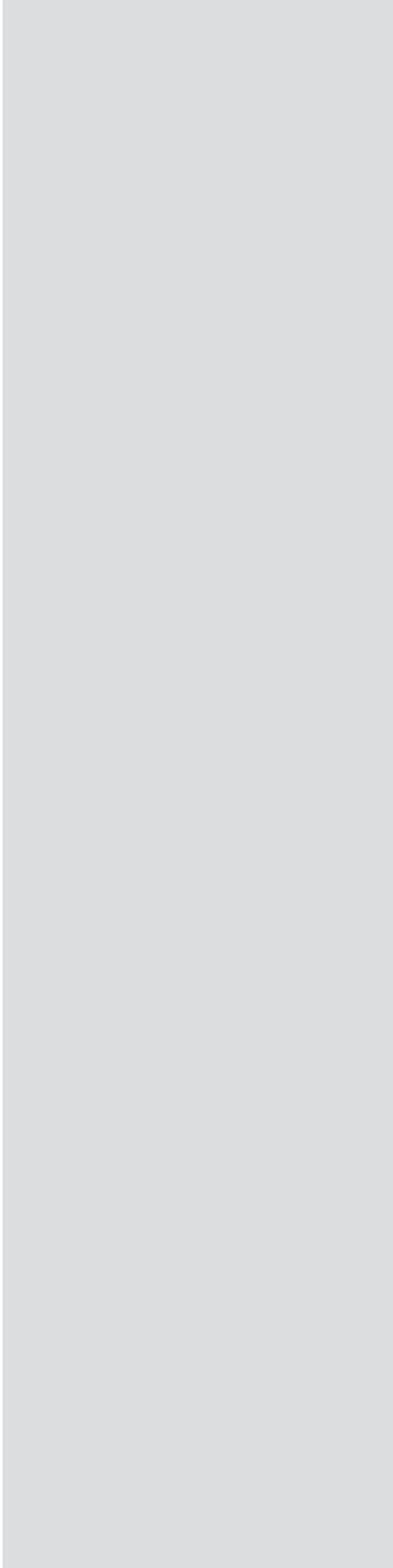
- The architectural definition of first floors of multi-story structures should respect and integrate roof and cornice lines of adjacent single story buildings to provide visual integration in locations where single story buildings prevail;
- Where properties are assembled to form larger sites, it is important to locate commercial and residential entries within the façade at a frequency that continues the pattern of existing smaller storefronts and entries;
- Building height impacts should be carefully evaluated for sites adjoining residential districts;
- On properties that do not abut residential uses, building height and massing may exceed that of existing development in other parts of an area, but should be sensitive in its massing and site planning to adjacent natural features and topography.
- Frontages along streets with multi-story buildings that transition to residential or other smaller scale uses should incorporate changes in frontage setback, height and landscaped buffers. This creates an orderly transition in building scale and massing between the street with larger buildings and surrounding residential areas (see Figure C-2.5.24, previous page)
- Where back or side yards of mixed use buildings abut adjacent residential lots, landscape buffers with trees should be used along shared lot lines to protect the privacy of residential buildings.

- Where larger infill projects front streets with different land uses (i.e. streets with predominant retail or residential uses), the overall scale and massing of infill development should be sensitive to uses across the street and include height and bulk transitions as necessary.
- Buildings on steep slopes should fit into existing grades and step down the slope, using foundations as retaining walls, rather than relying on mass grading to create building slabs and surface parking lots.

### References

- Metropolitan Transportation Commission, Pedestrian and Bicycle Safety Toolbox, 2006: Planning: Design Standards and Guidelines. <http://www.mtc.ca.gov/planning/bicyclespedestrians/safety-policies,htm#design>
- Hamilton Local Reuse Authority, Hamilton Army Airfield Reuse Plan, 1995. Chapter 8. Urban Design Guidelines includes design guidelines for residential, commercial, service and park sites.





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## Tool UD-3: Parking Design

Auto parking is a necessary part of a functional urban environment but it should not compromise the relationship between streets and surrounding uses. Because they are typically designed with only the auto-oriented use in mind, parking garages and lots have a particularly high potential to negatively impact the pedestrian environment. Yet proper planning and design can help ensure that parking facilities are well integrated into their contexts, allow for safe and comfortable pedestrian passage, and make a positive contribution to the pedestrian environment. Once a car is parked, its passengers become pedestrians walking to their final destinations. Well-located parking allows the convenience of parking once within easy walking distance of multiple destinations. The provision of bicycle parking facilities with auto parking is also an important aspect of implementing the multi-modal transportation goals of the PeD/TOD Toolkit. Appropriate parking design will vary with TOD/PeD context. The following table briefly outlines appropriate parking strategies for each context, with reference to the place types in Table C-1 (page 33).

### Related Principles:

P1 P3 P5 P6



*Figure C-2.2.28 Vast parking lots can create barriers in a community if not well designed.*



*Figure C-2.2.29 This Sausalito Park&Ride lot includes narrower circulation lanes, attractive medians, and trees to shade cars and make the space more visually interesting.*

Table C-2.2.4 Parking Design Strategies

Place Type	Parking Design Strategies
Downtown Center	Parking is primarily structured or underground. Large surface parking lots should be considered opportunities for infill development.
Medium/High Density Neighborhood	Parking is primarily structured or underground. Large surface parking lots should be considered opportunities for infill development.
Mixed-use Corridor	Mix of structured parking and limited surface parking. Surface parking lots are located behind buildings. Conversion of larger surface lots to structures with infill development should be considered.
Town Center	Mix of structured parking and limited surface parking. Surface parking lots are located behind buildings. Conversion of larger surface lots to structures with infill development should be considered.
Medium-Density Neighborhood	Structured parking is rare; surface parking is screened by buildings and landscaping.
Local-serving Commercial Corridor	Structured parking is rare; surface parking is screened by buildings and landscaping; and use of on-street parking should be maximized.
“Main Street” Village Center	Structured parking is rare; surface parking is screened by buildings and landscaping; and use of on-street parking should be maximized.
Low/Med Density Neighborhood	Parking needs are accommodated by on-site garages and on-street parking.
Suburban Corridor	Structured parking is rare; surface parking lots are screened by buildings and landscaping.
Rural Center/ “Crossroads”	Structured parking does not occur; surface parking lots are screened by structures and landscaping; and use of on-street parking should be maximized.
Low/Rural Density Neighborhood	Parking needs are accommodated by on-site garages, workyards, and on-street parking.
Rural Corridor	Little demand for parking for uses typically provided by small surface parking areas, with short-term and emergency parking on road shoulders.

## Structured Parking Design

### General

- Garage structures should adhere to the same requirements in terms of orientation, fenestration, entries, design, and architectural elements and be given the same design consideration as other commercial buildings.
- Elevators and stairs should be designed to create articulated and visually-interesting façades rather than large blank concrete walls (see figure C-2.2.30).
- Fenestration and openings, other than auto entries, should be designed as typical window and door openings.
- The exterior design of parking structures should not reflect the elevation of parking ramps with sloping façade elements, as this is not reflective of typical building design and will make parking garages stand out in the built environment rather than blending with the surrounding area (see Figure C-2.2.30).

### Parking Structure Location, Type, and Relationship with Street

- Parking structures should be located on the interior of the block, surrounded by buildings that front onto the street whenever possible.
- To ensure an active street frontage, garage entrances and exits should not be greater than 20 feet wide, and in non-residential environments, automobile access into the garage should be limited to one access point per 200 linear feet of street frontage whenever feasible.
- In cases where parking structures are located along streets instead of in the interior of the block, the ground floor of the parking structure should be “wrapped” with liner retail development or another active use. This will create a more pedestrian-friendly thoroughfare frontage than the blank walls of the parking structure (see Figure C-2.2.31).
- Stand-alone parking structures should be avoided because they result in “dead zones” with little or no pedestrian activity and low visibility.



*Figure C-2.2.30 Structured parking makes more efficient use of valuable downtown land. It should be designed to be attractive and reinforce the active downtown look and feel.*



*Figure C-2.2.31 Parking in this garage is hidden behind retail frontage addressing the street.*



Figure C-2.2.32 Podium parking structures are located entirely or partially below ground to use space more efficiently and provide a more interesting street frontage

- Podium parking structures<sup>1</sup> constructed entirely below ground or a half-story below grade reduce the amount of blank surface that faces the sidewalk. The aboveground portion of the podium level should also contain doors, windows, and articulated elements to mitigate blank walls. Podium structures should be “wrapped” with active ground floor uses, such as retail shops or residential stoops and entries, to activate the street frontage whenever possible.

## Surface Parking Design

### General

- Surface parking should be minimized. This can be accomplished through reducing parking ratios to reflect mixed-use environments or access to transit, establishing parking maximums so that excess parking is avoided, shared parking arrangements between adjacent or nearby uses, parking pricing strategies, efficient use of on-street parking, and development of parking structures, among other strategies.
- Exposure of surface parking to pedestrian-oriented streets and public open spaces should be minimized.

### Interface Between Parking Lots and the Street

- Surface parking lots should not be located on corner sites, as they do not provide definition for the intersection or reinforce the sense of activity generated there.
- Avoid or minimize the number of parking lots that front streets. On sites where surface parking lots are needed, they should be behind, or at least to the side of buildings so the building and its primary entrance have a direct connection to the street (see Figure C-2.2.6 and C-2.2.7, page 57). This helps ensure that most of the street frontage is defined by buildings and the connection between the street and the building entrance is uninterrupted by parking. Parking lots that front the street degrade the sense activity and continuity along the thoroughfare and compromise the quality of the pedestrian environment. Therefore, on streets with higher pedestrian activity (retail ground floor use, and



Figure C-2.2.33 Surface parking can be screened from the sidewalk by a planted trellis.

<sup>1</sup> A podium parking structure is a configuration where levels of parking are either at-grade or partially below grade (but not fully underground), with the building’s primary use above.

any downtown or “Main Street” locations), locating parking lots behind active building frontages is highly desired. For streets with less pedestrian activity parking lots should be located behind active building frontages, but if this is not feasible, parking may be located along one side of a site, most desirably along an interior lot line.

- In cases where a parking lot does abut the street, a landscaped buffer between a sidewalk and a parking lot should be provided. The landscaped buffer should be at least 8 feet wide to provide space for trees, and to include a landscape screen at least 42 inches high to screen grills and headlights of parked vehicles while allowing visibility into the parking to provide security (see Figures C-2.2.33 and C-2.2.34).
- Where an 8-foot wide planting area cannot be provided as a buffer between the parking lot and sidewalk, a low wall of at least 42 inches in height should be provided, preferably with vines planted to climb on the wall.

#### Internal Pedestrian Circulation

- Pedestrians use surface parking lots to walk between their cars and their destinations and frequently use parking lots as shortcuts. Therefore, walkways should be integral to the design of surface parking lots. Walkways should be provided every 4 rows parallel to parking rows and 20 stalls apart at perpendicular. Pedestrian sidewalks and walkways should be at least 4 feet wide and separated from vehicular traffic by a 6-inch curb (see Figure C-2.2.35).
- Pedestrian crossings across driveways and drive aisles should be clearly delineated and located in places consistent with the circulation patterns created by walkways and sidewalks.
- To increase pedestrian comfort and to mitigate the visual impact and heat pollution generated by large expanses of pavement, parking lot design should incorporate adequate landscaping. Parking lots containing more than 24 parking stalls should achieve a minimum of 50 percent tree canopy cover. All sidewalks and pedestrian paths also should receive 50 percent shade. Trees should be planted in an orchard plantation pattern and additional landscaping should cover a minimum of 15 percent of the surface of the parking lot (see Figures C-2.2.35 and C-2.2.36).



Figure C-2.2.34 A hedge buffers a sidewalk from adjacent parked cars.

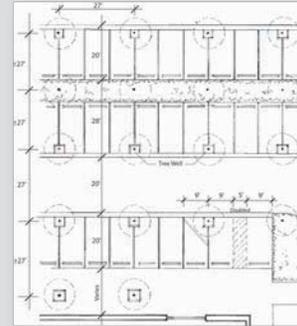
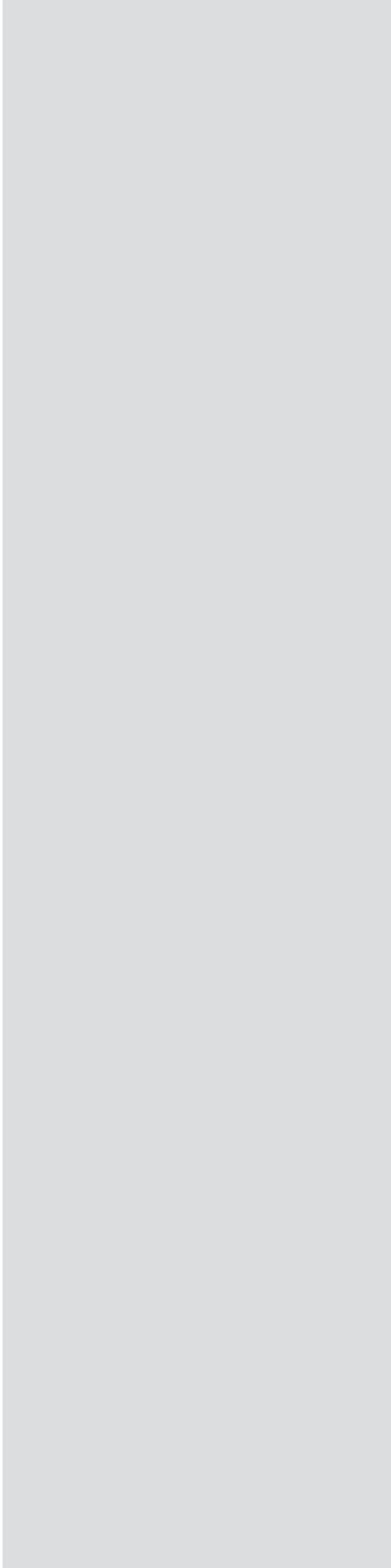


Figure C-2.2.35 A Tree planting plan for an “orchard-style” parking lot.



Figure C-2.2.36 Landscaping can break up large asphalt areas within parking lots.



### References

- Metropolitan Transportation Commission, Pedestrian and Bicycle Safety Toolbox, 2006. Planning/Engineering: On-street Parking Enhancements. <http://www.mtc.ca.gov/planning/bicyclespedestrians/tools/onStParking/index.htm>
- City of Novato, Downtown Novato Specific Plan, 1999. Chapter 5 Design Guidelines, section UD 11.6.4 Planting in Parking Areas
- American Association of State Highway and Transportation Officials, Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2004;
- Santa Clara Valley Transportation Authority, VTA Pedestrian Technical Guidelines, 2003;
- SANDAG, Planning and Designing for Pedestrians, June 2002.

## Educational Tool UD-E: Urban Design of TOD

A wealth of information and resources related to TOD, land use planning, zoning, and urban design exists on the web. The following recommended documents are available for free, in PDF format at the URLs listed below.

### ***Urban Design, Transportation, Environment and Urban Growth: Transit-Supportive Urban Design Impacts on Suburban Land Use and Transportation Planning***

available at: <http://www.cts.umn.edu/trg/publications/pdfreport/TRGrpt11/TRG11.pdf>

Prepared by Dock, Frederick and Swenson, Carol, Center for Transportation Studies: University of Minnesota. 2003. This document considers case studies and different regional planning approaches to assess impacts of transit-supportive urban design strategies on suburban land use and transportation. Because the focus is on lower-density areas with established auto-orientation, the analyses are pertinent to Marin.

### ***Caltrans Transit-Oriented Development Compendium***

available at: [http://www.dot.ca.gov/hq/MassTrans/doc\\_pdf/TOD2/TOD\\_Compendium.pdf](http://www.dot.ca.gov/hq/MassTrans/doc_pdf/TOD2/TOD_Compendium.pdf)

Published by the Center for Transit Oriented Development, June 2005. Chapter 3, Key TOD Considerations: Zoning, Density, Mixed-Usage, Buildings and Architecture discusses critical elements of well balanced and well designed TOD. The document analyzes case studies from around the state.

### ***Transit-Oriented Development and Joint Development in the United States. Urban Design Chapter***

available at: [http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_rrd\\_52.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rrd_52.pdf)

Published by the Transit Cooperative Research Program, October 2002. This study discusses TOD in a national context, and includes a valuable chapter on urban design, which discusses a variety of subtopics that are of particular interest in Marin. Community Service Integration, Successful Design Principles and Characteristics, The Evolutionary Approach to TOD, and discussion of walking-scale TOD are all design concepts explored in this document which are of particular interest to planners and designers working in Marin.

### ***Building Transit Oriented Development in Established Communities***

available at: <http://www.nctr.usf.edu/pdf/473-135.pdf>

Published by the Center for Urban Transportation Research. University of South Florida. November 2002. This study documents the use of numerous strategies, especially urban design and design guidelines, to make progress toward development of successful TOD. The focus on implementation steps in established auto-oriented areas has particular value to Marin's policy makers, planners, and designers.

### ***Strategies and Tools to Implement Transportation Efficient Development: A Reference Manual***

available at: <http://www.mass.gov/dhcd/ToolKit/S+T2ITED.pdf>

Published by the department of Urban Design and Planning, University of Washington. 2003. Part of a series on integrating land use and transportation investment decision-making, this document explores design and land use for areas around transit-resources that can support and improve the value of transportation investments. The focus on the integrated approach to transportation and land-use is pertinent to the TPLUS program.

### **City of San Jose, Design Guidelines - Chapter 5A Transit-Oriented Development**

available at: [http://www.sanjoseca.gov/planning/design\\_guidelines/Chap%205A\\_TOD.pdf](http://www.sanjoseca.gov/planning/design_guidelines/Chap%205A_TOD.pdf)

This document from the City of San Jose includes guidelines for planning staff to assess the contribution of new development to the transportation, land use, parking, and pedestrian-related goals of TOD. Marin planning staff could implement a similar set of guidelines in focus areas where they wish to derive certain value or attributes from new development.

## C - 3. Multi-modal Streets and Circulation Network Design Guidance

This section of the Toolkit contains design and planning tools aimed at increasing the connectivity of the existing circulation network for bicyclists and pedestrians, and at improving existing neighborhood streets and arterials to become multi-modal transportation facilities that not only accommodate vehicular traffic, but also pedestrians, bicyclists, and transit. This also includes the design of off-road facilities for pedestrians and bicyclists. Clear references are provided to easily accessible on-line publications and other documents that contain further detailed guidance related to each tool in this section.

The section is organized as follows:

### **Toolset T-1: Increasing Connectivity for Pedestrians, Bicycles, and Local Vehicular Traffic**

Provides tools that help increase connectivity, primarily for pedestrians and bicyclists, but also for local vehicular traffic (Alternative Routes).

### **Toolset T-2: Traffic Management**

Describes key speed management and traffic calming tools needed to sustain a pedestrian- and bicycle-friendly traffic environment.

### **Toolset T-3: Multimodal Arterial and Neighborhood Street Design**

Includes tools that address how arterial and neighborhood streets can be transformed to better serve the mobility needs of pedestrians, bicyclists, and transit riders.

### **Toolset T-4: Mobility Needs of Seniors and People with Disabilities**

Outlines tools that address the key mobility needs of seniors, who represent an increasing segment of Marin's population, and people with disabilities.

### **Toolset T-5: Transit, Bicycle, and Pedestrian Access to Schools**

Outlines tools that address the key mobility needs of children on their way to and around schools.

### **Educational Toolset T-E: Benefits of Multi-Modal Streets, and Pedestrian and Bicycle Safety**

Lists a number of valuable resources on the topic of multi-modal streets, all of which are available free of charge, in PDF format, on the web.

Each toolset begins with an introduction that includes specific issues raised in the outreach process and references to tools in the toolkit that address those issues. Many issues are addressed in multiple toolkits.

## *C-3.1 Toolset T-1: Increasing Connectivity for Pedestrians, Bicyclists and Local Traffic*

In order to foster a healthy environment for TOD and PeD and decrease dependence on the automobile in Marin, pedestrian, bicycle, and transit connectivity must be improved to encourage these modes as realistic alternatives to driving for every type of daily trip. While these tools are intended to improve safety and connectivity for pedestrians and bicyclists, they also focus on better dispersing local auto traffic to ease the burden on Marin’s major arterials and better define networks for local travel. These tools address many of city staff and residents’ most frequently cited issues and barriers to realizing TOD and PeD in Marin.

### **Issue:**

- Pedestrian safety is a key issue on major streets.

### **Tools:**

- T-1.1: Network of Multi-modal Arterials and Neighborhood Streets suggests planning and implementation of roadway networks that provide for regional and local traffic, pedestrians, and bicycles and balanced access for all these modes throughout the community. Some roadways may stress one mode over another, but high-quality and complete access should be provided for all modes.
- T-1.1: Frequency of Roadway Crossings suggests guidelines for placement of roadway crossings to optimize pedestrian connectivity in order to decrease illegal and unsafe pedestrian crossing.
- T-1.1: Pedestrian Connections across Highway On/Off Ramps details improved pedestrian connections and visibility at locations where automobiles are transitioning to or from higher speeds and a context where they are not thinking about the presence of pedestrians.

### **Issues:**

- Many of Marin’s major rights-of-way are constrained by topography or existing development and cannot be improved to accommodate bicycles and pedestrians without decreasing vehicular LOS.
- Lack of an interconnected street network, lack of east-west routes, and lack of alternatives or parallel routes to Highway 101 require even short local trips to be made by freeway.
- Completion of linkages between existing bike routes is necessary to provide a better network for alternative travel.
- Reorientation of traffic patterns in Marin has increased the number of intra-Marin trips, especially north-south trips.
- Adding bike and pedestrian facilities to a roadway can result in the removal of on-street parking, which can upset local residents or conflict with transit stop locations or functions.

**Tools:**

- T-1.1: Alternative Roadway Routes for Pedestrians, Bicycles, and Local Traffic discusses the distribution of different roadway functions across parallel routes, each of which can then give priority to certain modes of travel.

**Issue:**

- Highway 101 creates a physical barrier that makes it difficult to achieve an interconnected transportation system, particularly for pedestrians and bicyclists.

**Tools:**

- T-1.1: Roadway Overpasses and Underpasses provides guidance for improved roadway crossings over highways and rail corridors, which can be significant barriers to connectivity for all modes of travel.
- T-1.1: Pedestrian Connections Across Highway On/Off Ramps addresses improving sidewalks, signage, and other pedestrian amenities and conditions related to the safety of pedestrians at the transitions between high-speed highways and lower-speed local traffic networks.
- T-1.2: Grade-Separated Crossings discusses the distribution of different roadway functions across parallel routes, each of which can then give priority to certain modes of travel.

**Issue:**

- The high number of daily vehicular trips and heavy dependence on automobiles is a result of difficult topography.

**Tools:**

- T-1.1: Frequency of Roadway Crossings discusses the characteristics of hierarchical branching street systems versus interconnected street networks and the importance of increased roadway connectivity. Greater connectivity means more direct and alternative routes that can provide easier ways for local traffic to negotiate challenges such as topography,
- T-1.2: Non-Roadway Connections discusses the use of small infrastructure elements, such as paths and stairs, that can help pedestrians and bicyclists quickly connect between areas that are physically close but are not well linked by roadways because of topography or development patterns.
- T-1.1: Network of Multi-modal Arterials and Neighborhood Streets suggests the planning and implementation of roadway networks that provide for regional and local traffic, pedestrians, and bicycles and that balances access for all these modes throughout the community. Some roadways may stress one mode over another, but high-quality and complete access should be provided for all modes.

**Issue:**

- Completion of linkages between existing bike routes is necessary to provide a better network for alternative travel.

**Tools:**

- T-1.2: Pedestrian Bicycle and Multi-Use Paths addresses network components and infrastructure specifically designed for pedestrian and bicycle use, both for recreation and transportation.
- T-1.2: Non-Roadway Connections discusses the use of small infrastructure elements, such as paths and stairs, that can help pedestrians and bicyclists quickly connect between areas that are physically close but are not well linked by roadways because of topography or development patterns.

**Issue:**

- People are unlikely to use transit even if it is made more available and useful.

**Tools:**

- T-1.3: Pedestrian and Bicycle Linkages to Transit cites evidence that increased transportation options, particularly the presence of safe, attractive, and convenient facilities, encourages people to choose alternatives to automobiles for some daily trips.

## Tool T-1.1: Multi-modal Network of Roads

### Network of Multi-modal Arterials & Neighborhood Streets

#### Introduction

Access to land uses via public streets is almost ubiquitous for the automobile, and travel on these streets has largely been optimized for vehicular traffic. Meanwhile, pedestrians and bicycles are not afforded the same attention in the design of circulation networks and street cross-sections. While pockets of development such as some of Marin's downtowns and town centers, have sidewalks and bikeways, these pockets often lack proper interconnection or are separated by segments of streets that do not provide safe and convenient pedestrian or bicycle facilities because they have been optimized for automobiles.

To promote bicycling and walking as viable transportation choices in Marin, it is important not only to provide properly designed facilities for pedestrians and bicyclists, but also to establish a useful network of such facilities that matches the travel needs of people in a given jurisdiction or area.

In this context, arterials and neighborhood streets represent a key community asset. Their conversion into streets that properly accommodate pedestrians and bicyclists as well as automobiles represents a cost-effective way to establish desired pedestrian and bicycle networks. This approach capitalizes on past investments and creates connections within an already familiar circulation network. Additional non-roadway connections (see Tool 1.2: Non-Roadway Connections) and bicycle paths (Class 1) can then be added where the network of existing neighborhood streets and arterials is not direct enough for the specific requirements and conditions of pedestrian and bicycle travel (i.e. sensitivity to circuitous routes).

#### Guidance

- Jurisdictions should work to realize the recommendations and continuous networks proposed in local and countywide Bicycle and Pedestrian Master Plans.
- These plans should include an action plan that outlines which neighborhood streets already match requirements for multi-modal travel and which segments of local and arterial streets need to be upgraded and improved, and

#### Related Principles:

P1 P6



Figure C-3.1.1 Where possible, major arterials should accommodate multiple modes of transportation to encourage the viability of each mode.

#### Best Practice: San Rafael Road Diet

In June 2006, San Rafael's Department of Public Works added bicycle lanes on Kerner Avenue between Shoreline Parkway and Grange Way thanks to a "Road Diet," which helped them find the necessary space. After discovering that the center turn lane was unnecessary in existing traffic usage on the road, DPW was able to add bike lanes at little to no extra cost as they re-striped the road during regular maintenance, leaving out the turn lane and adding two bike lanes.

#### Related Tools:

Toolset T-3: Multi-modal Arterial and Neighborhood Street Design

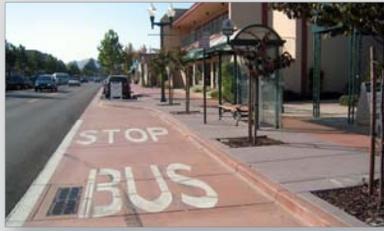


Figure C-3.1.2 Including transit facilities on major arterials, such as this bus stop on Grant Avenue in Novato, encourages their use.

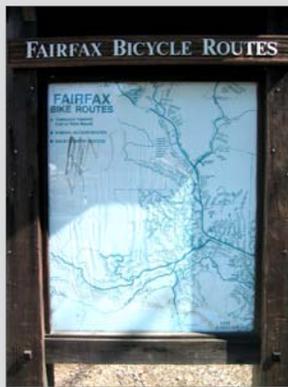


Figure C-3.1.3 and Figure C-3.1.4 A continuous network of facilities for all modes of transportation is important to realizing viable alternative multi-modal transportation.



Figure C-3.1.5 A constrained situation where parking in some areas was traded for space for bike lanes on Butterfield Road in San Anselmo.

to what extent, in order to accommodate pedestrian, bicycle and, where applicable, transit facilities appropriate for the street type and network function.

- Refer to Toolset T-3 Multimodal Arterial and Neighborhood Street Design for recommended and standard dimension ranges for individual design elements of multimodal streets, such as sidewalks, bicycle lanes, parking lanes, travel lanes, etc.

### References

- American Association of State Highway and Transportation Officials, Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2004.
- American Association of State Highway and Transportation Officials, Guide for the Planning, Design, and Operation of Bicycle Facilities, 1999.
- California Department of Transportation, Pedestrian and Bicycle Facilities in California, 2005. Section 3 – Planning (p. 8. Bicycle Transportation Master Plan)
- Santa Clara Valley Transportation Authority, Community Design & Transportation – A Manual of Best Practices for Integrating Transportation and Land Use, 2003. Section 4 – A Multi-modal Approach to Streets (p. 4-21, The Pedestrian Environment)
- Marin County, Marin County Bicycle and Pedestrian Master Plan, 2001.

## Alternative Roadway Routes for Pedestrians, Bicycles, and Local Traffic

### Alternative Pedestrian and Bicycle Routes

In many areas of Marin, a combination of confined rights-of-way and high vehicular traffic volumes prevents construction of sidewalks of appropriate width and/or provision of adequate roadway space for bicycle lanes or shared outside travel lanes. Where such conditions occur along a key pedestrian or bicycle route, a signed alternative route should be provided. Alternative routes should only be considered where all other measures to accommodate pedestrians and bicyclists fail or their accommodation can only be achieved at a level below acceptable minimum design standards. Alternative routes may divert pedestrian or bicycle traffic from a confined or too busy arterial to a route on a parallel street or onto a non-roadway connection that bypasses the constrained street segment (see Tool T-1.2: Non-Roadway Connections). In some cases it may also be desirable to route pedestrians and bicyclists from a car-dominated environment along an arterial to a parallel street with a more pedestrian-oriented character and set of land uses. In Fairfax, for example, a network of bicycle routes was created to decrease demand for right-of-way space in a confined section of Sir Francis Drake Boulevard (see Figure C-3.1.8). However, in such cases, minimum accommodations for pedestrian and bicycle traffic (where appropriate) should still be provided along the arterial street.

### Alternative Vehicular Routes

Often, Marin's major arterials are overburdened with vehicular traffic because local trips are added to high volumes of through-traffic in locations where no reasonable alternative route exists for the local traffic. While, at a larger scale, this is true for sections of Highway 101 in Marin, it also applies to a critical few east-west arterials such as Sir Francis Drake. Sometimes opportunities exist to sensitively add new streets a few blocks long for traffic with local destinations, without creating unwanted cut-through traffic in residential areas (see Tools T-2.1 Speed Management/Traffic Calming and T-2.2: Cut-Through Traffic). Careful traffic analysis and employment of traffic calming devices needs to be an integral part of any exploration of a local alternative route. The benefit of such parallel routes is a reduction of traffic volumes on locally congested arterials or between individual exits of Highway 101, which may also result in improvements of conditions for pedestrians and bicyclists along arterials. Alternative vehicular routes may be particularly appropriate in largely commercial areas that draw higher volumes of local and regional traffic. In such commercial areas parallel routes may initially take the form of a coherently designed street through a series of surface parking lots. Ideally, alternative routes are not like roads with a single frontage of often solely car-oriented uses, but rather resemble local streets with sidewalks and mixed-use

#### Related Principles:

P1 P6



Figure C-3.1.6 In Mill Valley, some areas include local routes parallel to Miller Avenue



Figure C-3.1.7 This bike path provides a bicycle and pedestrian route parallel to Highway 101 north of Sausalito.



Figure C-3.1.8 Where constrained rights-of-way restrict the ability to create multi-modal roads, bicycles and local traffic can be directed to alternative parallel routes, such as between San Anselmo and Fairfax.

#### Related Tools:

Tool T-1.2: Bicycle and Pedestrian Non-Roadway Network and Facilities

Toolset T-2: Traffic Management



Figure C-3.1.9 A sign in Belvedere directs local and thru-traffic to separate roads.



Figure C-3.1.10 Redwood Blvd diverts local traffic and bicycles to a parallel route in downtown Novato.



Figure C-3.1.11 Where Sir Francis Drake Blvd becomes constrained in Fairfax, bicycle traffic is diverted to local roads.

development on both sides. It is critical to the success of a parallel route and its acceptance by local residents that the street be designed to accommodate only local traffic to destinations in the area. Traffic speeds and streetscape design should be set and selected accordingly. Travel time along the parallel local route should on average be slower than on the congested arterial.

### Vehicular Alternative Routes could be explored where:

- The physical and land use conditions allow for the creation of a sufficient right-of-way for the alternative route;
- A high percentage of local traffic combines with already high volumes of through traffic on a congested arterial;
- The diversion of a portion of the local traffic will likely reduce volumes on Highway 101 or a congested arterial; and,
- Revitalization efforts could benefit from the alternative route and help to establish new mixed-use development that is less dependent on direct vehicular access from the arterial (see Figure C-3.1.10).

### Design of Vehicular Alternative Routes should include:

- Sidewalks and, where appropriate, bicycle facilities;
- Traffic calming measures and measures to prevent cut-through traffic, as warranted by the land use context (see Figure C-3-1-11);
- Streetscape elements appropriate for the design of local-serving, pedestrian-oriented streets (street trees, bulb-outs, on-street parking, medians with left turn pockets where appropriate); and,
- Local stakeholder involvement in the planning and design stages.

### References

- Handy, Susan, Kent Butler, and Robert G. Patterson, Planning for Street Connectivity: Getting from Here to There (PAS 515), American Planning Association, 2003.
- Alta Planning + Design, Pedestrian and Bicycle Facilities in California: A Technical Reference and Technology Transfer Synthesis for Caltrans Planners and Engineers, prepared for California Department of Transportation, 2005. Section VI. – Standard and Innovative Practice for Bicycle Facilities (p. 15, Class III Bike Route: Bicycle Boulevard)
- Metropolitan Transportation Commission, Pedestrian and Bicycle Safety Toolbox, Planning/Engineering, Bicycle Boulevards. <http://www.mtc.ca.gov/planning/bicyclespedestrians/tools/bicycleBlvd/index.htm>

## Frequency of Roadway Crossings

### Introduction

Connectivity is a major determinant of the usability and convenience of a pedestrian circulation network. Most consider the maximum length of a walking trip to be 1 mile. Since approximately 25 percent of all trips are less than 1 mile long, walking has the potential to serve a significant portion of these trips (from AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities). Therefore the design of the transportation system should maximize pedestrian network connectivity to reduce the distance of potential pedestrian trips. In this context, frequency of safe pedestrian crossings on streets that carry more than 12,000 ADT at velocities over 40 mph is critical.

While the guidance below may be valuable in Marin's more traditional town and urban contexts, such as central Novato and central San Rafael, and in more developed town centers throughout the county, other factors and strategies must be considered for more challenging landscapes. In Marin's residential areas, topography and resulting development patterns play a significant role in decreased street network connectivity. Here, pedestrian connectivity can be facilitated by other tools, such as Tool T-1.2 Non-Roadway Connections, and auto connectivity can be improved by considering alternative roadway routes for local traffic, as discussed in the preceding tool, Network of Multi-modal Arterials and Neighborhood Streets to prevent all traffic from relying on a few major arterials.

### Guidance

- Where arterials traverse areas with intersection spacing of less than 500 feet, crosswalks should be provided at every intersection but at a minimum every 500 feet. Additional mid-block crossings should only be used where specifically warranted by generators of or destinations for high volumes of pedestrians, for instance within an active mixed-use center or near a cluster of senior housing.
- Where the distance between intersections exceeds 500 feet, crosswalks should be provided at every intersection. Strong consideration should be given to adding mid-block crossings where distances to the next crossing are greater than 250 feet or in locations where mid-block destinations, such as transit stops or other amenities, are likely to draw pedestrians from across the street.

#### Related Principles:

P1 P5



Figure C-3.1.12 There are many locations in Marin where mid-block crossings might be warranted to increase pedestrian connectivity.



Figure C-3.1.13 Downtown San Anselmo has many mid-block crossings for pedestrian safety in an area of high pedestrian activity and long blocks.

#### Related Tools:

Tool T-1.2: Grade Separated Crossings

Tool T-3.8: Crosswalks and Curb Ramps



Figure C-3.1.14 In some locations, such as near this park in Strawberry, high pedestrian traffic necessitates additional crossings.

- Roadway networks with offset streets or frequent T-intersections can result in substantial increases in travel route length if crosswalks are not provided at each intersection (sometimes this is technically infeasible when offset or T-intersections are closely spaced).
- Where creating offset or T-intersections is unavoidable or such conditions already exist, crossings for both sidewalks of the intersecting street allow avoid pedestrians a more direct path of travel without adding an additional street crossing to their trip.

In light of the importance of connectivity for pedestrian travel throughout the street network, the above recommendations should be applied to all thoroughfare segments within City, Town, and Village Centers and clusters of uses that produce high levels of pedestrian activity. Along other segments of arterials in suburban residential contexts, distances to the nearest crossing may increase to 350 feet.

Use of pedestrian underpasses, tunnels, or overpasses as a substitute for at-grade crossings at the above-discussed intervals is appropriate only for freeways and expressways/parkways but not for arterials and neighborhood streets. An exception occurs when such grade-separated solutions are applied where pronounced grade differences in the local topography or mid-block crossings at school facilities require the use of pedestrian over- or under-passes.

#### References

- Handy, Susan, Kent Butler, and Robert G. Patterson, *Planning for Street Connectivity: Getting from Here to There (PAS 515)*, American Planning Association, 2003.
- California Department of Transportation, *Pedestrian and Bicycle Facilities in California, 2005*. Section V – Standard and Innovative Practices for Pedestrian Facilities and Traffic Calming (p. 6, Pedestrians: Crossings: Crosswalks)
- *Context Sensitive Solutions in Designing Major Urban Throughfares for Walkable Communities*, Institute of Transportation Engineers, 2006.
- *Safety Effects of Marked versus Unmarked Crosswalks at Uncontrolled Locations*, FHWA, 2002
- *Manual of Uniform Traffic Control Devices*, FHWA, 2003 Edition
- *Guide for the Planning, Design and Operation of Pedestrian Facilities*, AASHTO, 2004

## Roadway Overpasses and Underpasses

Where surface streets intersect with barriers such as railroad tracks, waterways, or high-speed freeways, the intersection often includes grade-separated over- or underpasses. Throughout Marin, east-west arterials and important local routes cross Highway 101. At these locations, continuous and comfortable pedestrian facilities along the entire tunnel or grade-separated crossing are essential to the comfort of the pedestrian environment. If preserving auto access across barriers is important, it is even more so for pedestrians, whose slower travel speed makes out-of-direction travel far more inconvenient.

For existing substandard bridges, consideration should be given to cantilevering a path to provide access for bicycles and pedestrians. For underpasses, provision of a higher than standard curb, additional sidewalk width, and appropriate lighting levels (day and night) are design criteria critical to providing pedestrians with the needed sense of safety. Bicycle lanes through tunnels and underpasses should also provide an added margin of safety.

### References

- Santa Clara Valley Transportation Authority, VTA Pedestrian Technical Guidelines, 2003:Section 3.2 E. Roadway Overpasses and Underpasses
- American Association of State highway and Transportation Officials, Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2004:Section 3.2.9 Sidewalks for Highway Bridges, Underpasses, and Tunnels
- Federal Highway Administration, Pedestrian Facilities User Guide, June 2002: Chapter 4, Section 6 Pedestrian Overpasses/ Underpasses
- Metropolitan Transportation Commission, Pedestrian and Bicycle Safety Toolbox, 2006: Planning/Engineering: Special Bicycle Signs, Tunnels <http://www.mtc.ca.gov/planning/bicyclespedestrians/tools/specialBikeSigns/index.htm>

#### Related Principles:

P1 P5



Figure C-3.1.15 Highway 101 is a major barrier to connectivity throughout Marin and requires numerous overpasses, such as this one in Corte Madera.



Figure C-3.1.16 This creek bridge functions well for vehicles, but does not allow for safe pedestrian crossing.



Figure C-3.1.17 This on-ramp in Corte Madera has a pedestrian and bike path which crosses beneath it.

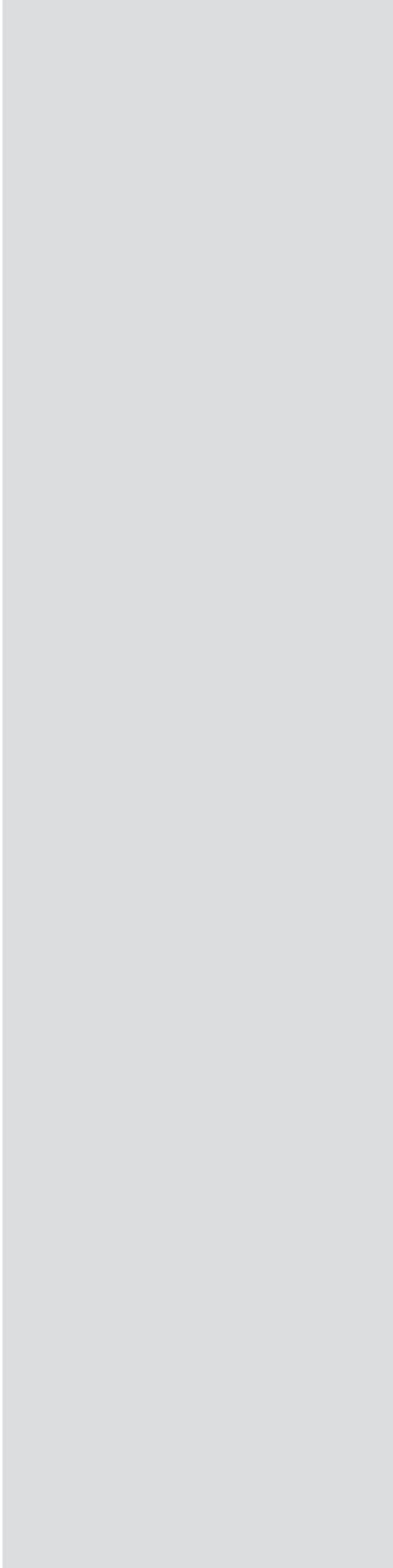
#### Related Tools:

Tool T-1.1: Pedestrian Connections Across Highway On/Off Ramps

Tool T-1.2: Grade-Separated Crossing

Tool T-3.2: Sidewalks

**TOOL T-1.1 : Multi-modal  
Network of Roads**



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## Pedestrian Connections across Highway On/Off Ramps

Safety for pedestrians and bicyclists crossing highway on- and off-ramps while crossing under or over highways is a concern along Marin's segments of Highways 101, 37, and 580. This concern can be addressed by designing freeway on- and off-ramps to maximize pedestrian and bicycle safety.

Freeway on- and off-ramps serve as the transition point for vehicles between high freeway speeds and low neighborhood speeds. Where ramps meet surface streets, whether at an intersection or a merge point, it is essential for the motorist to be alerted to the transition to a pedestrian area.

On- and off-ramps in the pedestrian environment should include comfortable crossings for pedestrians and encourage safe driving behavior. For off-ramps, this entails ensuring that vehicles exiting from freeways have slowed to appropriate surface-street speeds so drivers can be vigilant for crossing pedestrians and bicycles. For on-ramps, it entails ensuring that vehicles do not accelerate to freeway speeds before they have entered the high-speed facility. Narrowing the crossing distance and/or providing a refuge island at ramp-street intersections is necessary to reduce the time that all pedestrians, and especially slower-moving young, elderly, or disabled pedestrians are exposed.

Controlling traffic at highway on- and off-ramps can typically be accomplished through setting proper speed limits, installing and timing traffic control devices appropriately to the presence of pedestrians, and prohibiting right-turns-on-red where necessary. In some situations, where safe at-grade pedestrian crossings cannot be ensured at intersections, grade separated crossings may be warranted.

### References

- California Department of Transportation, Pedestrian and Bicycle Facilities in California, 2005: Section VI – Standard and Innovative Practices for Bicycle Facilities (p. 20, Roadway Design: Freeway Ramps)
- Santa Clara Valley Transportation Authority, VTA Pedestrian Technical Guidelines, 2003:Section 3.2 F. Highway On/Off Ramps

#### Related Principles:

P1 P5



Figure C-3.1.18 Freeway on/off ramps in Marin provide dangerous conditions for pedestrians because of the high speed of auto traffic.



Figure C-3.1.19 This transit stop is located between on and off ramps, but has no crosswalks connecting to surrounding sidewalks.



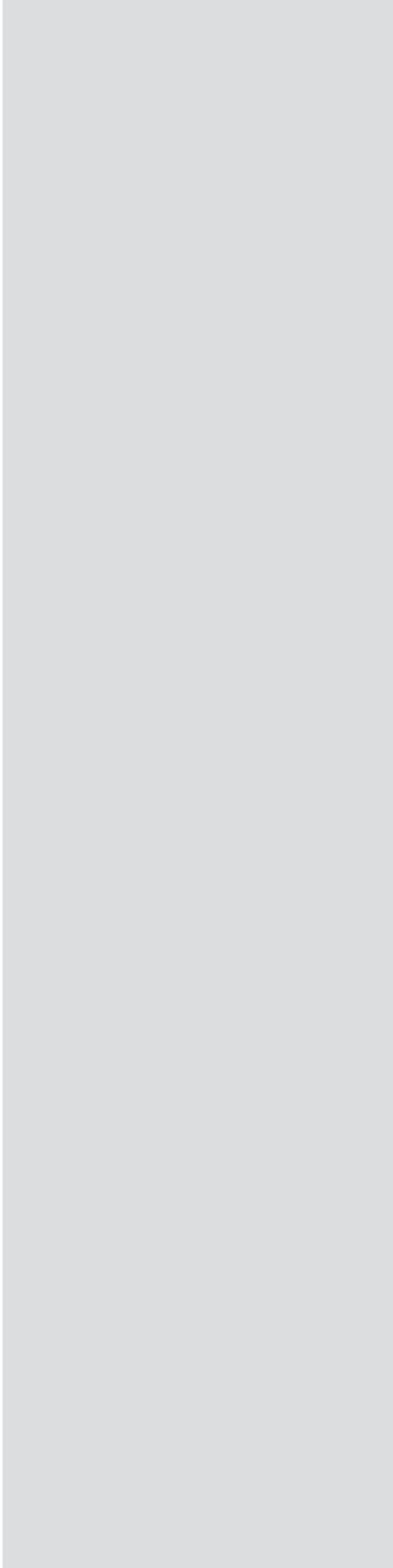
Figure C-3.1.20 This on-ramp in Corte Madera has a pedestrian and bike path which crosses beneath it.

#### Related Tools:

Tool T-1.2: Grade-Separated Crossings

Tool T-3.8 Crosswalks and Curb Ramps

**TOOL T-1.1 : Multi-modal  
Network of Roads**



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## Tool T-1.2: Bicycle and Pedestrian Non-Roadway Network and Facilities

### Pedestrian, Bicycle, and Multi-Use Paths and Trails

#### Introduction

Marin offers a wide range of choices for the bicycle traveler and has an extensive network of paths, trails, lanes, and routes. These routes are also available to pedestrians, inline skaters and users of other forms of non-motorized transportation. In addition, bicycle boulevards, when used in an urbanized street network, provide safe routes parallel to major arterials. When designing bicycle connections, it is important to consider the potential users of the connection, whether they are seniors with limited mobility, children going to and from school, bicycle commuters, recreational users, or tourists. Bicycle connections should be part of an integrated bicycle transportation system that is designed with appropriate connections and facilities for its users.

#### Guidance

Bicycle connection measures can be classified into the following types.

- Class 1 Paths - independent rights-of-way physically separated from vehicle travel lanes. Motorized vehicle activity is prohibited. These are often found in park-like or scenic settings. Trails are typically 10-12 feet wide. AASHTO provides dimensional, signage, and pavement marking standards.
- Class 2 Bike Lanes - on-street lanes dedicated and demarcated for bicycle travel. A bicycle lane is a portion of a road or highway that is designated by striping, signing, and pavement markings to provide preferential or exclusive use of the lane by bicyclists. Bike lanes are typically 4-6 feet wide. Due to their multi-modal function, improved roadway maintenance is particularly important to improve rider safety.
- In some cases, a curbside parking lane can be striped to allow a shared parking lane and bicycle travel. This is typically done in areas where a full bicycle lane is not feasible, however it is discouraged where alternative means of providing a bicycle lane are possible.

#### Related Principles:

P1 P5



Figure C-3.1.21 Multi-use paths and trails throughout Marin accommodate a variety of different users.



Figure C-3.1.22 Many of Marin's most scenic areas include Class 1 trails or multi-use paths for pedestrian access.

#### Related Tools:

Tool T-1.2: Grade-Separated Crossings

Tool T-3.5: Pedestrian Amenities

Tool T-E3: Safe Transit, Bicycle, and Pedestrian Facilities for Schools



Figure C-3.1.23 Informational signage is a valuable component of a good network of multi-use paths.



Figure C-3.1.24 Class 3 bike routes, such as this one leading to a school in Fairfax, are ideal for lower traffic volume areas such as many of Marin's residential streets.



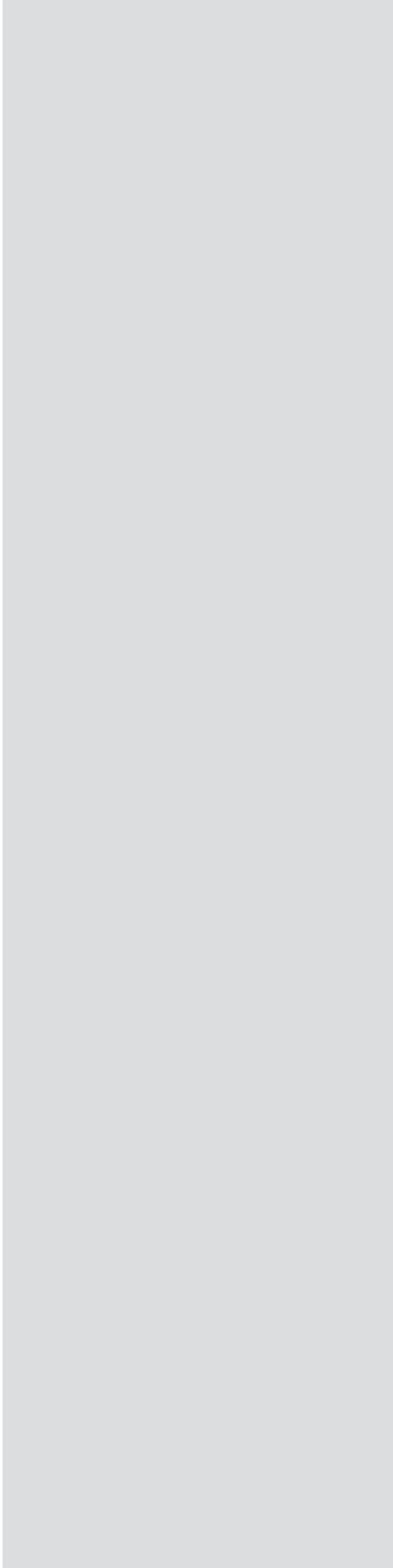
Figure C-3.1.25 Where multi-use paths cross roadways, there should be clear signage and traffic control both on the roadway and multi-use path.

- Class 3 Bike Routes - located along roadways where dedicated bicycle lanes cannot fit or are not needed (for example, on a low-volume street), but where providing continuity in a bicycle system is nevertheless important. Signage informs bicyclists and automobile drivers of the Bike Route designation, improving awareness. Due to their multi-modal function, improved roadway maintenance is particularly important to improve rider safety.
- Bicycle boulevards, sometimes called bicycle priority streets, are urban, low-volume streets where all types of vehicles (including cars) are allowed, but the roadway is modified to enhance bicycle safety and convenience. They might feature traffic-calming measures, such as speed humps and curved sections, and bicycle-friendly measures, such as reduced number of stop signs along the corridor, enhanced intersections, and bicycle-oriented wayfinding signage. Bicycle boulevards typically parallel busy arterial streets and offer a safer and more attractive option for cyclists. Some jurisdictions use half-closures, where auto traffic cannot enter a block from one direction, to provide similar traffic calming for motor vehicles and safer lanes for bicycles.
- Bicycle parking can range from simple racks to individual bicycle enclosures. Bicycle parking facilities offer places for bicyclists to store their bicycles in a safe and secure place, where they can end their trip or continue it using another form of transportation. It is important to have adequate bicycle parking facilities at major destinations and transit centers.
- Bicycle stations that provide sheltered and monitored storage may be considered for transit hub locations that are frequented by high numbers of bicyclists. Bicycle stations often have associated retail spaces that may sell bicycles and accessories or provide bicycle maintenance and repair services. The bicycle stations at the Palo Alto Caltrain station and at the downtown Berkeley BART station are good working examples of bike stations in the Bay Area. In order to be financially feasible, a full-service bike station needs to regularly house 50-60 bicycles and requires a footprint of about 1500 square feet. SMART's plans for commuter rail service include the potential for bicycle stations at the Downtown San Rafael Station and one of the two Novato stations.

## References

- National Center For Walking and Bicycling Design Guidelines [http://www.bikewalk.org/bicycling/design\\_guide/bike\\_design\\_guide\\_index.htm](http://www.bikewalk.org/bicycling/design_guide/bike_design_guide_index.htm)
- Federal Highway Administration (FHWA) <http://www.fhwa.dot.gov/environment/bikeped/publications.htm>
- American Association of State Highway and Transportation Officials (AASHTO) <https://www.transportation.org/publications/bookstore.nsf/Categorized?openform&cat=Design/Operations/Planning>
- Manual on Uniform Traffic Control Devices, 2003 (paper or CD-ROM; \$75). Part 9, Bicycles, provides standards for bicycle signage and pavement markings for roadways and shared-use paths.
- Guide for the Development of Bicycle Facilities, 3rd Edition, 1999 (paper, \$36-\$45)
- Rails-to-Trails Trails and Greenways Clearinghouse <http://www.trailsandgreenways.org/>
- City of Berkeley – Bicycle Boulevard Program <http://www.ci.berkeley.ca.us/transportation/Bicycling/BB/Guidelines/linkpag.htm>
- Federal Highway Administration Bicycle and Pedestrian Program. <http://www.fhwa.dot.gov/environment/bikeped/index.htm>
- Marin County Bicycle Coalition. <http://www.marinbike.org/Index.htm>; <http://www.saferoutestoschools.org/>
- League of American Bicyclists. <http://www.bikeleague.org/index.cfm>

**TOOL T-1.2 : Bicycle and Pedestrian  
Non-Roadway Network**



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## Non-Roadway Connections

### Introduction

In some parts of Marin, development patterns have favored low street connectivity, giving rise to buildings that are set back behind parking lots or landscaped areas, ‘campus-style’ sites that feature multiple, widely-spaced buildings, and streets that dead-end instead of connecting with other streets. In this setting, sidewalks along roadways cannot complete the pedestrian system by themselves. Non-roadway connections are also needed to provide the necessary directness for high pedestrian access.

Multi-use trails, of the longer, recreational variety, are one type of non-roadway pedestrian connection. These may run through a park or alongside a waterway or other natural setting, and are used by walkers, runners, bicyclists, inline skaters, and horseback riders. These trails are important for pedestrians and bicyclists, and documents that provide guidance on their design are discussed under Tool T-1.2: Pedestrian, Bicycle, and Multi-use Paths and Trails.

The focus of this tool is another type of non-roadway connection, one that is shorter and serves more to efficiently connect pedestrians to their destinations. These walkways are not immediately adjacent to a street; they connect to pedestrian facilities and building entrances to enhance overall local connectivity and shorten pedestrian travel distance. Thus they can alleviate some of the limitations imposed by branch-like street networks and/or steep grades in residential neighborhoods along Marin’s foothills and in other locations. As well, these connectors can be valuable in areas near schools, to encourage walking and bicycling to and from school. The listed measures typically suggest adding “infill” segments of pedestrian or ped/bike facilities, such as pathways, access ways, cul-de-sac connectors, and stairways.

### Guidance

Non-roadway connections can come in the following forms.

- Pedestrian pathways connect sidewalks with building entrances where buildings are not immediately adjacent to the street. On especially large sites with multiple buildings widely spaced, pathways are essential for connecting one building to another and all buildings to the street and sidewalk. In general, pathways should be built to meet applicable ADA requirements. Their width should be between 8 and 10 feet and they should be well lit, with a minimum vertical clearance of 8 feet. Where adjacent to a street, pathways should have a minimum separation of 5 feet from the curb line.

#### Related Principles:

P1 P5



Figure C-3.1.26 Pedestrian and bicycle connections between local and arterial roadways improve residents’ access to transit stops, local stores, schools, and other destinations.

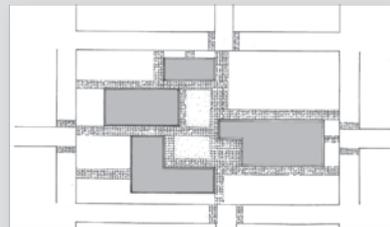


Figure C-3.1.27 Pedestrian connections through large blocks can decrease the number of barriers to pedestrian circulation within a neighborhood.

#### Related Tools:

Tool UD-1: Site and Project Design

Tool T-1.2: Pedestrian, Bicycle, and Multi-Use Paths

Tool T-E3: Safe Transit, Bicycle, and Pedestrian Facilities for Schools



Figure C-3.1.28 This pedestrian connector cuts through the middle of a long residential block to link two roads.



Figure C-3.1.29 Pedestrian connections between roadways, such as this one in Tiburon which links a residential area to a major arterial and multi-use path, decrease the distance a pedestrian must travel to reach nearby destinations.



Figure C-3.1.30 Pedestrian staircases in Mill Valley help shorten the distance a pedestrian must travel from hillside residential areas to reach downtown.

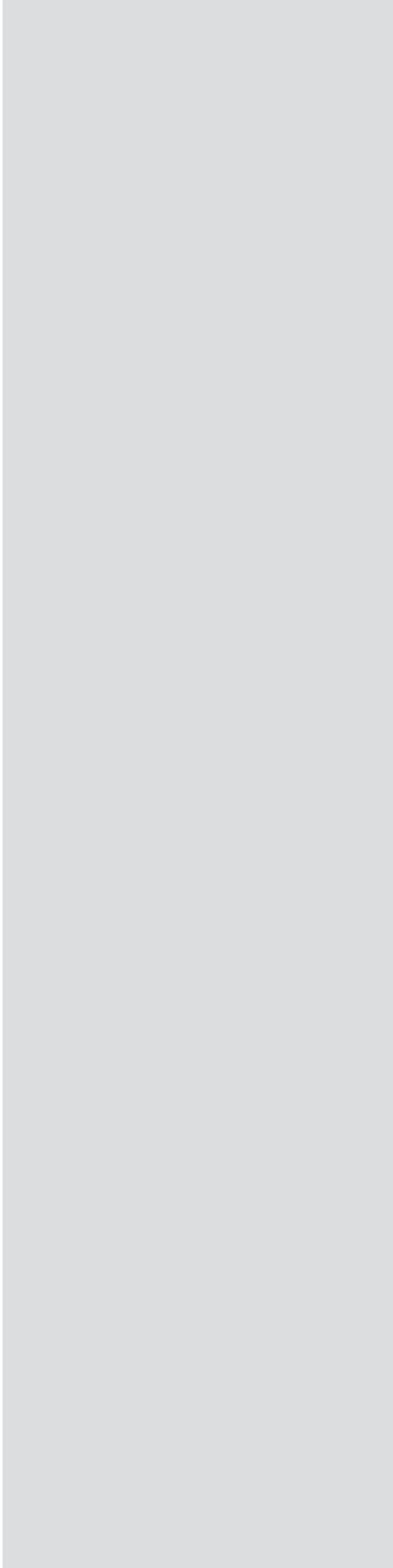
- Mid-block access ways connect sidewalks through blocks in between buildings where blocks are long. These access ways decrease the out-of-direction travel for pedestrians traversing areas with widely spaced streets. Where possible, mid-block access ways should have a usable width of 8 feet and also include 10-foot wide planting areas on either side to allow for the planting of shade trees and other landscaping or amenities (see Figure C-3.1.27).
- Cul-de-sac connectors make pedestrian connections where streets dead-end. In such neighborhoods, destinations that are close by can be rendered un-walkable by circuitous routes. Cul-de-sac connectors decrease walking distances, improving pedestrian connectivity. To enable emergency vehicle access, cul-de-sac connectors should include a 20-foot wide fire lane with a surface capable of withstanding fire truck use (“turf block” or paving) and measures to prevent regular traffic’s use of these facilities. Where emergency vehicle access is not required, these connections can be simple 6 to 8 foot wide paved paths connecting from the cul-de-sac to the sidewalk along the adjacent street. The connector should be as straight as possible to create open sight-lines and include pedestrian lighting that provides at least 1.8 foot-candles to increase users’ sense of safety (see Figures C-3.1.28 and C-3.1.29).
- Stairways are non-roadway connections used where grade-changes necessitate stairs instead of paths. Stairs have limited usefulness to pedestrians with mobility problems, so alternative routes via sidewalks or ramps should be provided where possible.<sup>1</sup> Public stairways should be no less than five feet wide, provide handrails, and have slip resistant tread surfaces. Treads (T) should be no less than 11 inches deep. Riser (R) height can be calculated by using the following formula:  $2R+T=26$  to 27 inches (see Figure C-3.1.30).

<sup>1</sup> In any case, an ADA-compliant path or sidewalk must be provided unless existing topography does not allow for this equivalent facility.

## References

- Handy, Susan, Kent Butler, and Robert G. Patterson, Planning for Street Connectivity: Getting from Here to There (PAS 515), American Planning Association, 2003.
- SANDAG, Planning and Designing for Pedestrians, June 2002: Section 3.7 Circulation System; Section 4.5.5 Trails and Pathways; Section 4.5.6 Mid-block Accessways; Section 4.5.7 Cul-de-Sac Connectors; and Section 4.5.8 Stairways.
- Santa Clara Valley Transportation Authority, Community Design & Transportation – A Manual of Best Practices for Integrating Transportation and Land Use, 2003. Section 4 – A Multi-modal Approach to Streets (p. 4-21, The Pedestrian Environment)
- City of Portland – Office of Transportation, Engineering and Development, Portland Pedestrian Design Guide, June 1998. Section D – Guidelines for Pathways and Stairs
- Federal Highway Association, Designing Sidewalks and Trails for Access, Part I, U.S. Department of transportation, Washington D.C., 2003

**TOOL T-1.2 : Bicycle and  
Pedestrian Non-Roadway Network**



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## Grade-Separated Crossings

Grade-separated crossings refer to pedestrian- and/or bicycle-only bridges or underpasses. These facilities are expensive but may be warranted in situations where it is not possible to provide an important pedestrian/bicycle network connection as an at-grade facility, such as at crossings of high-speed roadways, railways, waterways, or areas with steep topography. Connectivity to certain proposed SMART rail stations in particular may be improved by the addition of grade-separated crossings across the railway or Highway 101. SMART's plans include pathway improvements along the rail right-of-way under Highway 101 at the Civic Center and Novato North stations.

Where grade-separated crossings are necessary, special care should be taken to create comfortable pedestrian space. Crossings perceived as uncomfortable will not be used. Over and underpasses should be considered only for crossing arterials with greater than 20,000 vehicle trips per day and speeds 35 - 40 mph and over. Underpasses will be perceived as unsafe if not sufficiently lighted and should be designed to be as short as possible and provide a clear line of sight from one side of the underpass to the other.

### References

- Santa Clara Valley Transportation Authority, VTA Pedestrian Technical Guidelines, 2003: Section 3.2 G. Grade Separated Crossings
- American Association of State Highway and Transportation Officials, Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2004: Section 3.5 Grade-Separated Crossings
- California Department of Transportation, Pedestrian and Bicycle Facilities in California, 2005: Section VI – Standard and Innovative Practices for Bicycle Facilities (p. 10, Class I Bike path: Under-Crossings)
- Federal Highway Administration, Pedestrian Facilities User Guide, June 2002: Chapter 4, Section 6 Pedestrian Overpasses/ Underpasses
- Metropolitan Transportation Commission, Pedestrian and Bicycle Safety Toolbox, 2006: Planning/ Engineering: Grade Separated Crossings. <http://www.mtc.ca.gov/planning/bicyclespedestrians/tools/gradeSeparatedXing/index.htm>

#### Related Principles:

P1 P5



Figure C-3.1.31 and C-3.1.32 Highway 101 is a significant barrier to pedestrian connectivity in Marin, but grade separated crossings allow pedestrians to safely cross.



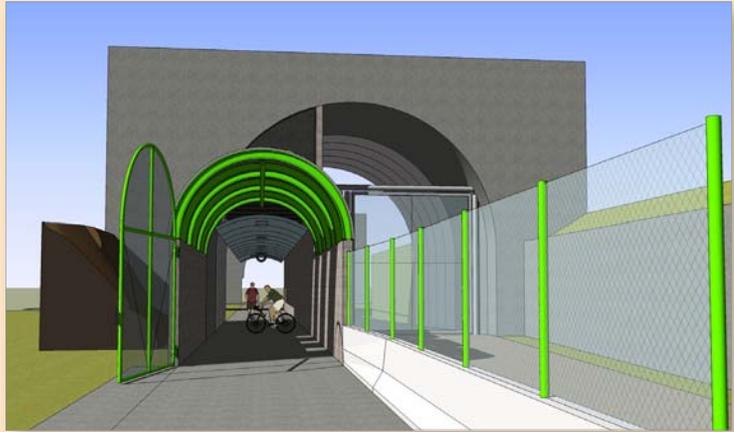
Figure C-3.1.33 This pedestrian bridge at a school in Corte Madera allows students to cross a major street without encountering traffic.

#### Related Tools:

Tool T-E3: Safe Transit, Bicycle, and Pedestrian Facilities for Schools

**Best Practice: Pedestrian and Bike Connectivity Improvements in Larkspur:**

The Cal Park Hill Tunnel Rehabilitation and Bike Path Project will restore the existing tunnel beneath Cal Park Hill in Larkspur to provide a multi-use path connecting Larkspur and San Rafael. Pedestrians and bicyclists will then cross the Central Marin Ferry Bridge, which will provide a connection across Sir Francis Drake Boulevard and Corte Madera Creek, with connections to Sir Francis Drake and the ferry terminal. This tunnel and bridge will be an integral link in connecting multi-modal networks in Marin, by providing a more direct connection between the Larkspur Ferry Terminal, the San Rafael Transit Center, and the proposed SMART rail stations at each of these locations.



*Figure C-3.1.34 A rendering of the tunnel planned for Calpark hill, showing the multi-use path and rail right-of-way*

## Tool T-1.3: Pedestrian and Bicycle Linkages To Transit

### Introduction

Pedestrian linkages play an integral role in establishing an effective and safe transit system. An improved pedestrian realm makes transit a more viable mode, while an improved transit system will help make a community less car-dependant and more pedestrian-friendly. This symbiotic relationship highlights the importance of improving pedestrian access to transit.

Most bus stops are located on sidewalks, which makes pedestrian access to these facilities relatively straightforward. However, the express bus stops along Highway 101 require additional considerations, such as the design of safe crossings at highway on- and off-ramps or, where appropriate, grade-separated crossings (see Toolset T-1 Increasing Connectivity for Pedestrians, Bicyclists, and Local Traffic). In general, areas immediately surrounding bus stops should be considered as particularly effective locations for pedestrian crossing enhancements (Tool T-3.8 Crosswalks and Curb Ramps) and shortcuts that reduce out-of-direction travel for pedestrians (Tool T-1.2 Non-Roadway Connections).

Pedestrian and bicycle connectivity, as well as connectivity to existing transit infrastructure, such as Marin's bus systems, will also be critical considerations in areas around the proposed SMART system stations.

### Guidance

- Golden Gate Transit, Marin Transit, SMART, Blue and Gold Fleet (ferries) and local jurisdictions should develop a coordinated planning process to provide straightforward, direct, and safe pedestrian access to transit stops and boarding areas.
- Ensure that bus stops and possible future commuter rail stations are served by the primary pedestrian system. If necessary, require new development to provide streets with sidewalks or pedestrian walkways between transit facilities and building entrances. Walkways should be distinct from parking lot or street pavement and feature trees and lighting in accordance with accepted standards.

#### Related Principles:

P1 P5



Figure C-3.1.35 Marin's ferries allow commuters and other riders to bring their bicycles onto the ships.



Figure C-3.1.36 Golden Gate Transit buses are equipped with bicycle racks to carry peoples bikes.

#### Related Tools:

Tool UD-E: Urban Design of TOD

Tool T-3.5: Pedestrian Amenities

Tool T-3.9: Enhancing Transit Facilities

Tool T-E3: Safe Transit, Bicycle, and Pedestrian Facilities for Schools

- Focused effort should be applied to providing direct access to transit facilities. This may include bridges over streams, cul-de-sac connectors, and walkways through parking lots and to adjacent development.
- Transit stops with park and ride lots, taxi stands, bus transfer facilities and “Kiss-and-Ride” drop-off zones should be designed so that pedestrian access is evident, direct and unimpeded.
- All pedestrian crossings within one quarter mile (local bus) to one half mile (commuter rail/ferry) of the transit facility should have enhanced crossing measures consistent with the guidance in Tool T-3.8 Crosswalks and Curb Ramps. Specially marked, high visibility crosswalks should be the baseline, with additional improvements such as pedestrian bulb outs and refuge islands strongly considered. Pedestrian over/under crossings should be considered only for streets of excessive speed and volume.

		Neighborhood Streets			District/Downtown Streets			Corridor Streets			
		Minor Residential	Major Residential	Mixed Use Street	Main Street	R&D Office Park/Industrial Street	Community Street	Regional Street	Commercial Street	Urban Roads	
Operational Characteristics	Volume (vehicles per day)	< 2000	2000-8000	<10,000	9,000 -15,000	varies	7000 - 15,000 +	20,000 +	15,000 +	15,000 +	
	Typical Speed (mph)	15-25	25	25	25	15-30	25 - 40	30 +	30-35	35-40	
	Adjacent Land Uses	Residential	Residential	Mixed Use	“Highest Intensity” Mixed Use	Office/Industrial	Mixed Use or Residential	Mixed Use	varies	Low Ped Intensive Uses	
Appropriate Design Measures											
	Special Crosswalk Markings										
	Overhead Signage										
	Bulbouts										
	Midblock Crossings										
	Refuge Islands										
	Pedestrian Corrals										
	Over/Underpasses										
		Most Appropriate	Moderately Appropriate	May be appropriate with mitigating circumstances							

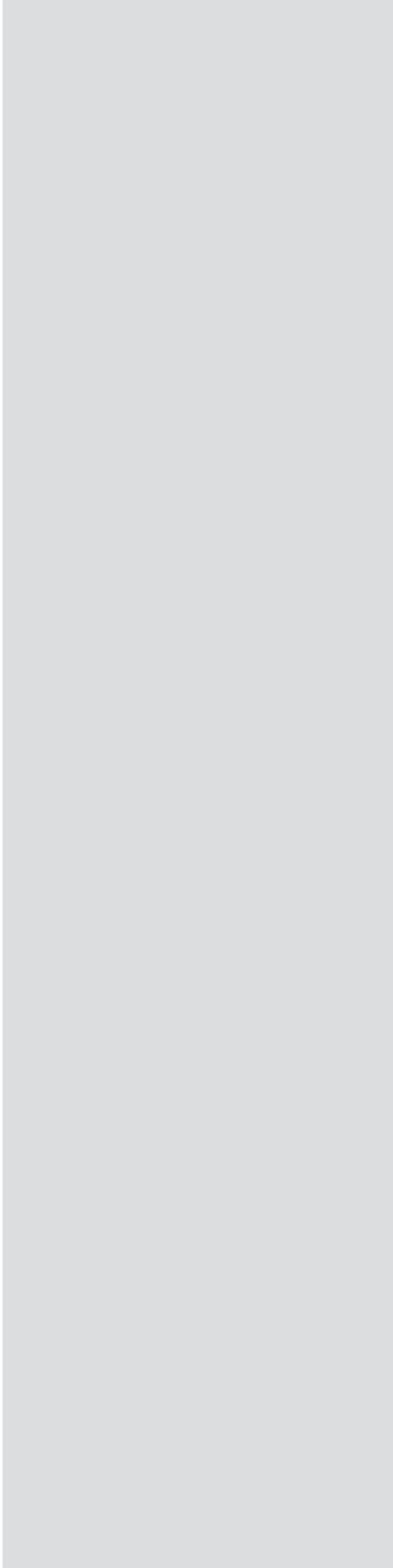
Figure C-3.1.37 Pedestrian access to transit table. By identifying the context of a street on the x-axis and operational characteristics on the y-axis of the upper section of the table, a roadway planner or designer can use this table to see what design measures are warranted by the roadway conditions. For example, a downtown Main Street, characterized by its context and operational characteristics as identified on the upper section of the table, likely warrants special crosswalk markings, bulbouts at corners and mid-block crossing locations and midblock crossings, and likely warrants refuge islands at crosswalks.

- Traffic signalization in the vicinity of transit facilities should be timed with fewer signal phases and cycles designed to facilitate pedestrian circulation by decreasing pedestrian wait times, increasing frequency of opportunities to cross streets, and providing adequate time to safely cross the street. Consideration should also be given to taking phases out of progression to give preference to pedestrians when they are present and activate crossing devices. Devices such as audible warnings and countdown signals should also be considered.
- Where pedestrians must use mid-block crossings to access transit stops, the crossings should have both pedestrian and vehicular traffic signals and the crosswalk should have a different color/texture for visual emphasis.
- Transit facilities, including bus shelters and ferry terminals, should include covered waiting areas, be located in a protected setting, and be buffered from traffic to provide a comfortable and safe waiting location for pedestrians and bicyclists. See tool T-3.9 Enhancing Transit Facilities for more detail.

#### References

- Metropolitan Transportation Commission, Pedestrian and Bicycle Safety Toolbox, 2006: Planning/Engineering: Transit Stop Treatment. <http://www.mtc.ca.gov/planning/bicyclespedestrians/tools/transitStopTreatments/index.htm>
- Transit Cooperative Research Program, Guidelines for the location and Design of Bus Stops. National Academy Press. Washington, DC. 1996;
- Santa Clara Valley Transportation Authority, VTA Pedestrian Technical Guidelines, 2003: Section 5 Pedestrian Access to Transit
- Santa Clara Valley Transportation Authority, Community Design & Transportation – A Manual of Best Practices for Integrating Transportation and Land Use, 2003: Appendix A – Community Planning for Bus Transit

**TOOL T-1.3 : Pedestrian and  
Bicycle Linkages to Transit**



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## C-3.2 Toolset T-2: Traffic Management

Many of the most frequent concerns about creation of TOD, PeD, and multi-modal or even traditional roadway improvements in Marin revolve around worries that any new development or change in automobile facilities will increase traffic, speeding, or cut-through traffic on local streets. Toolset T-2 presents strategies for addressing these traffic-related externalities of new development and transportation network improvements. Ultimately these will help assuage the concerns of Marin residents in the face of such projects.

### Issue:

- Eighty to 90 percent of speeding drivers are found to be from the neighborhood in which they are speeding.
- Speeding on school routes and near schools is frequent.
- Communities are resistant to new routes or adding capacity to existing routes in their neighborhoods.

### Tools:

- T-2.1: Speed Management/Traffic Calming presents strategies for calming the speed of traffic on all types of streets, and particularly in residential neighborhoods and around schools.

### Issue:

- Concern that additional interconnected streets will result in “cut through”-traffic, as local streets become alternatives to the over-congested freeway.

### Tools:

- T-2.2: Cut-Through Traffic discusses programs and design solution strategies for reducing cut-through traffic that might result from new development or roadway network improvements.

### Issue:

- Peak hour traffic is a major burden that hinders quality of life in Marin.

### Tools:

- T-2.3: Commute Trip Reduction Strategies presents strategies for decreasing the number of private automobiles on the road at morning and afternoon peak hours.

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## Tool T-2.1: Speed Management/ Traffic Calming

Vehicle speeds have a significant impact on pedestrian comfort and safety. As vehicle speeds increase, streets are less comfortable to walk along and less safe to cross. Speeding in residential neighborhoods and school zones is a common concern in Marin, and a frequently cited objection to roadway improvements in the county. Managing vehicle speeds, then, is critical for creating a vital pedestrian environment.

Speed management can be accomplished by three methods:

- **Education:** Includes driver education and signage
- **Enforcement:** Includes the enforcement of signed speed limits and other traffic rules
- **Engineering:** Includes changes in street design standards to physically manage speeds

While the first two are beyond the scope of this toolkit, they are nonetheless important for local agencies to understand and pursue in partnership with other responsible agencies.

The last method includes a set of techniques, collectively known as “traffic calming,” that involve physical changes to streets to slow traffic and increase drivers’ awareness of pedestrians. The goals of traffic calming are to maintain actual vehicle speeds that are equal to posted speeds, provide more visibility to bicyclists and pedestrians, encourage good driver behavior, and improve pedestrian and bicycle safety.

The following is a list of common traffic calming solutions. Not all solutions will be appropriate for all place or mobility types. The measures outlined here are arranged from least to greatest impact on pedestrian safety and accessibility. The proper solution for each individual location must be determined through a targeted design process.

### Related Principles:

P1 P5 P6



*Figure C-3.2.1 On-street parking has been shown to decrease traffic speeds and increase pedestrian comfort.*

### Best Practice: San Anselmo Traffic Calming Guidebook

The Town of San Anselmo hired a transportation consultant to develop a traffic calming guidebook with a list of appropriate calming measures for their town. The list considers advantages, disadvantages, and costs of a number of proven measures. The guidebook also includes a Traffic Calming Petition which the public can use to petition the traffic safety committee to consider traffic calming improvements in specific locations.

### Related Tools:

*Tool T-1.1: Alternative Roadway Routes for Pedestrians, Bicycles, and Local Traffic*

*Tool T-2.2: Cut-Through Traffic*

*Tool T-3.10: Design of Roundabouts*

*Tool T-3.1: Appropriate Widths for Traffic Lanes*

*Tool T-3.6: On-Street Parking*

*Tool T-E3: Transit, Bicycle, and Pedestrian Facilities for Schools*



Figure C-3.2.2 Pedestrian refuges, such as this one in Mill Valley, shorten long crossings allowing pedestrians to focus on traffic from one-direction at a time.



Figure C-3.2.3 Speed humps, speed tables, and raised intersections all slow traffic at intersections and other points where pedestrians may be crossing.



Figure C-3.2.4 and C-3.2.5 Traffic calming circles slow traffic while maintaining adequate capacity and improving safety for bicyclists and pedestrians.

### Traffic Calming Measures

Traffic Calming Measure	Description	Applicability
Minimizing Lane Width	Lane widths are often wider than necessary for vehicular and bicycle safety. Paint striping or the addition of bicycle lanes can be used to reduce the amount of pavement given over to travel lanes (as described in T-3.1: Appropriate Widths for Traffic Lanes).	Applicable to all place and mobility types.
On-Street Parking	On-street parking has been shown to help moderate traffic speeds and increase pedestrian comfort (as described above in Tool T-3.6: On-Street Parking).	Applicable to all place and mobility types.
Sidewalk Bulb-outs	Sidewalks are extended into the street to narrow crossing distances and reduce curb radii. Bulb-outs also make pedestrians more visible to drivers.	Applicable to all place and mobility types with on-street parking.
Pedestrian Refuge Islands	Pedestrian refuges provide space within a median in wide or busy streets to improve safety for pedestrians and vehicles (as described in Tool T-3.7: Raised Landscape Medians).	Applicable to arterial roads and other locations with raised landscape medians.
Speed Tables and Raised Intersections	Speed tables and raised intersections raise the surface of the roadway over a short distance, generally to the height of the adjacent curb. Speed tables and raised intersections are useful in high pedestrian use areas and entrances to pedestrian supportive areas by making pedestrians more visible slowing vehicle speeds.	Applicable to all place types. May not be applicable to higher-frequency mobility types (depends on a number of other factors and should be evaluated on a case-by-case basis).
Traffic Calming Circles	Located at street intersections, traffic-calming circles are generally between 10 and 20 feet in diameter and are used to slow traffic by forcing cars to drive around them. The circles have a raised curb and landscaping to provide visual interest. In areas of high bus or truck traffic volumes, mountable curbs can help with large-vehicle navigation while maintaining the traffic calming effect. Traffic circles differ from roundabouts in size and most notably in that they can be	Applicable to "Neighborhood" place types at all densities. Not appropriate with mobility types other than "Local/Secondary Bus" and "No or Minimal Transit Service"

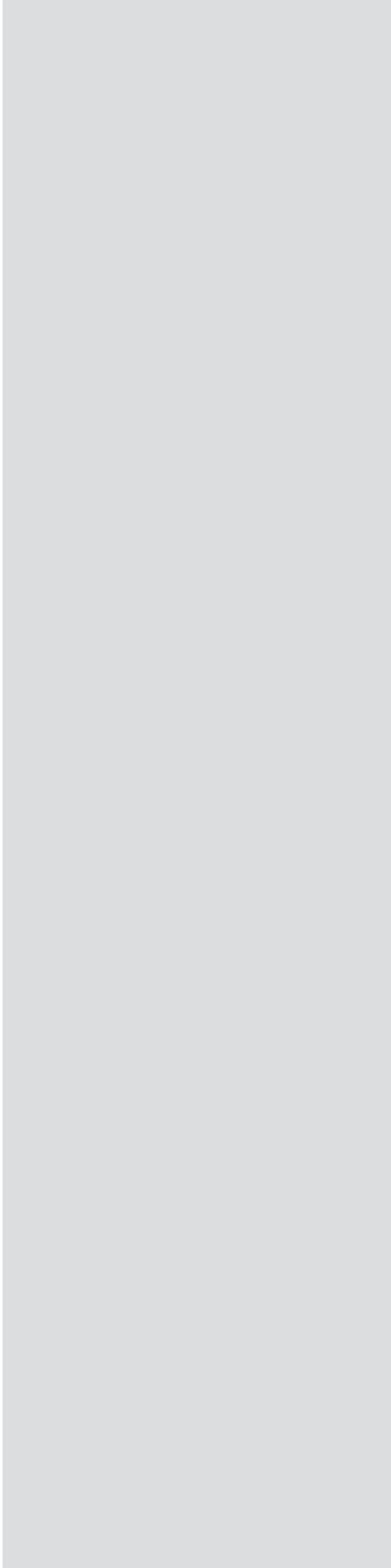
	<p>installed within existing intersections to calm traffic with less investment than conversion to a roundabout would require.</p>	
Slow Points	<p>Slow points are mid-block locations along streets where physical elements are placed to necessitate speed reductions and facilitate pedestrian crossings. Two common types are:</p> <p>Chokers—Raised curbing and landscaping on either side within the right-of-way serve to narrow travel lanes. A raised island or street tree may also be placed in the middle of the street.</p> <p>Chicanes—Variation on chokers in which raised curbing is offset on alternate sides of the street and is intended to cause vehicles to turn slightly, thereby necessitating speed reductions</p>	<p>Applicable to “Neighborhood” place types at all densities. Not appropriate on streets with transit service.</p>
Low-Cost Signage and other Visibility and Awareness Improvements	<p>Many small improvements can help increase driver awareness of conditions around them and encourage them to slow down. These include:</p> <ul style="list-style-type: none"> <li>▪ Neighborhood signs at entrances and near schools;</li> <li>▪ Stop signs at uncontrolled intersections, especially in all directions at four way stops;</li> <li>▪ Speed limit signs;</li> <li>▪ In-street “Yield to Pedestrian” signs;</li> <li>▪ Painted crosswalks (see Tool T-3.8 for guidance on higher visibility crosswalks);</li> <li>▪ Lane striping in residential neighborhoods.</li> </ul>	<p>Applicable to all place-types at all densities.</p>



Figure C-3.2.6 This choker on a residential street provides a mid-block crossing near a school.



Figure C-3.2.7 Signage directing traffic away from local roads can prevent cut-through traffic from venturing into residential neighborhoods.



### References

- Town of San Anselmo, Town of San Anselmo Traffic Calming Handbook, [www.townofsananselmo.org/police/files/SanAnselmoTrafficCalmingGuidebook.pdf](http://www.townofsananselmo.org/police/files/SanAnselmoTrafficCalmingGuidebook.pdf)
- AASHTO, Guide for the Planning Design and Operation of Pedestrian Facilities, 2001. Section 2.6: Neighborhood Traffic Management and Traffic Calming
- Federal Highway Administration, Traffic Calming. <http://www.fhwa.dot.gov/environment/tcalm/index.htm>
- Santa Clara Valley Transportation Authority, VTA Pedestrian Technical Guidelines, 2003: Section 2.5: Traffic Calming
- California Department of Transportation, Pedestrian and Bicycle Facilities in California, 2005: Section V – Standard and Innovative Practices for Pedestrian Facilities and Traffic Calming (pp. 27-35 Traffic Calming)
- Federal Highway Administration, Pedestrian Facilities User’s Guide, 2002: Chapter 4: Section D – Traffic Calming (pp. 65-81)
- Metropolitan Transportation Commission, Pedestrian and Bicycle Safety Toolbox, 2006: Planning/Engineering. <http://www.mtc.ca.gov/planning/bicyclespedestrians/safety-physical-target.htm>

## Tool T-2.2: Cut-Through Traffic

Strategies to improve the connectivity of the street network, such as the tools outlined in Toolset T-1: Increasing Connectivity for Pedestrians, Bicycles, and Local Traffic, can have the unintended effect of encouraging vehicular traffic to cut through Marin's residential neighborhoods.

The first solution to discouraging cut-through traffic is to properly design the street network and the capacity of streets that are intended to carry through so that through traffic stays on the facilities that should carry the traffic. Auto-dominated major streets should be redesigned to provide better access for pedestrians, bicyclists, and transit without sacrificing the through traffic function of these streets. See Tool T-1.1: Multi-modal Network of Roads and Toolset T-3: Multi-Modal Arterial and Neighborhood Street Design.

When cut-through traffic either already exists or there is the potential that street redesign may lead to cut-through traffic, traffic calming strategies such as those outlined in the previous tool will help reduce cut-through traffic, but in certain cases, more significant steps must be taken to limit vehicular access. The following strategies are appropriate for all TOD/PeD contexts found in Marin and are arranged from least to greatest impact on limiting cut-through traffic. The proper solution for each individual location must be determined through a targeted design process. Care needs to be taken that the installation of these elements does not lead to unintended consequences, such as increased emergency response times, neighborhood traffic concentrations on other streets, increased use of regional streets for neighborhood trips, etc.

### Related Principles:

P1 P5 P6



Figure C-3.2.8 Speed limit enforcement and warning signs encourage drivers to drive more cautiously.

### Related Tools:

*Tool T-1.1: Alternative Roadway Routes for Pedestrians, Bicycles, and Local Traffic*



Figure C-3.2.9 Speed humps, signage, and other tools can effectively discourage cut-through traffic.



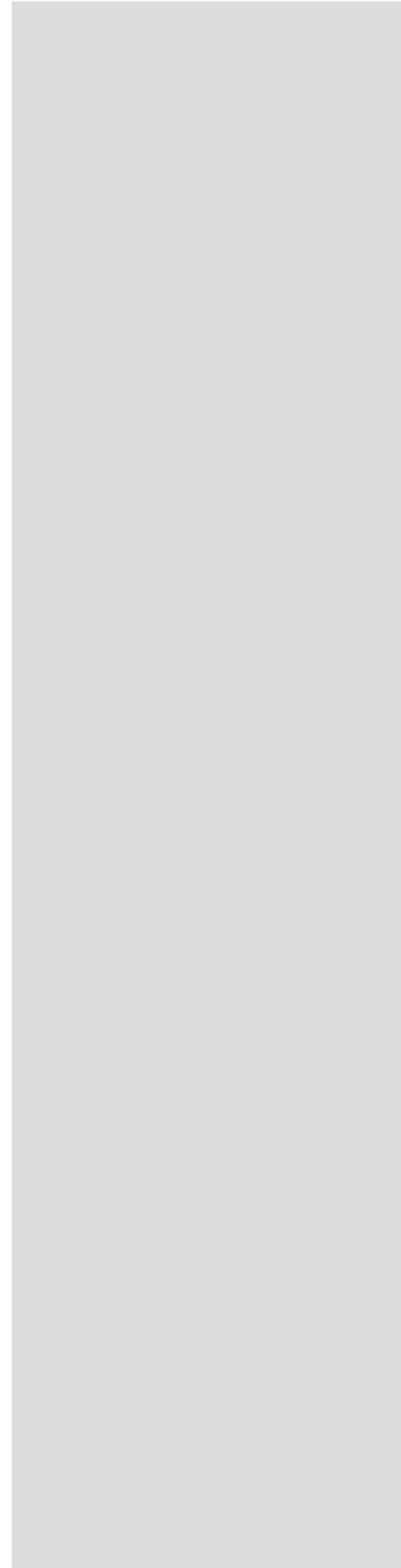
Figure C-3.2.10 One way entry and exit on this street in Sausalito prevents cut-through traffic from using this local street in search of alternate routes to Bridgeway Avenue.

**Traffic Calming Measures for Decreasing Cut-through Traffic**

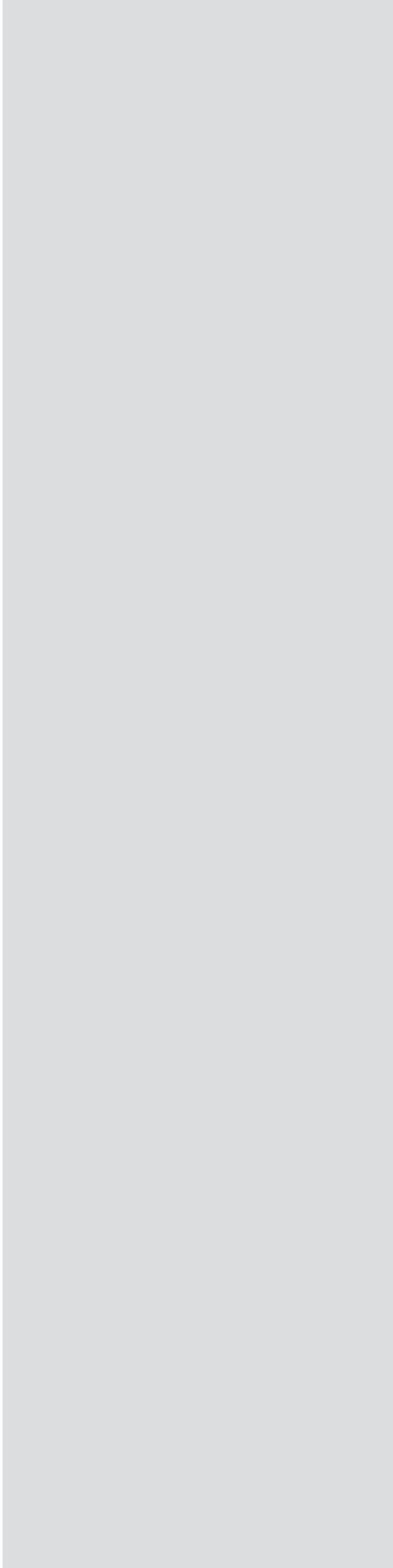
Traffic Calming Measure	Description	Applicability
Speed Watch Programs	Small steps, such as the installation of electronic signboards to measure the speeds of passing cars and/or targeted police enforcement of traffic rules, to limit the attractiveness of cut-through routes.	Applicable to all place and mobility types.
Speed Humps	By forcing motorists to slow regularly, strategically placed speed humps on local streets can discourage use of these streets as easy ways to bypass primary routes. Parabolic humps, reduce abrupt jarring and lessen the need for emergency vehicles to slow to cross. In all cases, coordination with police and fire departments is important when contemplating the use of speed humps or speed tables.	Applicable to all place and mobility types.
Signs and Neighborhood Gateways	Physical improvements to residential streets such as gateway features and signs such as "Residential Street" inform drivers of the presence of residential neighborhoods	Applicable to all place and mobility types.
One-Way Entry and Exit	Curb extensions are installed to restrict access to entry or exit-only on particular streets (see Figure C-3.2.6).	Applicable to all place types, but may not be appropriate for all mobility contexts.
Forced Turns and Partial Diverters	Diverters are installed at intersections to force turns and divert through traffic.	Applicable to all place types, but may not be appropriate for all mobility contexts.
Diagonal Diverters	Diagonal diverters partially close streets and eliminate through-access while retaining access to the surrounding neighborhood. Diverters are usually designed to restrict vehicular access but preserve access for emergency vehicles, bicycles and pedestrians.	Applicable to all place and mobility contexts where cut-through traffic has been identified as a major problem.
Cul-de-sac/Street Closures	Streets are closed and turned into cul-de-sacs. The end of the street can be transformed into a pedestrian amenity such as a small park. Pedestrian and bicycle through access is preserved, but all vehicular traffic is diverted.	Applicable to lower intensity place types and mobility contexts.

## References

- AASHTO, Guide for the Planning Design and Operation of Pedestrian Facilities, 2001: Section 2.6: Neighborhood Traffic Management and Traffic Calming
- Federal Highway Administration, Pedestrian Facilities User's Guide, 2002:Chapter 4: Section E – Traffic Management (pp. 81-87)
- Federal Highway Administration, Traffic Calming, <http://www.fhwa.dot.gov/environment/tcalm/index.htm>
- Metropolitan Transportation Commission, Pedestrian and Bicycle Safety Toolbox, 2006: Planning/Engineering, <http://www.mtc.ca.gov/planning/bicyclespedestrians/safety-physical-alphabetical.htm>



**TOOL T-2.2 : Cut-Through Traffic**



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## Tool T-2.3: Commute Trip Reduction Strategies

### Introduction

One way to reduce the number of private automobiles on the road during peak commute hours is to simply reduce the number of people needing to drive at that time. This can be achieved through a variety of transportation demand management (TDM) strategies. While not strictly related to pedestrian and transit-oriented design, TDM strategies are important to consider in conjunction with design-related improvements presented throughout this toolkit.

A number of unique TDM strategies exist, many of which may be appropriate to different jurisdictions or employers of different sizes in Marin County. This section focuses on TDM measures that can be implemented by employers who want to provide incentives and support for employees to seek alternatives to peak hour commuting. Information on other TDM strategies can be found in the resources referenced at the end of this tool.

### Teleworking

In today's information economy and in light of the Bay Area's particularly strong technology sector, many jobs no longer require employees to work in a traditional office on a daily basis. Teleworking, or working from home or another remote location, can decrease commute-related traffic by providing employees who are highly self-motivating or otherwise more effective when working remotely with the opportunity of not commuting or of shifting their commute out of the peak travel time. Teleworking jobs can not only reduce commute hour traffic and emissions and improve employees' quality of life, but also benefit employees by being able to better balance work-life responsibilities.

Employers should provide employees with the option to telework if the nature of the employees work meets any one the following conditions:

- Is primarily “knowledge-based” and involves handling of information, including but not limited to reading, writing, analyzing or processing data;
- Entails project-oriented activities or work with measurable milestones or deliverables that can be assessed by a supervisor;

#### Related Principles:

P1 P6



*Figure C-3.2.11 Reducing the number of vehicles on the road is an important strategy for reducing congestion. (Source: Marin IJ/ Frankie Frost).*

#### Best Practice: Marin County Telework Policy

In 2006, Marin County instituted a formal telework policy for County employees. County employees who meet the outlined criteria in the policy are encouraged, through official policy and supporting infrastructure, to work from home or another remote location. In a recent poll, nearly 35% of County employees said they would consider teleworking. Now, the County is working on the necessary training of management to institute an effective telework program.

#### Related Tools:

*T-3.3: Bicycle Lanes*

*P-12: Integrating Transportation Demand Management*

**Best Practice: Marin County Employee Commute Alternative Program (ECAP)**

Marin County’s award winning Employee Commute Alternative Program (ECAP) and 1-year demonstration Green Commuter Program offers a stipend of \$2 each way, up to 5 days per week to employees who commute by any means other than single-occupancy vehicle. Whether they share a carpool or vanpool, take transit, walk or bike to work, the value of the stipend is the same. In addition to the Green Commuter Program, the ECAP provides convenient parking spaces reserved for carpools/vanpool only, employee-only bike lockers, employee-only showers, the use of pre-tax dollars to pay for transit tickets by offering a Transit Reimbursement Program, and a Guaranteed Ride Home Program to ensure the employee can go home in the event of an emergency.

- Allows for work to be performed at a telework location during a regularly-scheduled work day or portion thereof; or,
- Does not, as a result of telecommuting, compromise any of the functions of the company, department in which they work, other departments or outside agencies.

Employees’ work may not be suitable for teleworking if it is location-dependent, or requires access to resources that are not allowable, or practical, from a remote location, such as requiring substantial direct interaction with co-workers or the public, or requiring special equipment or information that cannot be accessed remotely for logistical or security reasons.

*Commute Alternatives Programs*

Employers can create incentives to use alternatives to driving by providing a stipend to employees who elect to use means of transportation other than single-occupancy vehicles. Based on their location and the nature of work, employers can specify which alternatives are eligible for the stipend, including riding transit, bicycling, carpooling, vanpooling, or walking. A number of employers around the Bay Area, including Marin County, provide such a stipend to employees. Some employers in the South Bay and along the Caltrain system offer stipends to employees who ride the train, but also extend this incentive to those who bicycle or walk.

This model is considered superior because it:

- Is not restrictive, and provides flexibility to employees to elect their alternative mode of travel;
- Is simple and easy to institute, administer, and explain to employees;
- Is efficient and allows collection of data on employee transportation habits which provides an easy measure of program success; and,
- Is appealing to potential future employees.

A number of ancillary programs can be implemented to support a successful commute alternative program. Commute alternative programs can include training and educational outreach to encourage use of a program and help employees plan their route or coordinate carpools or ride groups. Guaranteed ride home programs guarantee carpool and vanpool users a way to get home in the event of an unforeseen emergency which requires them to leave in the middle of the regular workday, allowing users to regularly rely on carpool

without the fear of becoming “stranded.” Transit reimbursement programs allow employees to set aside up to \$110 of their monthly paycheck, tax-free, for reimbursement of transit expenses.

### *Alternative Work Schedules*

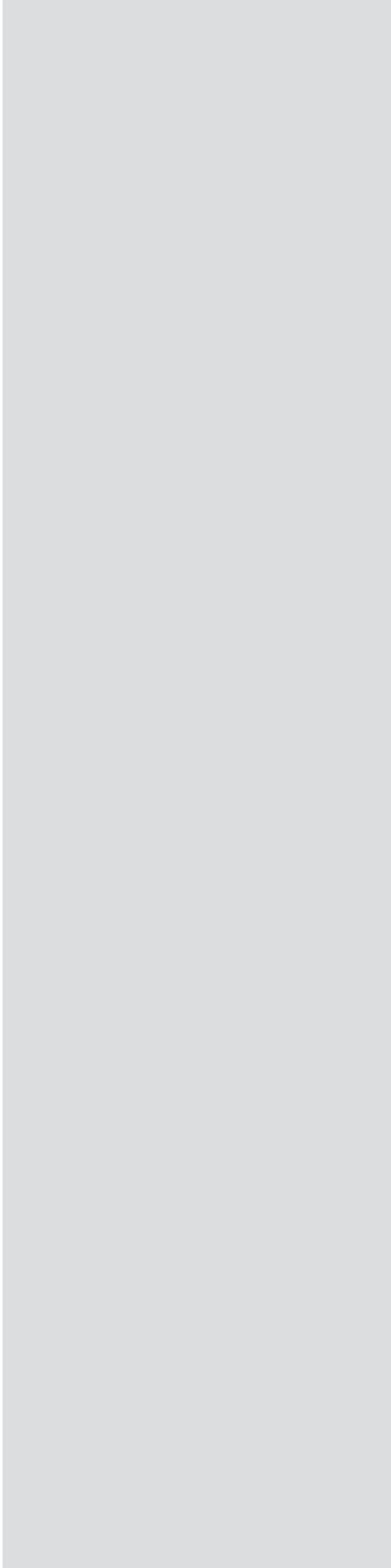
Another option for decreasing peak hour congestion is encouraging drivers to commute at alternative times by changing the hours employees are expected to work. Different schedule formats include:

- **Flex Week:** Allowing employees to shift their work hours to earlier or later in the day can allow them to commute during off-peak hours while still working a full day.
- **Compressed Work Week:** By working fewer but longer days, employees can arrive before and leave after peak commute hours. Two common formats are 4/40, in which employees work 4 10-hour days (assuming a regular 40-hour week) and get an extra day off each week, and 9/80, in which employees work a 9 hour day typically on a biweekly schedule that allows 1 extra day off every two weeks, or a half day each week.

These programs require some flexibility in a worker’s job, and may not be appropriate for all job sectors or positions, however employers can specify which positions are appropriate for such schedules and which schedule format or specific times for flex hours are most conducive to the nature of a particular industry. Employers can also establish performance criteria to ensure that an altered work schedule is not affecting employee performance.

While drivers may still commute in single-occupancy vehicles, reduced time idling in traffic decreases pollution emitted by vehicles and improves the commute for other drivers during peak traffic, meanwhile reducing the stress and lost time associated with sitting in traffic. Alternative work weeks can be combined with other programs mentioned in this tool.

Alternative work schedules also have quality of life benefits associated with the extra time off, in addition to time saved not sitting in traffic. An extra day off each week or every other week is considered a great job benefit and is appealing to potential employees. Other flexible organizations of time can provide two half days a week, which would allow people to pursue personal interests or time with family.



### References

- Federal Highway Administration, Travel Demand Management Toolbox, <http://ops.fhwa.dot.gov/tdm/toolbox.htm>
- Victoria Transport Institute TDM Encyclopedia: Commute trip reduction programs library. updated August, 2007. <http://www.vtpi.org/tdm/tdm9.htm>
- Marin County Staff Report on Green Commuter Program: <http://www.co.marin.ca.us/EFiles/BS/AgMn/agdocs/070911/070911-10-PW-ltr-LTR.pdf>

## C-3.3 Toolset T-3: Multi-Modal Arterial and Neighborhood Street Design

The creation of a continuous network of multi-modal streets in Marin is integral to improving conditions for TOD and PeD. The following tools address questions and concerns about design of safe, convenient facilities and roadway conditions for bicyclists, pedestrians, and transit users without compromising functionality for automobiles. They're intended to answer specific questions raised in Marin while providing valuable general guidelines for designing multi-modal roadways.

### Issues:

- Much of the community is concerned about the personal safety of pedestrians, especially children walking or biking to school.
- Crosswalk and pedestrian safety are key issues on major streets with significant traffic and poor pedestrian infrastructure.
- Multi-use paths or sidewalks on only one side of a street can produce serious crosswalk safety issues.
- Historic private property encroachments into public rights-of-way can result in construction challenges and local public resistance to improvements.

### Tools:

- T-3.1: Appropriate Widths for Traffic Lanes includes design standards for different types of streets and encourages selection of narrower streets to slow traffic and add space for pedestrians and bicycle infrastructure.
- T-3.2: Sidewalks discusses sizing and organization guidelines for safe, comfortable sidewalks with valuable amenities for pedestrians.
- T-3.3: Bicycle Lanes addresses appropriate widths of bicycle lanes and specific design issues related to intersections, turns, and other challenging situations.
- T-3.4: Pedestrian Buffers includes examples and discussion of means of protecting sidewalks from automobile traffic on higher velocity or volume roads to encourage safety and comfort.
- T-3.5: Pedestrian Amenities discusses adding comfort and convenience to sidewalks through amenities such as lighting, trash receptacles, and others.
- T-3.6: On-Street Parking details the role of on-street parking in creating safe and efficient multi-modal streets.
- T-3.7: Raised Landscape Medians discusses the traffic calming and safety-related aspects of landscaped medians.
- T-3.8: Crosswalks and Curb Ramps includes design standards and examples of different types of crosswalks from around Marin which contribute to safer crossing conditions.

**Issue:**

- Even when transit facilities are provided, people do not actually use them.
- Transit stops need to be better designed.

**Tools:**

- T-3.9: Enhancing Transit Facilities considers ways to improve the comfort, safety, and appeal of existing and future transit facilities.

**Issues:**

- Topography and irregular roadway orientations create unusual intersection conditions.

**Tools:**

- T-3.10: Design of Roundabouts discusses the design and function of the modern roundabout in a variety of Marin-appropriate contexts.

## Tool T-3.1: Appropriate Widths for Traffic Lanes

Traffic lane widths affect safety, comfort, and multi-modal access on arterials and neighborhood streets. Wider lanes can facilitate vehicular traffic flow and accommodate bicycle and transit activities more effectively, but can make pedestrian conditions less desirable, especially at street crossings. Wider lanes also encourage vehicular traffic to move faster than desired traffic speeds and increase the functional speed of the roadway, which has a negative impact on pedestrian and bicycle safety, as well as vehicular safety.

Lanes should be between 9 and 12 feet wide. Narrower lanes (9-10 feet) are most appropriate for residential streets and small-scale commercial streets, while wider lanes (11-12 feet) should be used in areas of heavy commercial and transit traffic. In areas without striped bicycle lanes with significant vehicular and bicycle traffic, wider outside lanes (12-14 feet) can accommodate bicycles and vehicles in the same lane, or a parallel off-street bicycle facility should be provided.

A major challenge to multi-modal streets in Marin is the confined width of existing rights-of-way, which prevents pedestrian, bike, and transit-supportive streets. Tool T-1.1: Alternative Roadway Routes for Pedestrians, Bicycles, and Local Traffic discusses one potential solution, involving dividing the various modes of traffic across nearby parallel roadways.

### References

- AASHTO, A Policy on Geometric Design of Highways and Streets, 2001: Cross Section Elements, Lane Widths, pp. 315-316
- AASHTO, Guide to the Development of Bicycle Facilities, 1999: Chapter 2 Design, p. 17
- ITE, Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities (a Proposed Recommended Practice), 2006: Chapter 9 Traveled Way Design Guidelines, p. 118.
- Santa Clara Valley Transportation Authority, VTA Pedestrian Technical Guidelines, 2003: Section 2.2 Matching Sidewalks with Model Street Types

#### Related Principles:

P1



Figure C-3.3.1 Narrower lanes create space for both a bike lane and parking on Butterfield Road in San Anselmo.

#### Best Practice: Marin County Multi-Modal Street Design

Marin County's Public Works Department observes the following administrative policy: "...at the outset of all projects, other than routine maintenance, an analysis shall be performed to ensure the inclusion of all necessary, appropriate and reasonable multi-modal facilities and improvements. The analysis shall include facilities related to transit, bike and pedestrian access, disabled access and transit safety."



Figure C-3.3.2 In areas with slower traffic or lower traffic volumes, wide lanes provide the opportunity for both auto and bicycle traffic to share local streets, as on San Anselmo Avenue in downtown San Anselmo.

#### Related Tools:

Tool T-1.1: Multi-modal Network of Roads



*Figure C-3.3.3 Hillside residential parking in Mill Valley is striped to ensure safe conditions for passing cars and pedestrians.*

- California Department of Transportation, Pedestrian and Bicycle Facilities in California, 2005: Section VI – Standard and Innovative Practices for Bicycle Facilities (pp. 22-24, Roadway Design)
- Federal Highway Administration, Pedestrian Facilities User’s Guide, 2002: Chapter 4: Section B – Roadway Design (pp. 51-59)

**TOOL T-3.1 : Appropriate Widths  
for Traffic Lanes**

## Tool T-3.2: Sidewalks

The sidewalk must be wide enough to accommodate pedestrian movement as well as important social functions related to land uses along the street. With the exception of pedestrian street crossings and the presence and quality of pedestrian buffers, as described in Tools T-3.8 and T-3.4, the width and functional design of the sidewalk determines the level of safety and accessibility for the pedestrian. To match the range of conditions from Marin’s rural western areas to its small urban centers and downtowns, the optimal sidewalk width and combination of functional elements must vary with operational characteristics. The type and amount of expected activity; the character of adjacent land uses; and the speed and volume of vehicular traffic in the thoroughfare should all influence width and design decisions. The following are basic guidelines for sidewalk design.

- Sidewalks should be on both sides of the street in most place types. In certain conditions—such as village and rural areas found in most of the county—a sidewalk on one side may be adequate, though not desirable, and in rural conditions with low traffic volumes and speeds, a widened road shoulder may suffice.
- Sidewalk dimensions specified in local agency street design guidelines, building codes, and zoning ordinances are often less than optimal and are dimensioned to a minimum standard. These minimums may need to be revised to provide adequate width.
- All sidewalks must be ADA compliant in dimension, surfacing, and grading. Tool T-4.2 Basic Network of ADA Compliant Routes provides additional guidance on ADA-compliant facilities.
- The “footprint” of and access to transit facilities such as bus shelters must be considered in the design of sidewalks.
- Transit facilities should be connected by sidewalks or paths to adjacent uses within walking distance of the station or bus stop.
- Designers should coordinate with utility providers and local agencies regarding the location of lines, cabinets, light standards, landscaping, and street furniture.

### Related Principles:

P1 P5



*Figure C-3.3.4 The lack of sidewalks in many residential areas causes pedestrians to have to walk in the road.*



*Figure C-3.3.5 Attractive sidewalks with active and interesting storefronts, such as in downtown Tiburon, provide a destination for people of all ages.*

### Related Tools:

*Tool T-3.8: Crosswalks and Curb Ramps*

*Tool T-4.2: Basic Network of ADA-Compliant Route*

*Tool T-E3: Transit, Bicycle, and Pedestrian Facilities for Schools*



Figure C-3.3.6 Illustration of sidewalk zones.

### Addressing Right-of-Way Encroachments

Projects involving widening or addition of sidewalks often encounter concerns from adjacent homeowners as a result of encroachment of private gardens and landscaping into the public Right-of-Way over time, as the lack of a sidewalk or narrow existing sidewalk may not clearly delineate the edge of the public Right-of-Way. Where sidewalk widening or addition is planned, jurisdictions should notify adjacent residents very early to explain the conditions and benefits of adding a sidewalk, and discuss potential assistance in mitigation of conflicts.



Figure C-3.3.7 This sidewalk in Novato includes a wide variety of amenities in the furnishings zone, and a curb-extension provides extra space to prevent sidewalk clutter in addition to its safety function.

Appropriate overall sidewalk widths can be determined by dividing the sidewalk into four distinct functional zones (see corresponding graphic):

- The Edge Zone (also refer to the Pedestrian Buffers tool);
- The Furnishings Zone (also refer to the Pedestrian Buffers and Pedestrian Amenities tools);
- The Pedestrian Travel Zone; and
- The Frontage Zone

The following sections provide an overview of recommended widths and other characteristics for each of these zones.

#### Edge Zone

The Edge Zone, sometimes also referred to as the “Curb Zone,” is the interface between the roadway and the sidewalk. At a minimum this zone includes the 6-inch wide curb. In more active mixed-use areas with on-street parking, particularly those areas with active ground floor retail activity, this zone should be a minimum of 1’-6” to accommodate the door swing of a parallel-parked car or front end overhang of an angle-parked car and to prevent potential conflicts with elements in the Furnishing Zone. While this zone should generally be kept clear of any objects, parking meters can be placed here with consideration given to door swings. At transit stops with shelters, this zone should be widened to at least 4 feet to provide wheelchair access to and in front of the shelter (in constrained conditions, transit shelters are available with partially open sides allowing the edge zone to be reduced to 2’-6”). A curb extension that extends the length of the transit stop can also be an effective way to increase the width of the Edge Zone.

#### Furnishings Zone

The Furnishings Zone is the key buffer component between the active pedestrian walking area (Pedestrian Travel Zone) and moving vehicular traffic. Street trees, planting strips, street furniture, utility poles, sign poles, signal and electrical cabinets, phone booths, fire hydrants, bicycle racks and the like should be consolidated in this zone to keep them from becoming obstacles in the Pedestrian Travel Zone. Retail kiosks or stands are also appropriate in the Furnishings Zone.

Installation of curb extensions is an effective way to increase sidewalk space in the Furnishings Zone.

Furnishings Zone dimensions should be based upon the speed of traffic and whether on-street parking is provided. If, for instance, no on-street parking is provided and traffic speeds are 30 mph or less, the Furnishings Zone dimension should be 5'6". For speeds exceeding 30 mph, one foot of additional space should be added for every 5 mph increase in posted speed (referred to in this document as the "Traffic Context Factor").

### Pedestrian Travel Zone

The Pedestrian Travel Zone is intended for pedestrian travel only and should be entirely clear of obstacles. The recommended minimum width is generally 5 feet, although in some cases where expected pedestrian activity is lower, a minimum of 4 feet is acceptable. The Americans with Disabilities Act Accessibility Guidelines (ADAAG) set a minimum of 4 feet in width for this zone, allowing opportunities to widen to 5 feet at least every 200 feet. For locations with higher pedestrian volumes that have met minimum requirements for all other zones, the preferred dimension is 6 to 8 feet. For high pedestrian volume areas, additional width should be provided. (Base guidance for sidewalk width related to pedestrian volumes is provided in Chapter 13 – Pedestrians of the Highway Capacity Manual).

Driveway aprons should not extend into the Pedestrian Travel Zone, in which cross slopes must be limited to a maximum of 2%. "Overhanging" elements such as awnings, store signage, bay windows, etc. may occupy this zone, as long as there is a clear distance under them of at least 8 feet as required by ADAAG.

### Frontage Zone

The Frontage Zone is the area adjacent to the property line that may be defined by a building façade, landscaping, or a fence. Generally pedestrians do not feel comfortable moving at a full pace directly along a wall, and because of this the minimum frontage zone should be 1'-6". This is also the zone where pedestrians slow down to window shop and to exit and enter buildings. Adjacent businesses may use this zone for outdoor displays and seating, and municipalities must ensure that there is adequate space to accommodate these uses without impeding the Pedestrian Travel Zone and while still maintaining a 1'-6" minimum clear space within the Frontage Zone.

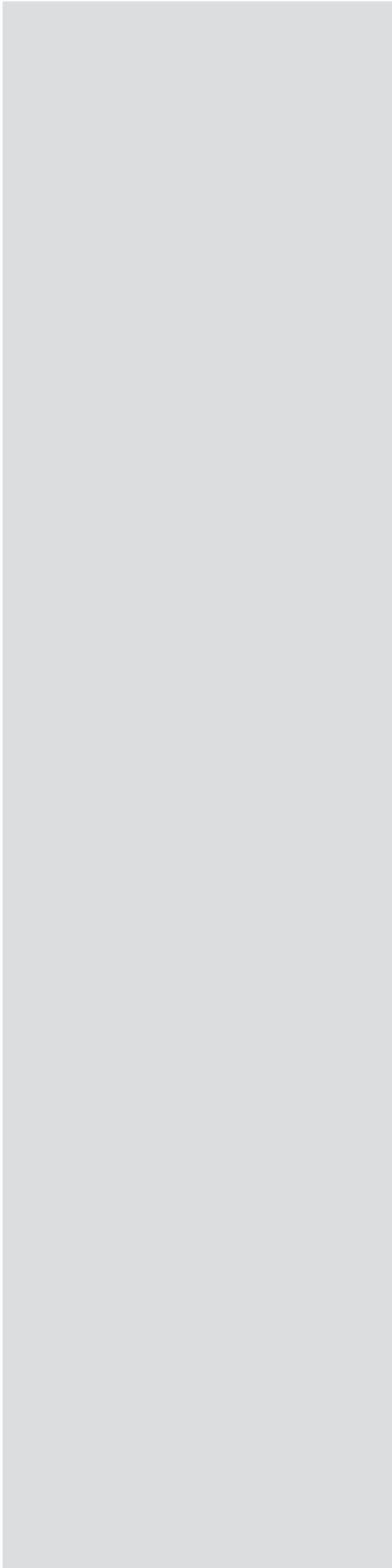
Architectural elements that encroach into the street such as awnings, stairs, front stoops, planters, marquees and the like may also occupy this zone. These elements add vitality and visual interest to the street, but they also must comply with local building codes and zoning ordinances.



*Figure C-3.3.8 Where sidewalks are narrow, it is important to keep a clear travelway for pedestrians and persons with disabilities.*



*Figure C-3.3.9 Businesses may use the frontage zone for outdoor displays and seating.*



Where the sidewalk passes a parking lot, a buffer, such as a hedge or a low wall, should be used to prevent parked vehicles from overhanging into the Frontage Zone and to maintain a strong and more attractive frontage along the sidewalk.

#### References

- Institute of Transportation Engineers, Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities (a Proposed Recommended Practice), 2006. Chapter 8: Roadside Design Guidelines
- Santa Clara Valley Transportation Authority, VTA Pedestrian Technical Guidelines, 2003: Chapter 2 Multi-Use Street and Pedestrian Realm Design
- AASHTO, Guide for the Planning, Design, and Operation of Pedestrian Facilities. Chapter 3: Pedestrian Facilities Design; Section 3.2.3 Sidewalk widths
- California Department of Transportation, Pedestrian and Bicycle Facilities in California, 2005: Section V – Standard and Innovative Practices for Pedestrian Facilities and Traffic Calming (pp. 21-24, Pedestrians: Sidewalks)
- Federal Highway Administration, Pedestrian Facilities User’s Guide, 2002: Chapter 4: Section A – Pedestrian Facility Design (p. 43, Sidewalks or Walkways)

## Tool T-3.3: Bicycle Lanes

Marin is host to a high volume of bicycle traffic, including commuters to work and school, recreational cyclists, and tourists. A continuous network of bicycle lanes can help all of these groups reach their destinations safely, comfortably, and enjoyably.

Bicycle lanes should be incorporated into streets where there is sufficient bicycle demand and roadway space to accommodate striped lanes. Properly designed bicycle lanes improve bicycle visibility and safety. A comprehensive network of bicycle lanes is essential for the development of a multi-modal transportation system. Striped bicycle lanes are appropriate for any place and mobility type.

Lanes should be a minimum of 5 feet wide, with the following exceptions:

- Where parking is permitted but there are no parking stripes or delineated stalls, the shared bicycle/parking area should be at least 11 feet wide without a curb and 12 feet wide with a curb;
- Bicycle lanes may be reduced to a minimum of 4 feet provided there is additional area beyond the shoulder for bicyclists; and,
- In locations with heavy truck and transit traffic, steep downgrades, and/or vehicular speeds in excess of 50 mph, wider bike lanes should be considered. The Federal Highway Administration recommends lanes of up to 8 feet in width, particularly in situations which cyclists might consider dangerous, and thus be more likely to occupy traffic lanes in-lieu of narrow bicycle lanes.

Bicycle lanes should be clearly delineated from vehicular lanes with a minimum 6-inch solid white line and stencils. Lanes should also be delineated from parking lanes with a minimum 4-inch solid white stripe. Bicycle lanes should not cross pedestrian crossings, and should not cross street intersections—except as dashed lines through particularly complicated intersections or roundabouts. Bicycle lanes should be dashed for 50-200 feet when approaching a controlled intersection with right-turning vehicular traffic or when adjacent to a bus stop.

In locations where traffic volumes, speeds, and/or constrained rights-of-way make bicycle lanes impractical, solutions outlined in Tool T-1.1: Multi-modal Network of Roads should be pursued.

### Related Principles:

P1 P5



Figure C-3.3.10 and C-3.3.11 High-visibility bicycle lanes, such as these in Mill Valley, are an important component of multi-modal streets in many of Marin's larger jurisdictions.

### Related Tools:

*Tool T-1.1: Alternative Roadway Routes for Pedestrians, Bicycles, and Local Traffic*

*Tool T-1.3: Pedestrian and Bicycle Linkages to Transit*

*Tool T-3.10: Design of Roundabouts*

*Tool T-E3: Transit, Bicycle, and Pedestrian Facilities for Schools*

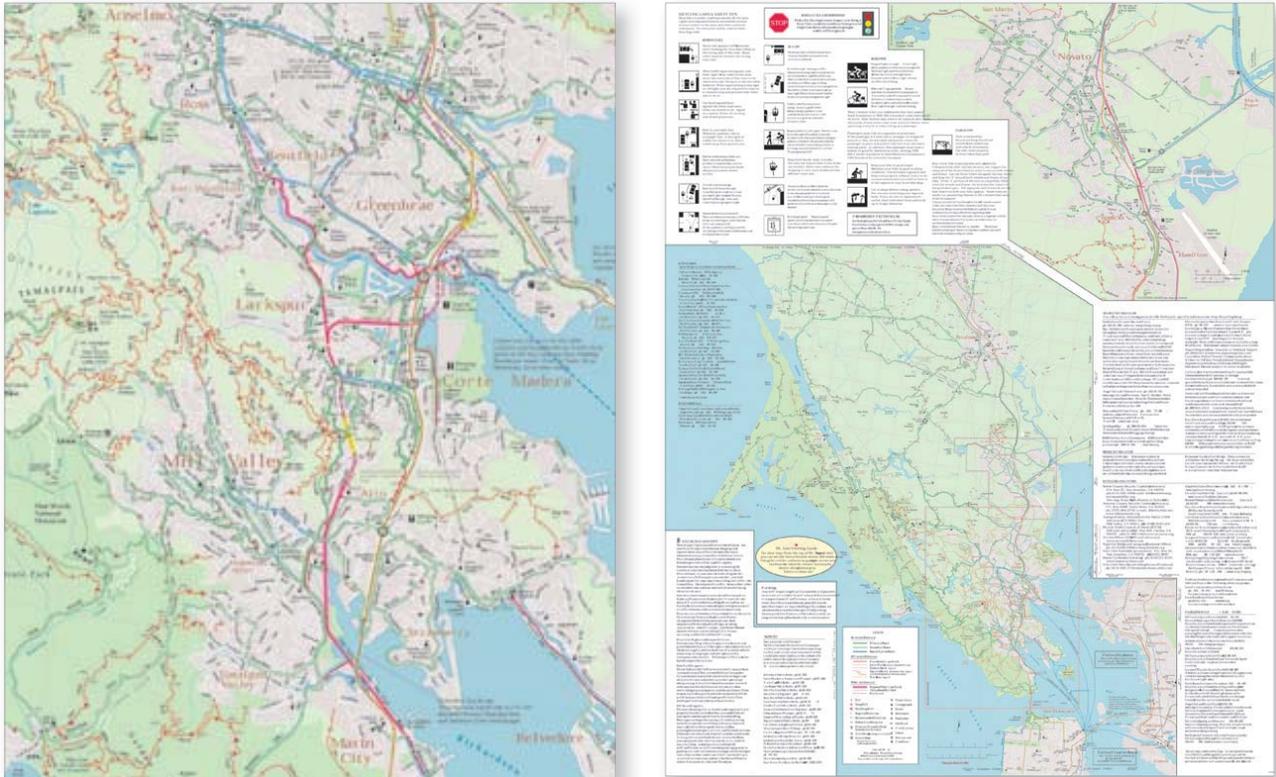


Figure C-3.3.12 and C-3.3.13 Bicycle lanes, on-street bike routes, and multi-use paths, exist throughout the county (Source: Marin County Bicycle Coalition. Available at <http://www.marinbike.org/Map/Index.shtml>).

### References

- AASHTO, Guide to the Development of Bicycle Facilities, 1999: Chapter 2 Design
- FHWA, Highway Design Manual, 2006: Chapter 1000, Bikeway Planning and Design
- California Department of Transportation, Pedestrian and Bicycle Facilities in California, 2005: Section VI – Standard and Innovative Practices for Bicycle Facilities (pp. 13-17 and 20-21, Class II Bike Lanes; Class III Bike Routes; Roadway Design)
- Federal Highway Administration, Pedestrian Facilities User’s Guide, 2002: Chapter 4: Section B – Roadway Design (p. 52, Bicycle Lanes)
- Metropolitan Transportation Commission, Pedestrian and Bicycle Safety Toolbox, 2006: Planning/Engineering – Dedicated bike lanes. <http://www.mtc.ca.gov/planning/bicyclespedestrians/safety-physical-target.htm>

## Tool T-3.4: Pedestrian Buffers

Buffering the pedestrian realm from traffic in the travel realm is an important determinant of pedestrian comfort. Pedestrian buffers are located between the traveled way and the Pedestrian Travel Zone. On-street parking and bicycle lanes, where provided, are also considered part of the pedestrian buffer. The most effective pedestrian buffers improve walking safety and comfort and enhance the overall pedestrian experience along a street.

The three elements that contribute to pedestrian buffers are: (1) width of the buffer, (2) landscaping, and (3) on-street parking. Each is discussed as part of this tool.

### Pedestrian Buffer Width

The Furnishings Zone and Edge Zone should be wide enough to provide adequate buffers. While 4th Street in downtown San Rafael features a wide array of pedestrian resources in the furnishings zone, including seating, planting, ornamental fencing and bollards, trash receptacles, and newspaper racks, pedestrian buffers need not be this replete with resources to be effective. The widths outlined in Tool T-3.2: Sidewalks provide the basic parameters for appropriate width of pedestrian buffers. Additional width and furnishings will enhance the buffer quality and utility to pedestrians.

### Landscaping

Landscape features in the Furnishings Zone are particularly effective buffers in the pedestrian realm. Tree trunks, shrubs and other landscaping can create a visual and physical barrier between the pedestrian and the travel realm. Tree limbs and leaves create shade, color, sound, and a visual scale for thoroughfares that increases pedestrian comfort.

Selection and combination of appropriate plants for buffering purposes varies depending on travel speeds, traffic volumes, and the presence of other buffering elements, such as on-street parking, street furnishings, or bicycle lanes, as well as the configuration of parking (parallel or angled) along the corridor in question.

The following guidelines will create effective pedestrian buffers:

- Street trees should be planted between 15 and 30 feet on center, depending upon the mature crown size of the selected species, to create a continuous canopy that provides definition to the pedestrian realm and a buffering effect between the roadway and the sidewalk.

#### Related Principles:

P1 P5



*Figure C-3.3.14 A small curb protects pedestrians from auto traffic in a constrained right of way in unincorporated Marin.*



*Figure C-3.3.15 This sidewalk in Corte Madera includes a landscaped pedestrian buffer.*

#### Related Tools:

*Tool T-3.6: On-Street Parking*



Figure C-3.3.16 Parked cars buffer pedestrians from high-speed passing automobiles.



Figure C-3.3.17 Sidewalk trees are an attractive and effective pedestrian buffer.

- The spacing of street trees should be coordinated with the placement of street lighting and sidewalk amenities to achieve needed lighting levels for roadway and sidewalk areas.

### On-Street Parking

On-street parking supports land uses, particularly retail, along a corridor while it provides a transition and buffer between the travelway and the pedestrian realm. The presence of a parking lane significantly adds to the distance between moving traffic and the Pedestrian Travel Zone; and if on-street parking is well used this adds an additional “sheltering” effect for pedestrian activities in the sidewalk area. In downtown Sausalito, for example, where there is a high volume of pedestrians, a lane of parked cars adds a significant buffer between heavy traffic and pedestrians. Beyond this buffer function, on-street parking lanes or angled parking can provide flexible space for temporary activities that cater to pedestrians.

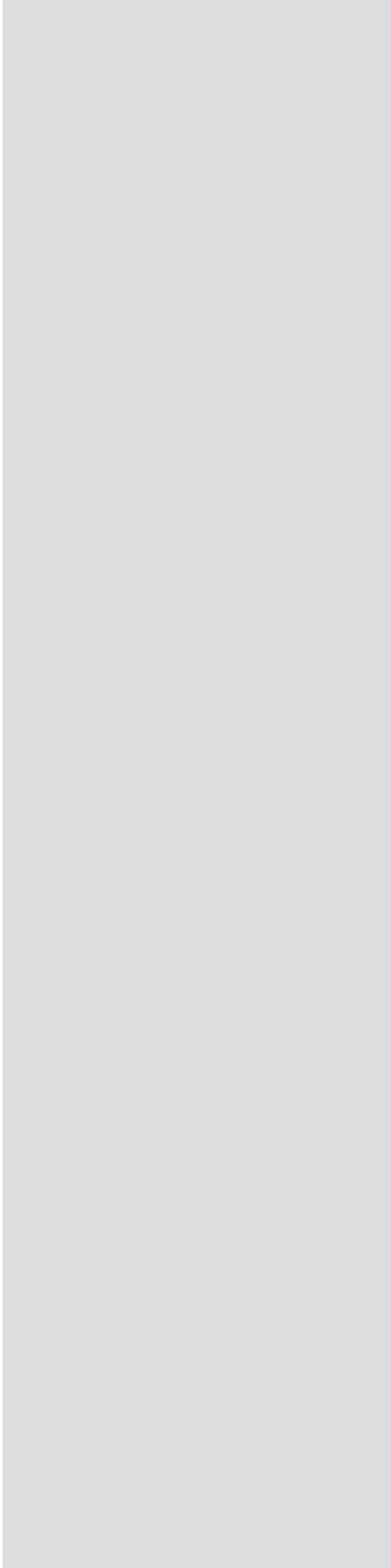
The following guidelines apply to the relationship of parallel and angled parking zones and other pedestrian buffer elements:

- On-street parking should be provided whenever possible to furnish a buffer between pedestrians on the sidewalk and moving traffic; especially in areas with ground floor commercial uses and/or where high-volumes of pedestrian activity are expected;
- The Edge Zone along parallel on-street parking may be a minimum of 0.5 foot wide (width of top of curb);
- The width of the Edge Zone along angled parking should account for the depth of vehicle overhangs and will vary between 1.5 and 2.5 feet depending on the selected angle;
- Parking meters should be placed in the Edge Zone between parked cars (parallel and angled) to minimize conflicts with door swings and car overhangs;

- On-street parking lanes and angled parking zones employed for temporary uses should be visually offset from the adjacent travel lane and sidewalk area by:
  - A low curb raised 1/2 inch above the surface of the adjacent travel lane;
  - Colored or textured paving, and/or a change in paving material for the area between the low curb and the full curb at the sidewalk edge; and,
  - Use of a “v” gutter or other drainage solution that locates drainage between the travel lane and the parking area to avoid puddling between the sidewalk and parking lane.
- Travel lanes adjacent to flexibly used on-street parking areas should be at least 12 feet wide to provide additional clearance for temporary pedestrian use of the parking area and to accommodate drainage between the travel and parking lane;
- Placement of furnishings, amenities, street trees, and other landscaping in a Furnishings Zone adjacent to a parking area intended for flexible use should account for and maintain access to uses located in the parking area;
- Flexible use of on-street parking areas should be visually distinct from the adjacent travel lane and sidewalk area and should only be considered for thoroughfare segments with a main street character, high pedestrian volumes, and traffic travel speeds of 25 mph or less.



*Figure C-3.3.18 Bollards and a pedestrian refuge on this corner in Tiburon improve safety for crossing pedestrians.*



### References

- AASHTO, A Policy on Geometric Design of Highways and Streets, 2001.
- Institute of Transportation Engineers, Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities, 2006. Chapter 8 Roadside Design Guidelines, p.110 Pedestrian Buffer.
- California Department of Transportation, Pedestrian and Bicycle Facilities in California, 2005:
- Section V – Standard and Innovative Practices for Pedestrian Facilities and Traffic Calming, p. 25, Pedestrians: Sidewalks: Zone System.
- Section V – Standard and Innovative Practices for Pedestrian Facilities and Traffic Calming, p. 8, Pedestrians: Crossings: Medians and Refuges.

## Tool T-3.5: Pedestrian Amenities

Pedestrian amenities, including kiosks, stands, and street furniture, improve pedestrian conditions and encourage pedestrian activity. Objects explicitly for pedestrians foster a sense that the street is a comfortable place to be. Pedestrian amenities accomplish this effect in two ways: (1) by providing a functional service to pedestrians, bicyclists, and transit users, such as a public telephone or a drinking fountain; and (2) more subtly, by providing visual detail that makes a place comfortable and interesting. Pedestrian amenities also signal to other users of the thoroughfare that pedestrians are likely to be present and that they belong.

Expenditures for pedestrian amenities should be considered as necessary as for other street elements, such as traffic signals and signage. Street furniture that can add functionality and vitality to the pedestrian realm includes public seating, trash and recycling receptacles, drinking fountains, public telephones, news racks, and bicycle parking. Public seating warrants particular attention because, more than any other amenity, it encourages people to rest, converse, read, or simply people-watch. It creates places where people, able to see others and be seen, feel safe, through the passive monitoring effect termed “eyes on the street” by renowned author and urbanist Jane Jacobs.

Pedestrian amenities should generally be confined to the Furnishings and Frontage Zones and in curb extensions. Pedestrian amenities should never reduce the width of the Pedestrian Travel Zone below the minimum 4 feet required by ADA. The following guidelines outline necessary considerations when locating pedestrian amenities and street furniture:

1. The location of street furnishings will dictate their effectiveness. Rather than being spaced evenly along the pedestrian realm, placement of amenities should be targeted to specific locations that have or are expected to have high pedestrian activity. Targeting also helps use limited resources for amenities most effectively. Examples of locations for prioritizing street furniture include:

- Transit stops
- Major building entries
- Retail main streets
- Restaurants

### Related Principles:

P1 P5



*Figure C-3.3.19 Pedestrian amenities such as newspaper racks, trash receptacles, bike racks, mailboxes, and trees, all add convenience and value to the pedestrian realm.*



*Figure C-3.3.20 Newspaper racks and shelter for pedestrians waiting for transit provide comfort and convenience.*

### Related Tools:

*Tool T-3.2: Sidewalks*

*Tool T-3.9: Enhancing Transit Facilities*



*Figure C-3.3.21 Downtown San Rafael street corners include numerous built-in pedestrian amenities such as benches and newspaper racks.*

2. Street furniture can and likely will be installed in incremental fashion through public infrastructure projects and private development. However, to ensure that these incremental improvements add up to a coherent “theme” for a given thoroughfare, streetscape improvement plans should be established.
3. The type, design, and materials of street furniture should be selected to reflect the local character of the surrounding context, in order to contribute to a sense of community identity.
4. Seating incorporated into building form or landscape features, such as seat-walls, is an alternative to freestanding benches.
5. Street furniture may also be placed within curb extensions where sidewalk widths are extended into the parking lane. Bicycle parking or landscaped areas with seating walls can be effectively accommodated in curb extensions. Street furniture installed in curb extensions at street corners should not interfere with clear sight triangles.
6. Street furnishing design and location should consider car overhangs and door swing. When placed near the curb, furnishings should be located at the ends of on-street parking stalls rather than at the center.
7. Furnishings should never obstruct curb ramps or be placed near intersections such that they interfere with visibility of pedestrians by motorists.

#### References

- Santa Clara Valley Transportation Authority, VTA Pedestrian Technical Guidelines, 2003:
- Chapter 2: Multi-Use Street and Pedestrian Realm Design
- Chapter 4: Creating a Pedestrian Realm
- Federal Highway Administration, Pedestrian Facilities User’s Guide, 2002: Chapter 4: Section A – Pedestrian Facility Design (p. 50, Street Furniture/Walking Environment)

## Tool T-3.6: On-Street Parking

On-street parking should be included wherever possible. Besides the qualities as a pedestrian buffer, as described in Tool T-3.4: Pedestrian Buffers, and the as parking solution, as described in Tool P-6: On-street and Off-site Parking, on-street parking is useful in the design of multi-modal streets. On-street parking slows traffic, can improve the vitality of commercial districts, and does these things in all place and mobility types. On-street parking lanes also allow effective pedestrian crossing distances to be shortened at intersections through curb extensions.

On-street parking is explicitly required for some land uses in some Marin jurisdictions (e.g. Mill Valley and Larkspur). However, this tends to be inconsistent, applying only to some types of development such as single-family housing. As parking requirements and demand are major Marin concerns, better understanding the value and benefits of on-street parking in all areas can help cities coordinate parking requirements and select locations for on-street parking.

The following guidelines outline necessary considerations for on-street parking:

- Parallel parking lanes must be wide enough for occupants to move around vehicles without stepping into a traffic lane. Stalls are typically 8 feet wide by 20 feet long.
- A combination parking lane and bicycle lane should typically be at least 13 feet wide but can be reduced to 12 feet in constrained situations. (The bicycle lane should remain striped at 5 feet in either scenario).
- To ensure pedestrian visibility at intersections, on-street parking should be restricted as follows at intersections and mid-block crossings:

**Table T-3.6.1 On-Street Parking Location**

Design Speed	Parking Distance from Intersection
< 30 mph	20 feet
30-45 mph	50 feet
> 45 mph	100 feet

**Related Principles:**



*Figure C-3.3.22 On-street parking in downtown San Anselmo provides a buffer protecting pedestrians from passing traffic.*



*Figure C-3.3.23 Hillside residential street parking in Mill Valley is striped to ensure safe conditions for passing cars and pedestrians.*

**Related Tools:**

*Tool T-3.1: Appropriate Widths for Traffic Lanes*

*Tool T-3.4: Pedestrian Buffer*

*Tool P-6: On-Street and Off-Site Parkings*

*Tool P-11: On-Street Residential Parking*

TOOL T-3.6 : On-Street Parking



*Figure C-3.3.24 On-street diagonal parking in downtown Novato is interspersed with pedestrian bulbouts and landscaping to create a varied buffer between pedestrians and traffic.*

- For perpendicular and angled parking stalls adjacent to sidewalks, wheel stops or curbs should be used to restrict vehicle overhang onto the sidewalk.
- For perpendicular parking, the roadway area dedicated to parking should be 20 feet deep, with a wider curb travel lane of at least 14 feet to allow adequate space for vehicles to back up.
- For diagonal parking, parking lanes should be at least 18 feet deep, with wider curb travel lane of at least 14 feet to allow adequate space for vehicles to back up.

#### References

- Santa Clara Valley Transportation Authority, VTA Pedestrian Technical Guidelines, 2003: Chapter 2: Multi-Use Street and Pedestrian Realm Design
- AASHTO, A Policy on Geometric Design of Highways and Streets, 2001.
- California Department of Transportation, Pedestrian and Bicycle Facilities in California, 2005: Section VI – Standard and Innovative Practices for Bicycle Facilities (p. 13, Class II Bike Lanes: On-street Parking)
- Metropolitan Transportation Commission, Pedestrian and Bicycle Safety Toolbox, 2006: Planning/Engineering: On-street Parking Enhancements. <http://www.mtc.ca.gov/planning/pedestriansbicycles/tools/onStParking/index.htm>

## Tool T-3.7: Raised Landscape Medians

Raised landscape medians are an effective method for improving the safety and accessibility of arterial streets. Raised medians should be considered when streets have a crossing width of at least 60 feet, fast vehicle speeds or another identified need. Medians are also an effective means of adding landscaping to a corridor and can be used in any mobility or place type.

For example, along Tiburon Boulevard in downtown Tiburon, the raised landscaped median decreases the total crossing width of a wide right-of-way. At the same time, it adds a shaded and natural feel to this major thoroughfare, which creates an environment and character more in keeping with the town. Other Marin arterials of equal and lesser size can be made safer and improved in character by adding a raised landscape median.

The following guidelines outline necessary considerations for raised landscape medians:

- Medians should be at least 6 feet wide to allow for a pedestrian and a wheelchair to wait in a pedestrian refuge island while crossing. Existing medians that are at least 4 feet wide can remain at their current width. Changes in median width along a corridor should be avoided.
- Medians can be installed in locations with continuous left turn lanes by providing left-turn pockets within the median. This should be coupled with land use strategies that consolidate access to adjacent properties from arterials, minimizing the need for left-turn pockets. In this configuration, the median should allow for a 6-foot pedestrian refuge island in addition to the left-turn pocket, making the minimum median width 16 feet.
- Mid-block crossings with raised medians should include pedestrian “corrals” to improve pedestrian safety by forcing pedestrians to look towards oncoming traffic.
- Any planting in raised medians should preserve sight distance triangles at crossings.
- Landscaping of raised medians can include a variety of elements. Depending upon species, trees should be planted between 15 and 30 feet on center but should not interfere with sight distances at intersections or mid-block crossings.

### Related Principles:

P1 P6



*Figure C-3.3.25 A landscaped median in Tiburon which adds an attractive array of planting to the street.*



*Figure C-3.3.26 This landscaped median in Mill Valley also includes pedestrian amenities, where people sit to read, chat, or eat.*

### Related Tools:

*Tool T-2.1: Speed Management/  
Traffic Calming*



*Figure C-3.3.27 Landscaping on the median between Miller Avenue and local parallel roads creates quieter safer conditions for the neighborhood streets.*

**TOOL T-3.7 : Raised Landscape Medians**

- Ongoing costs of maintaining landscaped medians should be considered in planning for median construction. Irrigation may be required unless drought-tolerant plants are selected, and initial “trucked” irrigation may be necessary to allow for proper establishment of landscape. Added costs of maintaining the median during regular road repairs should be considered as well.

**References**

- Santa Clara Valley Transportation Authority, VTA Pedestrian Technical Guidelines, 2003: Chapter 3: Street Crossings
- AASHTO, Guide for the Planning Design and Operation of Pedestrian Facilities, 2001. Section 3.3: Intersection Design
- Federal Highway Administration, Pedestrian Facilities User’s Guide, 2002: Chapter 4: Section B – Roadway Design (p. 56, Raised Medians)

## Tool T-3.8: Crosswalks and Curb Ramps

Safety and visibility of pedestrian crossings is crucial for multi-modal street design. Well-marked and designed pedestrian crossings encourage pedestrian activity. High quality pedestrian crossings are crucial for all place and mobility types. Marked crossings can be installed at controlled and uncontrolled locations and steps can be taken to shorten crossing distances and improve accessibility of street crossings.

These considerations are valuable in all contexts. While major signalized crossings are appropriate to Novato, San Rafael, and the larger intersections in Marin's smaller cities and towns, pedestrian crossings throughout Marin County can be improved where crossing is frequent or visibility is low.

The following guidelines outline necessary considerations for pedestrian crossings:

- Crosswalks should be well marked and at least 10 feet wide increasing in width in areas of high pedestrian activity, such as downtown Sausalito.
- Crosswalks should be considered for uncontrolled crossing locations if there are no controlled crossings within 600 feet, but marked crosswalks alone (i.e. without traffic-calming treatments, traffic signals, or other substantial crossing improvements presented in these guidelines) should not be used under the following conditions:
  1. Where the speed limit exceeds 40 mph.
  2. On a roadway with four or more lanes without a raised median or crossing island that has (or will soon have) an ADT of 12,000 vehicles per day or greater.
  3. On a roadway with four or more lanes with a raised median or crossing island that has (or will soon have) an ADT of 15,000 vehicles per day or greater.
- Marked mid-block crosswalks should be installed where block lengths are greater than 450 to 550 feet and where there is sufficient demand, although mid-

### Related Principles:

P1 P5



Figure C-3.3.28 High visibility striping and signage increase visibility while bulbouts decrease the length of crossing at this downtown San Anselmo crosswalk.



Figure C-3.3.29 Crosswalks should be a minimum of 10 feet wide, highly visible, and include curb-ramps for seniors and persons with disabilities.

### Related Tools:

Tool T-1.1: Pedestrian connections across Highway On/Off-ramps

Tool T-3.10: Design of Roundabouts

Tool T-3.2: Sidewalks

Tool T-4.2: Basic Network of ADA-Compliant Routes

Tool T-E3 Safe Transit, Bicycle, and Pedestrian Facilities for Schools

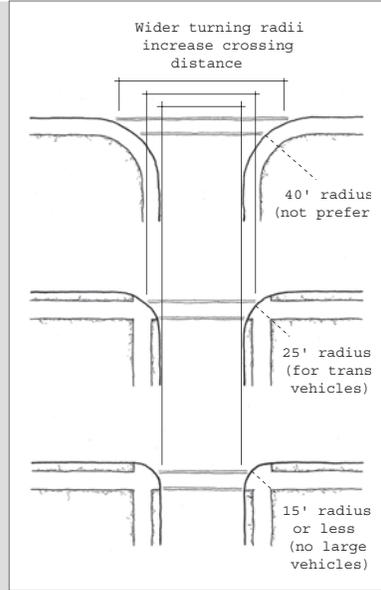


Figure C-3.3.30 Curb radii have a direct impact on pedestrian crossing distance and vehicular speeds.

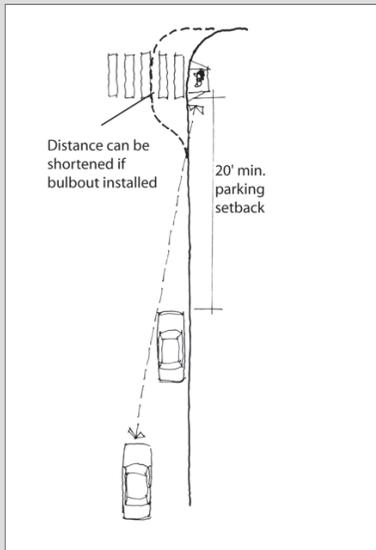


Figure C-3.3.31 Bulbouts improve pedestrian visibility.



Figure C-3.3.32 A large pedestrian refuge with separate walk signals for each roadway crossing improves the safety of this long crossing in Novato.

block crossings may not be appropriate for arterials with speeds of greater than 40 mph and traffic volumes of 20,000 vehicles per day.

- Curb radii should be minimized to shorten crossing distances for pedestrians. In general, curb radii should be between 10 and 15 feet. Five feet is a minimum curb radius allowable in some applications, and a radius of up to 25 feet can be used to accommodate bus and truck turning movements in constrained locations. See Figure C-3.3.30.
- Adequate crossing time should be provided at all signalized intersections. Typical pedestrian walking speeds are between 2.5 and 6.0 feet/sec. Crossing time calculations should assume a pedestrian speed no greater than 4.0 feet/sec, and in locations with significant populations of elderly and children, a slower walking speed such as 3.0 feet/sec should be assumed.
- Curb extensions (bulb-outs) reduce the distance of pedestrian crossings and make pedestrians more visible. Curb extensions should be used whenever roadway right-of-way and access demands allow—curb extensions can restrict the movements of buses and trucks depending on curb radii. See Figure C-3.3.31.
- Extending the median beyond the crosswalk at intersections while maintaining the level of the crosswalk creates an enclosed pedestrian refuge for rest between long crossings. This allows pedestrians to monitor traffic from one direction at a time. See Figure C-3.3.32.
- ADA compliant curb ramps should be provided at all crosswalks. Where possible, two curb ramps, aligned with the direction of the crosswalks should be installed, rather than a single curb ramp, See Figure C-3.3.34.

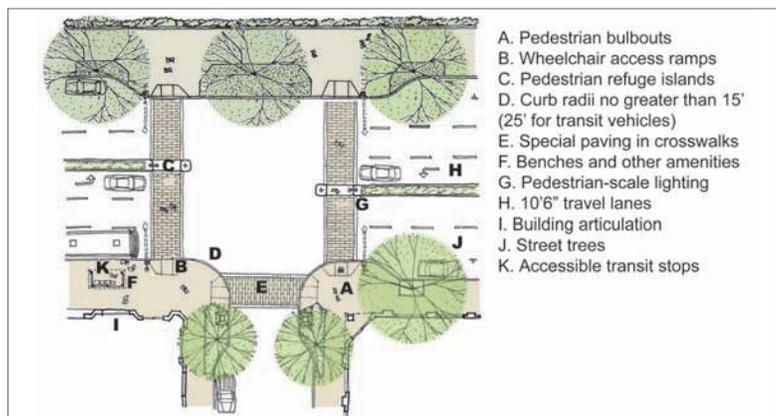


Figure C-3.3.33 Elements that create a pedestrian friendly-intersection

## References

- Town of San Anselmo, Town of San Anselmo Traffic Calming Handbook, [www.townofsananselmo.org/police/files/SanAnselmoTrafficCalmingGuidebook.pdf](http://www.townofsananselmo.org/police/files/SanAnselmoTrafficCalmingGuidebook.pdf)
- FHWA, Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations, 2001.
- Santa Clara Valley Transportation Authority, VTA Pedestrian Technical Guidelines, 2003: Chapter 2: Street Crossings
- AASHTO, Guide for the Planning Design and Operation of Pedestrian Facilities, 2001. Section 3.3: Intersection Design
- California Department of Transportation, Pedestrian and Bicycle Facilities in California, 2005: Section V – Standard and Innovative Practices for Pedestrian Facilities and Traffic Calming (pp. 6-14 Pedestrians: Crossings: Crosswalks)
- Federal Highway Administration, Pedestrian Facilities User's Guide, 2002:
  - Chapter 4: Section A – Pedestrian Facility Design (p. 44, Curb Ramps)
  - Chapter 4: Section A – Pedestrian Facility Design (p. 45, Marked Crosswalks and Enhancements)
  - Chapter 4: Section B – Roadway Design (p. 58, Curb Radius Reduction)
  - Chapter 4: Section D – Traffic Calming (p. 72, Crossing Islands)
- Metropolitan Transportation Commission, Pedestrian and Bicycle Safety Toolbox, 2006: Planning/Engineering – Reduced Curb Radii. <http://www.mtc.ca.gov/planning/bicyclespedestrians/tools/reducedCurbRadii/index.htm>

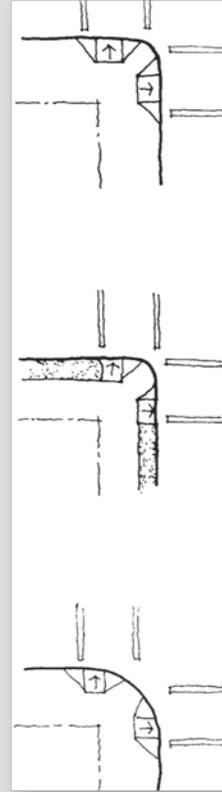


Figure C-3.3.34 ADA accessible curb ramp designs.

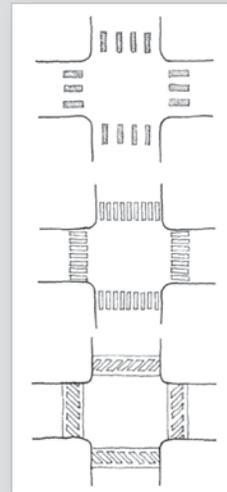
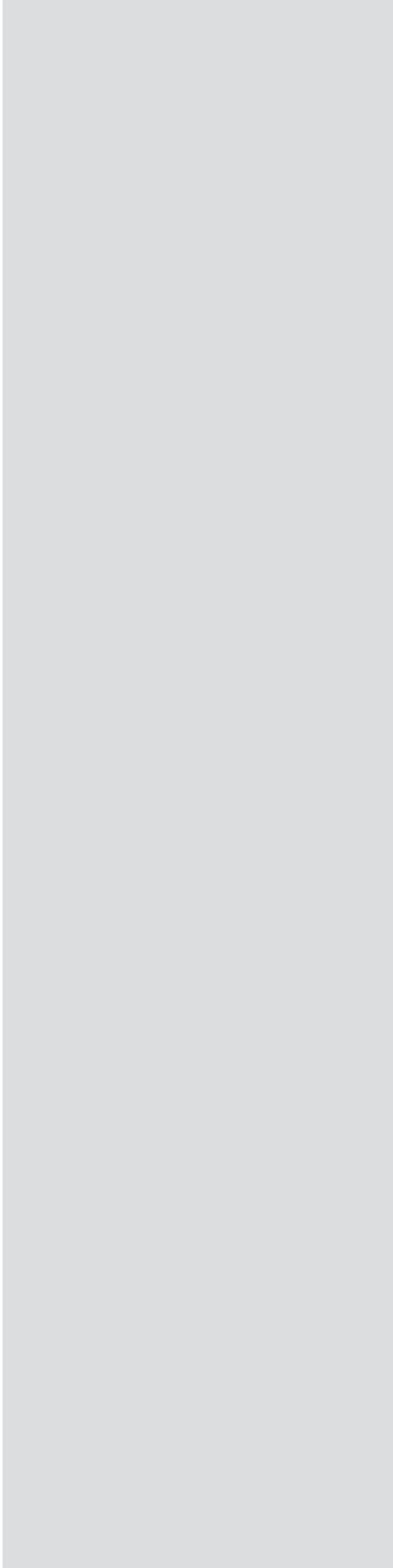


Figure C-3.3.35 Typical crosswalk striping patterns.

**TOOL T-3.8 : Crosswalks  
and Curb Ramps**



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## Tool T-3.9: Enhancing Transit Facilities

High quality transit facilities increase passenger comfort, attract new users to the system, and inform potential users about where and how to board the transit system. The transit stop is, in effect, the transit provider's business card to customers and the public. These facilities communicate an important message about transit and its role in the community. They can provide weather protection, information, and seating. As wait times increase, the importance and value of passenger facilities also increase. When transit runs frequently and reliably, sometimes a bus stop sign will suffice. However, when transit runs only once or twice an hour, a place to sit, schedule information, and protection from the elements have greater importance. If a passenger is elderly, standing at a bus stop for ten minutes or more may be quite uncomfortable. If passengers are in a hurry, having schedule information will allow them to plan their trip more effectively. Typical passenger facilities can range from a simple bus stop sign on a sidewalk or paved area to higher quality passenger amenities such as shelters, seating, posted schedules, or even indoor waiting areas.

Marin's array of land use contexts is matched by an equally broad array of transit facilities. Urban areas, such as San Rafael, are able to support better-equipped transit stops; however, much of Marin is served simply by sign poles or shelters tucked into the side of the road. In either case, consulting the ADA Access Board's specific guidance on transportation facilities can help improve accessibility for all. Another important consideration for transit facilities in Marin is safe access to bus stops along Highway 101. Tool T-1.1 Pedestrian Connections Across Highway On/Off Ramps specifically addresses this concern.

Many measures focus on enhancing existing facilities and service. They include the following:

- Well-designed stops enhance safety, comfort, and reliability. Stops should be located where all passengers, including those with disabilities, can board or transfer conveniently and safely. Curb extensions or bulb-outs can ease passenger boarding, reduce street crossing distances, and provide extra street-side space for passenger amenities. Buses that stop at a bus bulb-out typically do not exit the roadway travel lane, enabling them to resume their trip without having to wait for a break in traffic. Stops should also be designed in a manner that is sensitive to local architectural style and context. See Figure C-3.3.37.

### Related Principles:

P1 P5



*Figure C-3.3.36 Many existing transit facilities in Marin are uncomfortable and even dangerous due to lack of sidewalks, space for waiting passengers, and shelters.*



*Figure C-3.3.37 This Mill Valley bus shelter is well designed to fit in with the character of the downtown area and the natural surroundings.*

### Related Tools:

*Tool UD-E: Urban Design of TOD*

*Tool T-3.5: Pedestrian Amenities*

*Tool T-E3: Transit, Bicycle, and Pedestrian Facilities for Schools*



Figure C-3.3.38 It also includes an array of amenities to provide comfort and information to waiting travelers.



Figure C-3.3.39 High visibility transit lanes and convenient bus shelters highlight the presence of transit on Grant Avenue in downtown Novato.

- Transit stop facilities should take ambiance and setting into consideration where possible. While safety and convenience must be the primary considerations in locating a transit stop, opportunities to direct views toward Marin’s attractive natural setting, or to buffer waiting riders from the noise, pollution, and wind that result from major roadways can not only take away the discomfort of waiting, but can provide a pleasant and visually interesting waiting experience.
- Amenities for waiting passengers should be included at all stops, and particularly at stops with less frequent service, where passengers may wait longer for a bus to arrive. Amenities such as shelters, informational signage, and lighting improve the comfort and safety of users, making people more likely to wait for and use the transit system even in less frequently served locations. Minimum bus stop amenities and some suggested improvements for different stop types are detailed in chapter 6 of the Marin Short Range Transit Plan. See Figure C-3.3.38.
- Well-placed and well-marked stops maximize ridership. Stops can be strategically placed to take advantage of land uses with traditionally high levels of ridership. To maximize efficiency of stops, it is important that busses can easily access them. Obstructions in bus loading zones that prevent a bus from stopping near the curb can prevent disabled users from boarding and provide a significant inconvenience to both transit riders and automobiles in travel lanes. In addition to red curbs in bus stop zones, markings on the street can prevent private or service vehicles from unintentionally blocking bus stops. See Figure C-3.3.39.
- Land uses that are street oriented and a short walk from transit stops help attract and retain ridership by making walks from the stop to the final destination short and convenient.

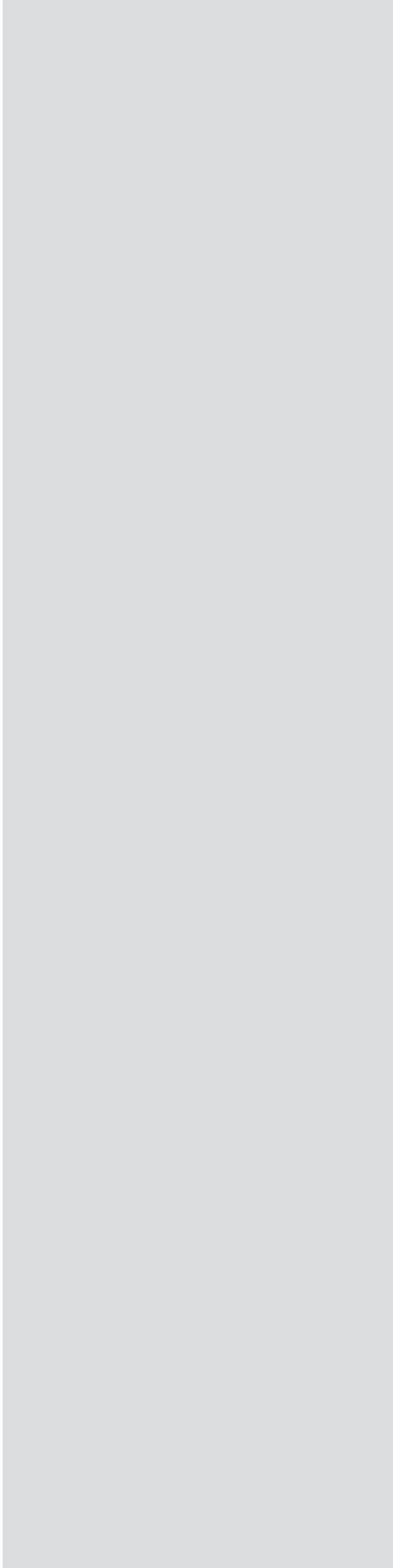
Many dimensional requirements for the design of transit facilities are dependent on the type or types of transit vehicles that serve a particular location. It is therefore important to understand the specific requirements of local bus operators. While some transit agencies publish their own design manuals that specify dimensions and guidelines for various transit facilities and streets used by their vehicles, Golden Gate Transit, the main provider of services in Marin, does not currently provide such a manual. However, understanding that some dimensions may require customization, other guides,

including the VTA Community Design & Transportation Program's Manual of Best Practices for Integrating Transportation and Land Use, provide design guidelines, general facility dimensions, and diagrams of appropriate facilities, which can serve as initial guidance to local jurisdictions. This can enable jurisdictions to engage transit service providers in Marin in a joint design effort around local bus stops with the goal of creating transit facilities that not only enhance the experience of transit riders but also the local setting of a given stop.

### Resources

- Marin County Transit District, Short Range Transit Plan, 2006. Chapter 1, System Overview, Chapter 3, Service Plan, and Chapter 8, Implementation discuss existing and proposed service and improvements which should be considered in planning around transit in Marin.
- Santa Clara Valley Transportation Authority, Community Design & Transportation – A Manual of Best Practices for Integrating Transportation and Land Use, 2003: Appendix A – Community Planning for Bus Transit: this resource includes extensive design guidelines and diagrams including facility dimensions.
- Transit Cooperative Research Program, Guidelines for the location and Design of Bus Stops. National Academy Press. Washington, DC. 1996;
- Institute of Transportation Engineers, Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities, 2006. Midblock Bus Stops, pp. 141-148; Intersection Bus Stops, pp. 176-178
- Santa Clara Valley Transportation Authority, VTA Pedestrian Technical Guidelines, 2003: Section 5 Pedestrian Access to Transit

**TOOL T-3.9 : Enhancing Transit  
Facilities**



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## Tool T-3.10: Design of Roundabouts

The modern roundabout should not be confused with the often-heard terms “traffic circle” or “rotary,” where the prevailing design allows high-speed merging and weaving of vehicles. By contrast, the modern roundabout was developed in the United Kingdom in the 1960s with a mandatory “give way” rule. This rule requires that entering traffic give way, or yield, to circulating traffic. It prevents the roundabout from locking up by forbidding vehicles to enter the intersection until there are sufficient gaps in traffic. The modern roundabout therefore represents a significant improvement to the older traffic circle and rotary, and has become common in many countries.

In certain circumstances, such as some of Marin’s irregular intersections or high volume intersections requiring traffic calming, the modern roundabout can provide significant improvements in safety, speed reduction, and aesthetics, while also improving intersection operation and traffic flow without need for a traffic signal or a four-way stop. Concerns regarding safety of pedestrians and bicyclists are often raised, but, well-designed roundabouts can actually improve intersection safety over traditional intersections. Proper design and signage for the safety and comfort of pedestrians and bicyclists must be a priority in roundabout implementation. Splitter islands (as depicted in graphics in the margin), for example, provide a refuge where pedestrians crossing the intersection may pause, decreasing crossing distances and allowing them to focus on traffic from one direction at a time.

### Roundabout Types

Different roundabouts are applicable to different contexts (urban or rural) and to different numbers of lanes.

The **Urban Compact Roundabout** is a one-lane version intended to be pedestrian and bicycle-friendly because its perpendicular approach legs require low speeds to make a distinct right turn into and out of the circular roadway. The geometric design includes raised “splitter islands” for pedestrian refuge and a central island that may or may not have a mountable curb to accommodate larger islands.

The **Urban Single-Lane Roundabout** differs from the compact roundabout by its larger diameters and turning radii allowing for higher capacities and slightly higher speeds at entry and exit. Pedestrian and bicycle safety is still a concern. Splitter islands are used and the central island should not have a mountable curb.

#### Related Principles:

P1 P5



*Figure C-3.3.40 This intersection in Mill Valley uses a similar approach as a roundabout to manage a unique intersection.*



*Figure C-3.3.41 A well-designed modern roundabout.*

#### Related Tools:

*Tool T-3.3: Bicycle Lanes*

*Tool T-3.8: Crosswalks and Curb Ramps*

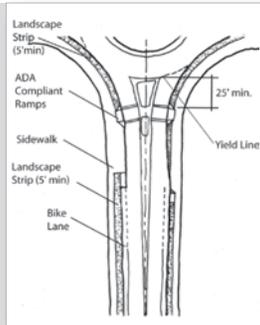


Figure C-3.3.42 Sidewalk configuration at a roundabout.

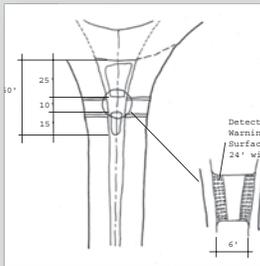


Figure C-3.3.43 Design of splitter island at a roundabout.

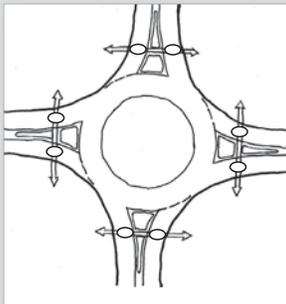


Figure C-3.3.44 A modern roundabout generates significantly fewer potential vehicle/pedestrian conflict points than a traditional intersection



Figure C-3.3.45 This roundabout includes a sidewalk onto which bicyclists can transition to pass around the roundabout and use pedestrian crossings.

The **Urban Double Lane Roundabout** has at least one entry with two lanes and thus requires a wider circular roadway for two vehicles to travel side by side with speeds being similar to those in the single lane version. Special design considerations are necessary to improve pedestrian and bicycle safety.

The **Rural Single and Double Lane Roundabout** has larger diameters facilitating design speeds of up to 50 – 60 mph. Construction of these types should only be considered where there is currently, or expected to be, a low number of pedestrians.

**Traffic Calming Circles** are located within existing rights-of-way of low speed streets with no additional pavement required. They are similar to roundabouts but are considered a traffic calming measure, rather than a traffic control device. For more information see Tool T-2.1: Speed Management/Traffic Calming.

#### Issues to Consider

- At properly designed roundabouts, pedestrians need only cross one direction of traffic at a time at each approach, and lower vehicular speeds allow drivers more time to react to potential conflicts. See Figures C-3.3.42 and C-3.3.44.
- Concerns have been raised about the safety of visually impaired pedestrians because vehicles are not required to stop as at a conventional intersection. Crosswalk visibility and detectable entry points must therefore be carefully considered.
- Parking and stopping in the circular roadway of the roundabout is prohibited, thus precluding bus stops from being located in the intersection.
- Special consideration should be made for emergency and other large vehicles at roundabouts. On emergency routes, roundabouts may not be appropriate or may require mountable curbs to accommodate wider turning radii. If properly designed, roundabouts can provide improved conditions for emergency vehicles by reducing risk of collision with vehicles approaching quickly from perpendicular roadways, thereby reducing the need to slow at these intersections. Roundabout design should consider all large vehicles including freight and construction vehicles, and emergency vehicles from surrounding jurisdictions.

- Bicyclists should be given a choice of how they travel through a roundabout. Roundabouts can accommodate bicyclists in transit lanes, and by providing ramps to channel them onto the sidewalk to slowly and cautiously navigate the roundabout in heavy traffic conditions. See Figure C-3.3.45.

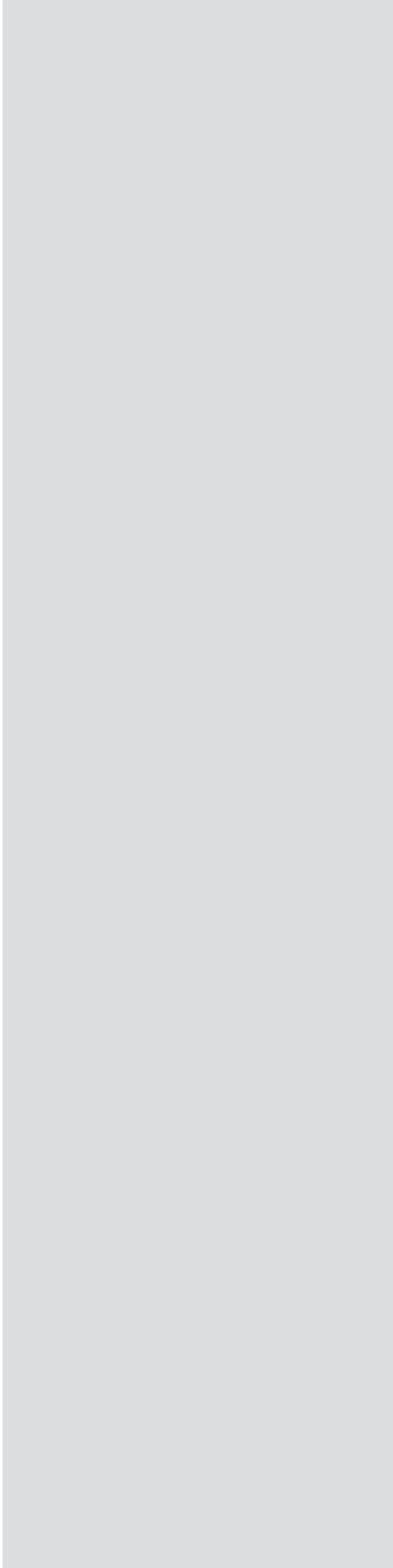
## References

- Federal Highway Administration, Roundabouts: An Informational Guide, 2000.
- California Department of Transportation, Pedestrian and Bicycle Facilities in California, 2005: Section V – Traffic Calming: Modern Roundabouts (p. V-34)
- California Department of Transportation, Division of Design, Design Information Bulletin Number 80-01: Roundabouts, 2003



*Figure C-3.3.46 A landscaped roundabout in Tiburon.*

**TOOL T-3.10 : Design of Roundabouts**



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## C-3.4 Toolset T-4: Mobility Needs of Seniors and Persons with Disabilities

As the population of Marin ages, as described in Section B-2.1, the demand for alternatives to driving will increase. Currently, Whistlestop Wheels is the largest provider of paratransit service for seniors in Marin County. This service is available throughout the County, but only to those individuals (of any age) who are unable to ride fixed route transit due to disability. While most of the disabled population in Marin County is over age 65, there remains a large population in the older age groups who do not qualify for paratransit service under the current rules. Even with this restrictive definition of eligibility, demand for paratransit service increased more than 20% in 2004. Paratransit trips are quite expensive; subsidies were over \$35 per trip in 2004.

Land use issues also play a role in senior mobility. Senior housing, senior centers and medical facilities in isolated places or on hills are difficult to access by regular transit connections, or often by any means other than driving.

### Issues:

- ADA guidelines don't provide enough flexibility to deal with local conditions

### Tools:

- T-4.1: Mobility Needs of Seniors addresses improving local transit services and amenities that serve seniors and people with disabilities
- T-4.2: Basic Network of ADA Compliant Routes discusses some Marin-specific mobility challenges and tools that can help address these conditions.

### Issues:

- Need more choices for selecting attractive ADA compliant materials and furnishings.
- Lawsuits divert already-limited funding and local agency staff time.

### Tools:

- T-4.3: References for Other ADA Requirements Applicable to Public Rights of Way includes, in addition to references for ADA legislation and design guidelines, strategies for helping cities approach this challenging subject.

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## Tool T-4.1: Mobility Needs of Seniors

Planning for senior mobility is part of the responsibilities of the Marin Transit, which provides planning oversight for local transit service in Marin County. A significant new funding source for senior mobility comes from the Measure A sales tax, which provides 9% of net revenues, or approximately \$30 million over 20 years, for enhancing mobility for those needing specialized services (including seniors, persons with disabilities, youth and low income populations).

For older adults who are potential users of public transit, recent service cuts have meant decreased availability. With physical barriers including hills and streets that are difficult to safely cross, and few amenities available at bus stops, seniors often make the transition from driving to paratransit, rather than to fixed route service. Senior shuttles supplement paratransit and may provide a less expensive subsidy per trip by carrying more people at one time. EZ Rider, a shuttle operating in Novato, provides regular service connecting senior centers and senior residence locations with important destinations in the community. Senior shuttles add to mobility, but because they must travel to many specific locations within neighborhoods are generally less productive than fixed route service that operates primarily on the main arterials for faster service. The costs and benefits of different types of service need to be communicated to the public clearly in the planning process so that stakeholders can express the relative importance of various routes to transit planners and elected officials.

Comprehensive mobility planning for seniors goes beyond transit and paratransit services to include safe walking and waiting areas and appropriate land use planning for senior services.

- Senior mobility should be an important focus of all local land use and transportation planning, required for receiving sales tax and other outside funding.
- When evaluating local transit service, mobility should be considered along with productivity. The result of this consideration may be that less productive routes (in the number of people carried per hour) only continue to operate if they meet a critical senior mobility need.
- Separate standards should be developed for senior shuttles that derive their value from provision of senior mobility and the fact that they are not intended to compete with arterial transit service.

### Related Principles:

P1 P5



*Figure C-3.4.1 Seniors are a growing population in Marin, and in many cases their mobility may require thoughtful consideration.*



*Figure C-3.4.2 Whistlestop Wheels provides transit service between assisted living centers and older adults community centers.*

### Related Tools:

*Tool T-4.2: Basic Network of ADA-Compliant Routes*



Figure C-3.4.3 Planning for all modes of transportation must take seniors into account.



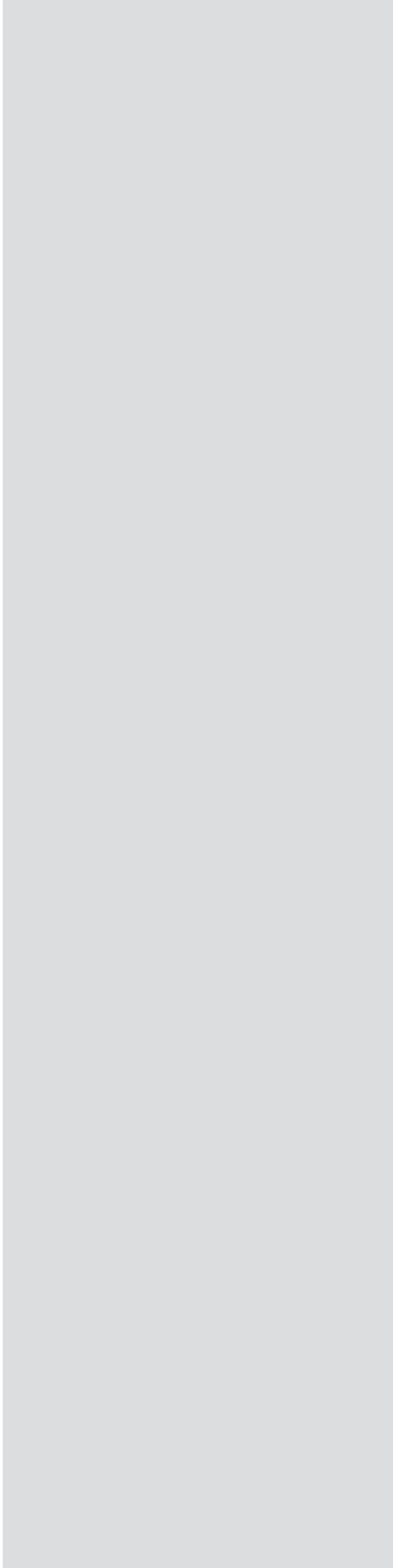
Figure C-3.4.4 Bus stop amenities, particularly seating, are even more important to encouraging seniors to take transit

- Marin Transit should continue to work closely with Golden Gate Transit to ensure comprehensive implementation of services required under the Americans with Disabilities Act. Marin Transit should work to preserve the broader network of paratransit services available in Marin County beyond the minimum standards of ADA.
- Transit services aimed at improving senior mobility should not be limited to door-to-door paratransit. Where possible, demand for high cost paratransit service for non-ADA trips should be attracted to fixed route community shuttles, subsidized taxi and other creative alternatives for a more physically able population.
- Senior housing complexes, senior centers, medical facilities, and other services for seniors should be located on or near major arterials where transit service is available. A reliably safe pedestrian path between the nearest transit route and the senior service location should be maintained.
- Bus stop amenities, including benches, shelters and enhanced lighting should be prioritized for stops that serve large numbers of senior riders.
- Marin Transit should review and comment on development plans for significant senior-serving facilities as part of their development and environmental review process, including residential complexes, senior centers and medical facilities.
- Larger senior residences should be required to provide transportation for their residents, either directly or through subsidy or mitigation fee to Marin Transit. Adding or expanding a senior residence should require development of a transportation plan that can receive review and comment by Marin Transit.
- Marin Transit should continue to provide senior travel training and the Transit Ambassador program.

## References

- Marin County Transit Authority, Short Range Transit Plan, 2006: Chapter 4, Paratransit Service Plan, includes information on system principles, existing conditions, and planned service and improvements.
- Transportation Authority of Marin, Transportation Sales Tax Expenditure Plan, 2004
- American Society on Aging, Road Map to Driving Wellness, [www.asaging.org/cdc](http://www.asaging.org/cdc) 2004
- Nelson\Nygaard for Metropolitan Transportation Commission, Bay Area Older Adults Transportation Study, 2002
- Community Transportation, Vol. 20, Number 6, The Gathering Storm, 2002
- Transportation Research Board, TCRP Report 82: Improving Public Transit Options for Older Persons, 2002
- Maricopa Association of Governments: “Regional Action Plan on Aging and Mobility,” 2002
- Beverly Foundation, Kerschner, H. and Aizenberg, R. Supplemental transportation programs for seniors, 2001
- Freund, K. Independent Transportation Network: Alternative transportation for the elderly. TR News, 206, 2000

**TOOL T-4.1 : Mobility Needs of Seniors**



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## Tool T-4.2: Basic Network of ADA-Compliant Routes

In Marin’s areas of low or rural densities, and along farming corridors with infrequent development and little or no transit service, it is important to maintain or establish a basic network of pedestrian routes and bicycle connections that allow travel from clusters of farm buildings or residential development to the nearest rural center or mixed-use cluster of buildings at a rural “cross-roads.” Such connections may consist of paths for bicycle or pedestrian only use or multi-use paths (combining pedestrians and bicyclists) alongside rural roads, or of non-roadway connections of the same type.

The following are important steps to creating and improving a network of ADA-compliant routes.

- Build a basic network of paths between clusters of residential development and key destinations in a given rural area.
- All paths should be compliant with the most recent federal and state requirements for accessible routes (ADA).
- Sidewalks on both sides of a street and pedestrian routes which parallel major arterial paths of travel must accommodate persons with disabilities or provide nearby alternative accommodation except where this is infeasible given the challenges of Marin’s topography.
- Please refer to Tool T-1.2 for recommendations about detailed design of mixed-use paths.
- Involve local stakeholders in establishing which routes should be included in the basic network of paths.

### Related Principles:

P1 P5



*Figure C-3.4.5 Pedestrian facilities should be designed to serve all users; the special needs of disabled persons must be taken into account.*



*Figure C-3.4.6 Even small transitions in topography can prove challenging for disabled persons to negotiate, and should include facilities to accommodate this.*

### Related Tools:

*Tool T-3.2: Sidewalks*

*Tool T-3.8: Crosswalks and Curb Ramps*

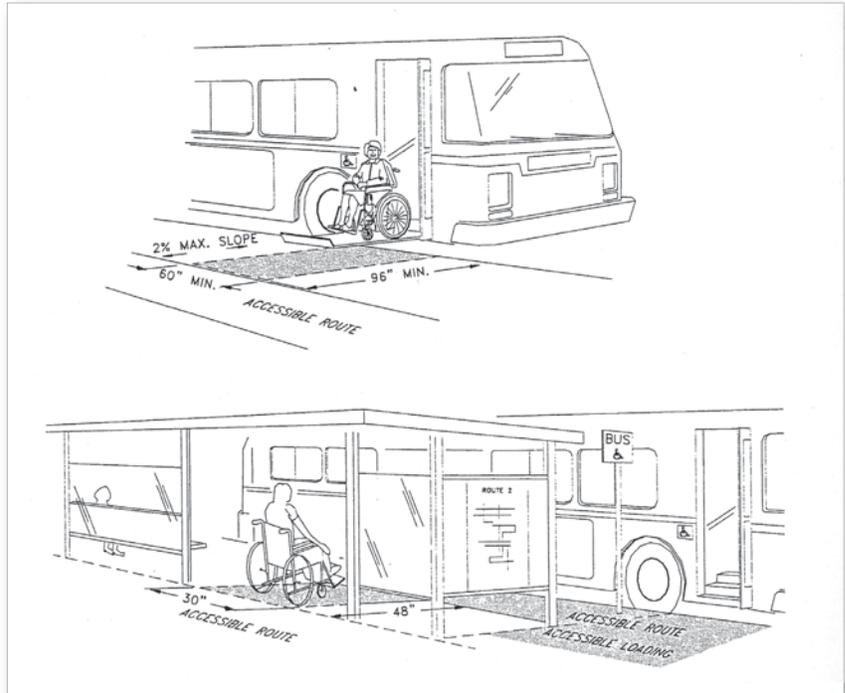


Figure C-3.4.7 Minimum required sidewalk and bus stop dimensions for persons with disabilities. (Source: California Disabled Access Guidebook, 2002)

References

- The United States Access Board. [www.access-board.gov](http://www.access-board.gov) (for latest guidelines on accessible routes)
- California Building Standards Commission, California Code of Regulations Title 24: California Building Standards Code, 2006.
- Federal Highway Association, Designing Sidewalks and Trails for Access, Part I, U.S. Department of Transportation, Washington D.C., 2003

## Tool T-4.3: References to other Accessibility and ADA-Requirements Applicable to Public Rights-of-Way

The impediments of Marin's topography and past development patterns have resulted in a landscape challenging to navigate for persons with disabilities and challenging to cities in terms of meeting accessibility standards. Solutions to these challenges can be difficult and costly for overburdened and under-funded city staffs. Transition Plans should be periodically updated and reflect priorities adjusted to ensure that access projects benefit the most people and ensure access to public facilities.

For guidance on standards that need to be met by cities, consult the references below.

### References

- The Marin County Disability Access Program is charged with ensuring that all county programs, services, activities and facilities in Marin are accessible to, and usable by, people with disabilities. The program is located at 3501 Civic Center Drive, Room 304 San Rafael, CA 94903.

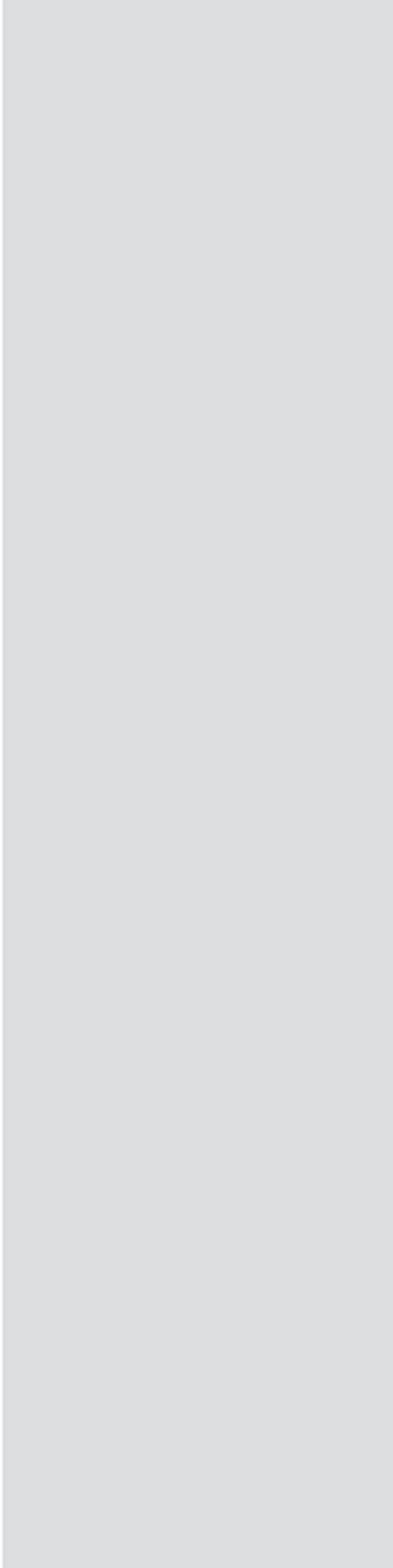
For more information about services provided, contact the County Disability Access Manager, William Campagna, at (415) 499-6570 (Voice/TTY) or by email at [wcampagna@co.marin.ca.us](mailto:wcampagna@co.marin.ca.us)

- State of California, Department of General Services, Division of the State Architect, California Access Compliance Reference Manual, June 16, 2006. Includes sections of Title 24 of the California Building Code with reference to public rights-of-way as of November 1, 2002. Also includes checklists guidelines from all applicable federal and state legislation with regards to public rights of way in the final section, DSA Checklists.
- The United States Access Board. [www.access-board.gov](http://www.access-board.gov)
- United States Department of Justice, ADA Standards for Accessible Design, Title III regulations, 28 CFR Part 36, revised July 1, 1994.

#### Related Principles:

P1 P5

**TOOL T-4.3 : References to Other  
ADA Requirements**



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## C-3.5 Toolset T-5: Transit, Bicycle, and Pedestrian Access to Schools

Schools and their relation to multi-modal transportation systems deserve particular attention in this document, as a number of school users in Marin rely on transit, bicycling, and walking to get to and from school every day. Also, the high percentage of school-related automobile trips (21% of all A.M. peak hour trips in Marin) indicates that this trip type represents a large potential for future automobile trip reduction. In many communities, walking or biking to school is valued as a local tradition, an opportunity for kids to exercise, and a cost-saving measure for the school districts that would otherwise have to pay for busing. Safe routes to school and well-designed facilities along those routes protect the students, teachers and others who use school facilities and encourage them to continue using alternative modes of transportation.

Successful transportation planning for school sites requires careful consideration of pedestrian, bicycle, and transit to ensure that these modes are safe and available to school users of all ages. Because school grounds and facilities often serve a number of different user groups throughout the day, providing multi-modal accessibility to schools requires an understanding of the characteristics and needs of all who will regularly access the school site. Therefore, when planning for accessibility to school sites, the age, size and abilities of the students, in addition to the adult users, should be considered. Children, for example, have lower eye-levels, smaller fields of vision, and less experience judging the speed of moving vehicles, all of which are important design and safety considerations.

According to the AASHTO's Guide for the Planning, Design, and Operation of Pedestrian Facilities, efforts to improve transit, bicycle, and pedestrian access to schools should address the following issues and include the following types of improvements:

- Implementing safety programs that include funding, public education/ outreach, and/ or supervisory control components, such as Safe Routes to School programs
- Selecting school sites that are accessible via transit, bicycling, and walking
- Developing transit, bicycle and pedestrian facilities, such as continuous sidewalk and bike lane networks, transit shelters, traffic calming and traffic control devices, etc.

The sections below discuss the role of school site selection and the Marin County Bicycle Coalition and TAM's Safe Routes to School (SR2S) programs and provide detailed design recommendations for transit, bicycle and pedestrian facilities associated with schools.

### **Issues:**

- School-related traffic contributes dramatically to morning congestion.
- The existing Safe Routes to School program needs to continue to be reinvigorated with fresh ideas through grassroots involvement and additional outreach.
- Topography hampers pedestrian and bicycle access to schools.
- Poor pedestrian facilities put pedestrians, especially children walking to school, in danger.

### **Tools:**

- T-E1: Coordinating Safety Programs for Schools discusses the creation of a Safe Routes to School program and important steps, components, and goals for success.
- T-E2: Accessible Sites for Schools includes discussion of schools as multi-purpose facilities for communities and the need, therefore, to locate them in central and easily accessible sites.
- T-E3: Safe Transit, Bicycle, and Pedestrian Facilities for Schools suggests assessing existing schools' transit accessibility and suggests strategies for making them more safe and accessible.

## Tool T-E1: Educational Programs for Safety and Mobility

Multi-modal access to schools greatly depends on walking, biking, and transit conditions, both on and off school grounds. Coordinating on-site and off-site improvements and safety measures is crucial to ensure that continuous networks exist for pedestrians, bicyclists, and transit riders. The goals of the TPLUS toolkit, for improving quality of life in Marin through better conditions for pedestrians, bicycles and transit are especially critical in areas near schools, where the users of these facilities are children. Children are more likely to walk to school if routes are shorter, and more importantly safer, but are less aware of the behaviors and associated dangers of motorists, and are less visible to automobiles. As such, the tools presented in this toolkit can be of particular value near schools or on school routes. Coordination of pedestrian, bicycle, and transit improvements in areas near schools should involve parents, school administrators and local government agencies and departments.

One approach to coordinating pedestrian safety efforts is to establish a Safe Routes to School program within the school, which evaluates existing routes to school and identifies safety hazards or areas of concern for pedestrians. TAM's Safe Routes to School program includes technical assistance and funding resources to help ensure that safety measures are brought about and capital improvements are carried through and implemented. In addition, the TAM programs include a public education component, which has proven a highly effective tool for converting students from trips where they are driven alone to trips where they walk, ride a bicycle, use transit or are driven as part of a larger pool. Mode shifts of this kind increase pedestrian safety, which encourages even further shift.

The Marin Safe Routes to School program is outlined in the guidelines below:

- Form a School or Community Task Force to prepare “travel plans” for each school
- Collect Baseline Information
- Inventory existing walking and biking conditions
- Survey children and parents to determine their current travel modes and attitudes
- Develop goals and objectives
- Identify improvement strategies including engineering, enforcement, education, and encouragement

### Related Principles:

P1 P5 P6



Figure C-3.5.1 San Jose's Street Smarts program uses a variety of media to publicize traffic safety messages. Source: City of San Jose.

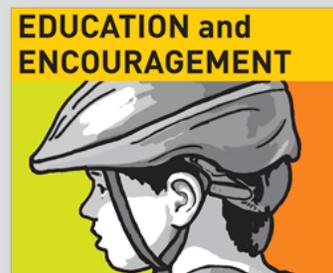


Figure C-3.5.2 Marin is home to the national model Safe Routes to Schools program.

### Related Tools:

Tool T-E3: Safe Transit, Bicycle, and Pedestrian Facilities for Schools

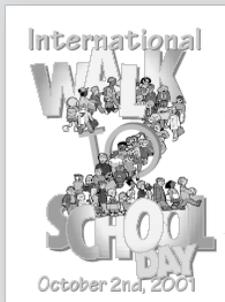


Figure C-3.5.3 Participation in larger events, setting school goals, and other incentives which add excitement are a critical component of a successful Safe Routes to Schools program.



Figure C-3.5.4 Increasing driver awareness of school zones is another critical component of education. Enforcement improves driver and pedestrian safety.

- Get approval of travel plans from all necessary parties
- Develop implementation program
- Evaluate the effectiveness of the program

Marin is home to the national model for Safe Routes to School programs, proving that this tool has a high potential for further success in Marin. TAM’s SR2S program has five primary elements, known as the five “E’s”:

- Encouragement - Events, contests and promotional materials are incentives that encourage children and parents to try walking and biking. TAM’s Program Director provides schools with promotional and contest materials, prizes, and ongoing consultation.
- Education - Classroom lessons teach children skills necessary to navigate busy streets and persuade students to be active participants in the program. The Safe Routes Instructors have developed curriculum which includes a Bicycle Rodeo, Walk around the Block and lessons on health and the environment
- Engineering - The Certified Traffic Engineer assists schools in developing engineering concept plans for improvements intended to provide a safer environment for children to walk and bike to school. The concept plan includes engineering improvements. Plan development must include full participation by parents, students, school officials and relevant city public works department staff. In a TAM-administered competitive funding process, task force identified capital improvements can be funded consistent with the concept plans.
- Enforcement – Working with local law enforcement, the program has increased police presence around schools while developing public education efforts that increase drivers’ awareness of behaviors that endanger children. TAM provides over 50 crossing guards at approved locations around the county. Additionally, TAM has acquired a Bay Area program called “Street Smarts” which can work in conjunction with Safe Routes to Schools programs to improve driver safety. Street Smarts uses a low-cost, branded advertising strategy to support law enforcement efforts aimed at changing driver, pedestrian and bicycle rider behaviors.

- Evaluation – The fifth E in Safe Routes to Schools is evaluation, which is critical to monitoring the success of the program. TAM evaluates the effectiveness of the program through student surveys, parent surveys, and strategy meetings with stakeholders. These evaluations enable TAM to determine overall program level measures of success as well as individual school progress.

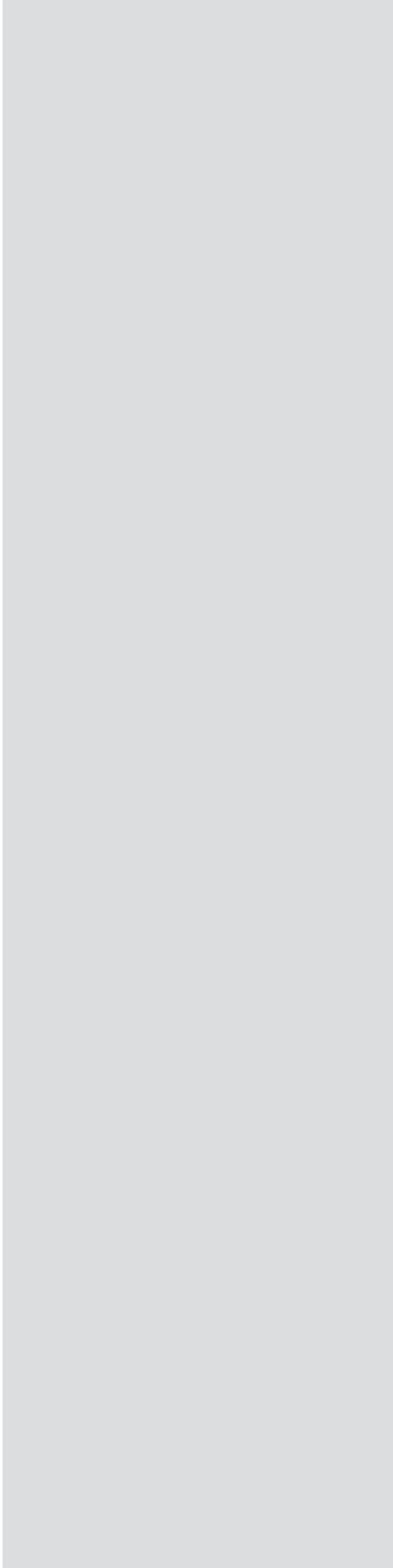
Safe Routes to School programs may also have associated events and competitions to involve community members beyond the students, and to generate enthusiasm for the programs, such as an International Walk to School Day program. This program presents walking to school as an opportunity to exercise for parents and children and provides information related to the health benefits of walking. Monthly or weekly Walk to School Day programs also result in decreased traffic congestion around schools.

Many successful Safe Routes to School and Walk to School Day programs have been implemented around the country and in Marin County. Additional information related to these programs is available from the sources listed below.

### References

- American Association of State Highway and Transportation Officials, Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2004;
- Federal Highway Administration, National Center for Safe Routes to School: <http://www.saferoutesinfo.org>
- Transportation Authority of Marin, Safe Routes to Schools Marin County: <http://www.tam.ca.gov>
- Marin County Bicycle Coalition, Safe Routes to Schools program information: <http://www.saferoutestoschools.org>
- California Department of Health Services, Safe Routes to School: California: <http://www.dhs.ca.gov/routes2school/>

**TOOL T-11 : Educational Programs for Safety and Mobility**



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## Tool T-E2: Accessible Sites for Schools

Schools often serve numerous functions in addition to their roles as education centers. They provide recreation facilities, polling locations, meeting spaces, and other important civic and community center functions. Therefore, schools should facilitate access from all directions, both in location and in the design of surrounding infrastructure.

The following guidelines encourage consideration of pedestrian, bicycle and transit accessibility during the site selection and planning process for new schools, as well as elements to be taken into consideration when improving access to existing schools. Tool T-E3 further discusses assessing and improving access to existing schools.

- The school site should be centrally located in the community; most children should live within 1 mile of the school.
- Pedestrian and bicycle access should be available from all directions.
- Bicycle parking should be secure and in close proximity to entrances.
- Sidewalks, bike lanes and trails on adjacent streets or through surrounding neighborhoods should connect to school property.
- Links between surrounding neighborhoods, such as access paths between cul-de-sacs, should provide enhanced pedestrian connections to the school.
- Effective traffic control devices should be provided within the vicinity of the school.
- The school should institute a school walk route and safety program and crossing guards should be provided within the vicinity.
- School facilities, including the playground, fields, and meeting rooms, should be available and accessible for community use.
- Elementary schools should be located on collector streets in the middle of a neighborhood.

### Related Principles:

P1 P6



*Figure C-3.5.5 This Mill Valley elementary school includes a bike path for safe student access.*



*Figure C-3.5.6 This Marin high school is located at a central and well-connected location for easy student access by any mode of transportation.*

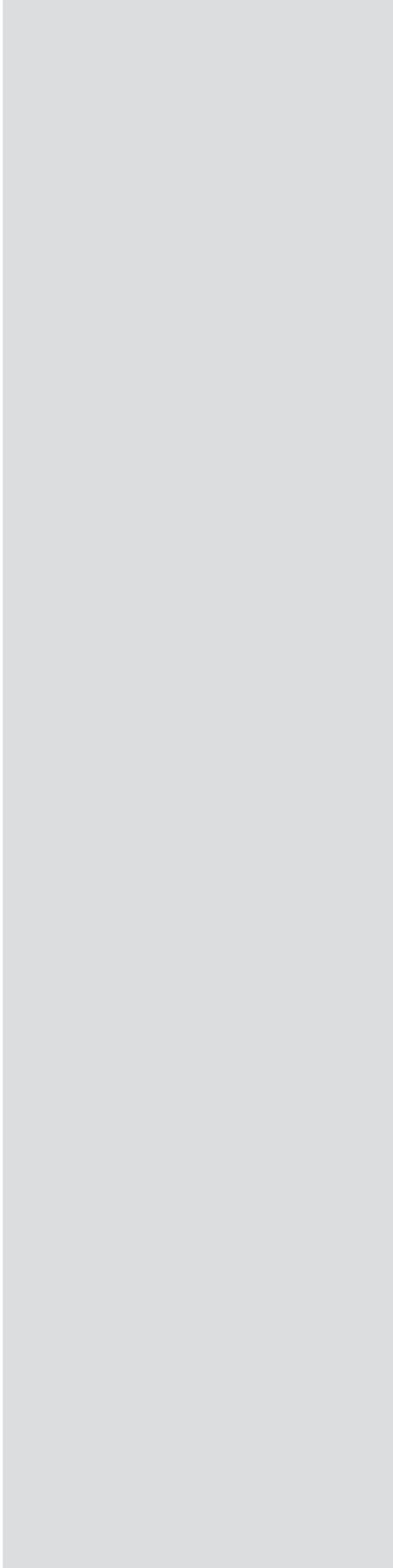
### Related Tools:

*Tool UD-1: Site and Project Design*

*Tool T-1.2: Bicycle and Pedestrian Non-Roadway Network and Facilities*

*Tool T-3.8 Crosswalks and Curb Ramps*

**TOOL T-E2: Accessible Sites for Schools**



- The urban design of school sites, including buildings, access, parking lots, play areas, etc. should provide the urban design supports to create the proper context for successful pedestrian- and bicycle-supportive multi-modal streets, see the land use and urban design sections of this Toolkit.

## Tool T-E3: Safe Transit, Bicycle, & Pedestrian Facilities near Schools

A school site design should prioritize the safety, comfort, and convenience of transit users, bicyclists and pedestrians. In Marin, most towns and neighborhoods have well-established schools, which may or may not meet these criteria. In either case, school sites and the areas that surround them can be improved with regard to safe and convenient multi-modal connectivity. Recently, the Safe Routes to School program, through the Caltrans Safe Routes to Schools program has helped some Marin schools, such as Mill Valley School, improve nearby transit, bicycle, and pedestrian infrastructure to make these facilities safer and more useable to students and employees of the schools.

Safe Pathways to Schools provides funding for capital improvements such as planning, engineering and construction costs of multi-modal paths and sidewalk and crosswalk improvements. This funding is available in all Marin communities, where these improvements can make improvements in safety around schools that benefit the whole community.

Safe Pathways to Schools offers funding to projects based on meeting the following criteria:

- Relieves an identified safety or congestion problem along a major school route
- Completes a “gap” in the bicycle and pedestrian system along a major school route
- Maximizes daily uses by students and others
- Attracts matching funds
- Respects geographic equity

The need for improvements to the safety and quality of transit, bicycle, and pedestrian facilities can be assessed through a community audit of existing conditions. In such an audit, volunteers walk or bicycle to the school from all directions, noting strengths, weaknesses, gaps, and opportunities in each of the transportation networks, as well as the behavior of motorists and other external challenges to safe arrival at school. Students, parents, representatives of the school, and city staff as well as local bicycle and pedestrian advisory groups can help incorporate all perspectives on the physical conditions, encouraging collection of a broad range of information and perspective.

### Related Principles:

P1 P6



Figure C-3.5.7 High visibility signage and striping encourage drivers to slow in school zones.



Figure C-3.5.8 High visibility crosswalks make for safe crossing near this Mill Valley elementary school.

### Related Tools:

*Tool T-1.2: Bicycle and Pedestrian Non-Roadway Network and Facilities*

*Tool T-1.3: Pedestrian and Bicycle Linkages to Transit*

*Tool T-2.1: Speed Management/Traffic Calming*

*Tool T-3.8: Crosswalks and Curb Ramps*



Figure C-3.5.9 Secure bicycle parking at schools is a necessary component to encourage children to bike to school.



Figure C-3.5.10 Well-marked high-visibility crossings and the presence of crossing guards at busy intersections near schools provide additional awareness and visibility of small children and encourage children to cross at crosswalks.

Issues to survey and consider for improvement include:

- Surrounding streets should be equipped with sidewalks and bike lanes.
- Parking should be minimized.
- All entries and exits should be accessible to pedestrians.
- Secure bicycle parking should be along paths and close to entrances.
- Bus drop-off zones should be on the same side of the street as the school and should be separated from auto drop-off zones. Where possible, modes should be segregated.
- Buses, cars, bicycles, and pedestrians all should be accommodated on or in close proximity to school grounds and provided with designated areas for traveling and access between these areas and the school buildings needs to be designed carefully.
- Pedestrian travel zones (sidewalks, paths, etc.) should be clearly delineated from other modes of traffic (through the use of striping, colored and/or lightly textured pavement, landscaping, signing, and other methods).
- Pedestrians should be clearly directed to crossing points and pedestrian access ways by directional signing fencing bollards, or other elements.
- Strategically located, well-delineated crossing opportunities should be provided, including marked crosswalks at controlled intersections and mid-block crossings (signalized if warranted).
- Traffic-calming devices (raised crossings, refuge islands, bulb-outs at crossings, neighborhood traffic circles, landscape buffers, etc.) should be installed in the vicinity to slow vehicles.
- View obstructions should be avoided so there is clear visibility of pedestrians throughout the area.
- Motorists should respond to traffic control devices and respect posted speed limits.

#### References

- Transportation Authority of Marin, Safe Pathways to Schools Marin County: <http://www.tam.ca.gov>
- California Department of Transportation, Pedestrian and Bicycle Facilities in California, 2005: Section VI – Standard and Innovative Practices for Bicycle Facilities (pp. 3-6 Bicycle Parking)

## ***C-3.6 Educational Tool T-E: Benefits of Multi-Modal Streets, and Pedestrian and Bicycle Safety***

A number of valuable resources on the topic of multi-modal streets are available free of charge in PDF format on the web. Those interested in learning more about these topics should consider downloading and consulting the following resources:

### ***Complete the Streets: For Safer Bicycling and Walking***

available at: <http://www.americabikes.org/completestreets.asp>

This website includes a number of valuable resources related to pedestrian and bicycle safety, federal transportation legislation, funding for safety programs, and Safe Routes to School. It presents the evidence for the value of including pedestrian and bicycle infrastructure on all streets to improve safety for bicyclists, pedestrians, and motorists. The website also includes a comprehensive Microsoft PowerPoint presentation about safety, road user preference data, and funding information which can be downloaded for use.

### ***El Camino Real Master Schematic Design Plan, Public Review Draft***

available at: <http://www.cityofpaloalto.org/elcamino-real/reports.html> - (Individual chapters available under March 12, 2003 Staff Report)

This document includes design guidelines and transportation improvement plans developed by the city of Palo Alto for a Caltrans right-of-way which passes through their jurisdiction. Because some of Marin's major arterials are controlled by Caltrans, this document has specific pertinence to those locations where jurisdictions must work with Caltrans and negotiate trade-offs in design and transportation needs.

### ***Redesigning Suburban Arterials***

available at: [http://www.cnu.org/cnu\\_reports/TFRv4n4.pdf](http://www.cnu.org/cnu_reports/TFRv4n4.pdf)

This article presents the dire condition of many suburban arterials as well as their potential for dramatic improvement through consideration of good examples from the past and present and guidelines for redesign. Parties involved in planning and design with relation to Marin's suburban arterials would benefit greatly from this introduction to important concepts in good design of suburban arterials. (Pages 1, 4, and 5)

### ***Accommodating Bicycle and Pedestrian Travel: A Recommended Approach***

available at: <http://www.fhwa.dot.gov/environment/bikeped/Design.htm>

The Federal Highway Administration's Bicycle and Pedestrian design guidance document provides both policy guidance, and an exhaustive list of design guidelines and documents for pedestrian and bicycle facilities. (.html format, only)

### ***Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities, an ITE Proposed Recommended Practice***

available at: <http://www.ite.org/css/>

Because of the importance of sensitivity to existing built and natural context in Marin, this document serves as an especially useful set of design guidelines for transportation related improvements. It focuses on working within existing built areas and transportation networks to improve connectivity, safety, and comfort for pedestrians and other non-motorized forms of travel, while, in many cases, improving the effectiveness or efficiency of auto-related infrastructure as well.

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## C - 4. Parking Guidance

Parking is an essential part of new development in Marin. Most households have private vehicles, and most trips are made by private auto. Provision of effective improved pedestrian, bicycle, and transit infrastructure will, over time, reduce demand for parking, however, foreseeable demand requires that new development provide parking. Particularly for commercial uses, availability of parking is a critical factor for economic success. At the same time, however, parking has a range of impacts on the community and environment:

- More parking leads to more traffic and congestion, by encouraging access trips to be made by automobile rather than other modes;
- Parking takes up land that could be devoted to more compact development and open space, or built space capacity that could allow creation of additional housing units or commercial space;
- Parking comprises a substantial portion of development costs, the price of which is rarely separated from other uses, increasing the price of housing and commercial rents and incentivizing driving, since one pays for parking whether or not one uses it;
- Curb cuts for parking facilities can interrupt sidewalks and bike lanes and impede buses; and,
- Parking lots and garages increase impervious surface area and stormwater runoff.

For these reasons, it is important that parking be provided in appropriate quantities, and closely matched to actual demand and the level of parking and traffic a jurisdiction can accommodate. The following tools can help ensure that motorists can find a space, while avoiding exacerbating the negative impacts.

By allowing development to succeed with less parking, these innovative parking policies can support many of the principles for TOD/PeD in Marin County (see Section B-3 Marin TPLUS Vision Statement and Principles), such as creating compact places and providing residents of all incomes with quality housing choices. It is important to stress that, with the exception of maximum parking requirements, none of these strategies would force developers to provide less parking. They would still be free to respond to market demands.

It should also be noted that these tools are focused on changes that can be made to the zoning codes of local jurisdictions. Additional strategies cover management of public parking, such as on-street meters and residential permit parking.

A technical memorandum has been prepared for TAM and the TPLUS Advisory Committee that provides a detailed overview of existing parking standards in Marin County.

### Existing Efforts

Many recent planning efforts have already addressed the issue of parking standards. For example, the revised Draft Marin Countywide Plan, released in August 2005, and Draft San Rafael General Plan, published in January 2004, present a range of parking-related policies, including the adoption of more flexible standards. Some older plans, such as the 1995 Sausalito General Plan, also include policies for more flexible requirements.

In addition, many of the strategies represent “tried and tested” practice in Marin and have already been implemented in at least one town or city.

## Where Are They Appropriate?

Parking strategies to promote TOD and PeD have often been seen as only applicable in large urban centers with intensive transit service. The potential policies discussed here, however, apply to a wide range of contexts. Some, such as credits for on-street parking or the greater use of tandem parking, have applicability across the County – even without minimum levels of associated density or transit service. Even where a community does not anticipate a significant level of new development, revised parking policies can be important in ensuring that changes of use or minor infill projects contribute to local goals such as traffic reduction, or the enhancement of the pedestrian environment.

Other policies are best suited to specific areas, such as downtowns or transit corridors with higher-frequency service, and will not be appropriate in all towns and cities, particularly in more rural areas. Where this is the case, it is noted in the text for each tool.

It should be stressed that many of these policies have been introduced in comparable contexts, even where transit service is limited or non-existent. For example, Petaluma, in Sonoma County, recently adopted major revisions to its parking standards as part of a wider shift to a new form-based code. These include eventual abolition of minimum parking requirements altogether and adoption of extensive design standards to ensure that parking does not impact the pedestrian environment.

The section is organized in response to stated issues and concerns, as follows:

### Issue:

Parking requirements often do not take into account variations in demand.

### Tools:

- **P-1: Tailored Minimum Parking Requirements** take into account the substantial variations within Marin. They can consider the characteristics of likely occupants based on housing type and geographic location.

### Issue:

- Parking is used inefficiently – many spaces are not available to those who need them or an excessive number sit unused.

### Tools:

- **P-3: Shared Parking.** Most land uses have different times of peak demand, allowing them to share the same physical parking spaces at different times of the day and evening.
- **P-4: In-Lieu Fees and Parking Assessment Districts.** Instead of building parking on-site, public parking can be financed by one-time in-lieu fees or annual property assessments.
- **P-6: Off-Site Parking.** Allowing developers to provide parking nearby, instead of on-site, promotes shared parking and can reduce urban design impacts.

**Issue:**

- Parking consumes large amounts of land

**Tools:**

- **P-5: Tandem Parking/Other Flexible Solutions.** Tandem parking, parking lifts and valet parking allow more spaces to be accommodated on the same area of land.
- **P-6: Credit for On-Street Parking.** Often, developments have many adjacent curb parking spaces that can be credited towards the parking requirement.
- **P-7: Landscape Reserves** acknowledge that parking demand is uncertain; reserve areas can be converted to parking spaces if required in the future.

**Issue:**

- Parking has detrimental impacts on urban design.

**Tools:**

- **P-10: Design Requirements** aim to minimize the impact of parking on safety, aesthetics, conditions for pedestrians, and traffic flow.

**Issue:**

- Parking provision may not reflect wider community goals, such as reducing traffic and congestion

**Tools:**

- Reduced parking requirements can apply to developments that incorporate **P-2: Demand Management Programs** such as parking pricing and car-sharing.
- **P-9: Parking Maximums** restrict the number of spaces that can be provided, for example to address congestion issues.

**Issue:**

- Parking requirements may make small-scale infill projects financially infeasible

**Tools:**

- **P-8: Waive Minimum Parking Requirements.** Instead of being specified by a town or city, the amount of parking provided would be left to the discretion of the developer.

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## Tool P-1: Tailored Parking Requirements

Most minimum parking requirements enforced by local jurisdictions – not just in Marin County, but around the country – consider only two variables, land use and the size of development. The requirements are typically expressed in terms of number of spaces required per 1,000 square feet of a particular land use, or per residential unit or (for restaurants and stadiums) number of seats.

In reality, however, parking demand in Marin is affected by many more variables, such as:

- The geographic location of a development – encompassing factors such as the quality of the local pedestrian environment, the intensity and mix of other land uses within walking distance, and the availability of transit;
- The demographic characteristics of residents; and,
- Demand management programs such as parking pricing and car-sharing.

Indeed, vehicle ownership levels (and thus residential parking demand) vary considerably between different parts of Marin County, from 1.6 vehicles per household in Larkspur, to 2.4 per household in Tomales. In some parts of San Rafael and Marin City, 20% of households do not have a car.

Local jurisdictions can amend their zoning codes to take these variations into account, based on the following factors:

**Unit Size.** Smaller households tend to own fewer vehicles. In Marin County, average vehicle ownership ranges from 1.1 for one-person households to 2.3 for households with more than three people. Tailored requirements based on unit size have been introduced (at least to some extent) in many Marin County towns and cities, such as San Anselmo and Larkspur, as well as by the County itself.

**Affordable Housing.** A strong link between vehicle ownership and income means that less parking is needed when housing is targeted to low-income households. Corte Madera already reduces parking requirements for affordable housing.

**Senior Housing.** Senior citizens tend to own fewer vehicles than younger adults, meaning that parking requirements can be reduced for senior housing facilities, including independent living and assisted living and convalescent care facilities. Tailored requirements for senior housing have already been introduced by jurisdictions such as Sausalito and the County of Marin.

### Related Principles:

P3 P6



Figure C-4.1 The high amount of use and premium on space justifies the use of parking structures in downtown San Rafael.



Figure C-4.2 Striped hillside residential parking in Mill Valley is a local solution to demand for parking in a uniquely challenging context.

### Related Tools:

Tool P-2: Demand Management Measures

Tool P-6: On-Street and Off-Site Parking

Tool P-9: Parking Maximums

### Reduced Parking Requirements in San Rafael

Over a decade ago, San Rafael responded to market demands by reducing parking requirements for downtown residential developments to just one space per studio, one-bedroom or small two-bedroom apartment. No guest parking is required, and tandem parking is allowed. The result: construction costs have decreased, more housing projects have penciled out, and more new housing has been built.

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**Rental Units.** Marin County households that rent their homes own 28% fewer vehicles, on average, than owner-occupiers. Tailored requirements have already been implemented by Larkspur and are applicable in any part of the county, particularly in multi-family units where parking can easily be shared among different units.

**Transit Corridors/ Downtowns.** Parking demand is lower in areas well served by transit and in downtowns that offer employment and services within walking distance. Tellingly, many large cities, like San Francisco, have entirely eliminated parking requirements. Some of the lowest levels of demand, however, are found not just in downtowns, but in other parts of the county that are well served by transit – for example, areas with easy access to bus pads on Highway 101. A policy reflecting this reduced parking demand is primarily applicable along transit corridors with frequent service, such as US-101 and San Rafael’s Canal District; around transit hubs in downtown San Rafael, Novato and Marin City; and at ferry terminals and proposed SMART stations. However, it is also applicable in any mixed-use, walkable downtown: San Rafael and Novato have already implemented such reductions.

#### References

- A parking outreach summary produced as part of this project provides a detailed inventory of Marin County parking standards and details of where innovative parking policies have been introduced. It also provides Marin-specific data on variations in vehicle ownership and parking demand. See Appendix 2: Parking Outreach Summary for details of this outreach effort.
- Nelson\Nygaard (2002), Housing Shortage/Parking Surplus. Silicon Valley’s opportunity to address housing needs and transportation problems with innovative parking policies.
- Oakland, CA: Transportation and Land Use Coalition. Available at [http://www.transcoalition.org/reports/housing\\_s/housing\\_shortage\\_home.html](http://www.transcoalition.org/reports/housing_s/housing_shortage_home.html). Chapter 2 discusses how minimum parking requirements can be tailored to meet demand.
- Russo, Ryan (2001), Planning for Residential Parking: A Guide For Housing Developers and Planners. Non-Profit Housing Association of Northern California. Available at: [www.nonprohousing.org/actioncenter/toolbox/parking/](http://www.nonprohousing.org/actioncenter/toolbox/parking/). The vehicle ownership data and associated model allow users to assess the impact of transit service, household size, income and residential density on parking demand.
- Shoup, Donald (1999). “The Trouble with Minimum Parking Requirements,” Transportation Research Part A, 33: 549-574. Provides an overview of the flaws of one-size-fits-all requirements.
- Shoup, Donald (2003), “Truth in Transportation Planning,” Journal of Transportation and Statistics, 6(1): 1-16. Discusses the imprecision inherent in minimum parking requirements.
- Shoup, Donald (2005), The High Cost of Free Parking, American Planning Association.
- US Census and Census Transportation Planning Package. Available at [www.bayareacensus.ca.gov](http://www.bayareacensus.ca.gov). This website provides access to detailed data on vehicle ownership and use in different parts of Marin County. Any tailored parking requirements can be based on these data.

## Tool P-2: Demand Management Measures

Demand management programs help to reduce the need for parking by encouraging motorists to walk, bicycle, carpool or ride transit. In many cases, developers can be given credit for a commitment to these programs through appropriate reductions in minimum parking requirements. Alternatively, some measures could be required for projects in certain locations or over a certain size.

Specific demand management measures include:

### Priced Parking

Charging for parking helps cover the substantial costs of parking provision. Various North American studies (see Table P-2 and sources, below) indicate that parking pricing has reduced employee parking demand by 15 to 40 percent, depending on location and monthly cost. In residential developments, the cost of parking can be separated (“unbundled”) from rents and sale prices, again encouraging households to own fewer vehicles. Parking requirements can therefore be reduced substantially for developments that commit to charging for parking (or offering comparable alternatives, such as parking “cash out”), for example through a development agreement. Residential Permit Parking – common in many Marin County towns and cities – or similar programs are a pre-requisite, in order to prevent users simply parking elsewhere to avoid charges.

#### Related Principles:

P3 P5 P6



Figure C-4.3 Some street parking in Mill Valley is signed to insure employees of local businesses have priority for parking.

### A unique twist on Demand Management in San Anselmo

It was, San Anselmo Town Manager Debbie Stutsman says, a gesture of “happy holidays from the town.” Between Thanksgiving and New Year’s Day of 2007, the city didn’t charge for parking in its downtown public lots; starting a week before Christmas, it didn’t enforce time limits, either. Though the lots are usually full anyway, the promotion encouraged shoppers to stay awhile, allowing them time to have lunch and do all of their holiday shopping in one place – downtown, and not at the mall.

#### Related Tools:

*Tool P-10: Car Sharing*

*Tool P-12: Integrating Transportation Demand Management*



Figure C-4.4 Bicycle parking encourages people to bike rather than drive, freeing up parking spaces.



Figure C-4.5 Metered parking encourages people to park for less time.

### Marin Transit Youth Pass Program

Marin Transit offers a six month youth pass that is distributed through middle and high schools in Marin County. The pass can be purchased \$175 for unlimited rides on local buses in Marin County. Youth wishing to purchase a pass should contact their school administrators.

Students at non-participating schools may purchase a youth pass by calling 499-6099. Youths must have a picture ID and be under 18. Passes are issued in August and February.

Qualifying low income youth at participating schools can receive the pass at no cost.

Table P-2

Location	Scope of Study	Parking Fee in \$/Month (2006 \$)	Decrease in Parking Demand
<b>Group A: Areas with little public transportation</b>			
Century City, CA <sup>1</sup>	3500 employees at 100+ firms	\$107	15%
Cornell University, NY <sup>2</sup>	9000 faculty and staff	\$45	26%
Warner Center, CA <sup>1</sup>	1 large employer (850 employees)	\$49	30%
Bellevue, WA <sup>3</sup>	1 medium-size firm (430 emp.)	\$72	39%
Costa Mesa, CA <sup>4</sup>	State Farm Insurance employees	\$49	22%
Average		\$64	26%
<b>Group B: Areas with fair public transportation</b>			
Los Angeles Civic Center <sup>1</sup>	10,000+ employees, several firms	\$166	36%
Mid-Wilshire Blvd, LA <sup>1</sup>	1 mid-sized firm	\$119	38%
Washington DC suburbs <sup>5</sup>	5500 employees at 3 worksites	\$90	26%
Downtown Los Angeles <sup>5</sup>	5000 employees at 118 firms	\$167	25%
Average		\$135	31%
<b>Group C: Areas with good public transportation</b>			
University of Washington <sup>7</sup>	50,000 faculty, staff and students	\$24	24%
Downtown Ottawa <sup>1</sup>	3500+ government staff	\$95	18%
Average		\$59	21%
Overall Average		\$89	27%

Sources:

- 1 Willson, Richard W. and Donald C. Shoup. "Parking Subsidies and Travel Choices: Assessing the Evidence." Transportation, 1990, Vol. 17b, 141-157 (p145).
- 2 Cornell University Office of Transportation Services. "Summary of Transportation Demand Management Program." Unpublished, 1992.
- 3 United States Department of Transportation. "Proceedings of the Commuter Parking Symposium," USDOT Report No. DOT-T-91-14, 1990.
- 4 Employers Manage Transportation. State Farm Insurance Company and Surface Transportation Policy Project, 1994.
- 5 Miller, Gerald K. "The Impacts of Parking Prices on Commuter Travel," Metropolitan Washington Council of Governments, 1991.
- 6 Shoup, Donald and Richard W. Wilson. "Employer-paid Parking: The Problem and Proposed Solutions," Transportation Quarterly, 1992, Vol. 46, No. 2, pp169-192 (p189).
- 7 Williams, Michael E. and Kathleen L. Petrait. "U-PASS: A Model Transportation

### Car-Sharing

Car-sharing provides households with access to a fleet of shared vehicles, allowing them to avoid owning a car, or a second or third car. According to the Transportation Research Board, each car-sharing vehicle takes nearly 15 private cars off the road, as members of car-sharing programs sell or give up their vehicles. This allows parking requirements to be reduced accordingly in developments that incorporate car-sharing. Such reductions are common in cities with car-sharing programs, such as Seattle and San Francisco, and may help spur the program to expand to Marin. See Tool P-10: Car Sharing for more detail.

### EcoPass Programs

EcoPass Programs, which involve the bulk purchase of transit passes by employers or property managers, for free provision to employees, students or residents. EcoPass programs in Santa Clara County, for example, have reduced vehicle trips to work among participants by 19%. Although Marin Transit and Golden Gate Transit do not currently offer EcoPasses, they plan to honor the TransLink universal fare card in 2007, which may offer an opportunity for some kind

of program similar to the EcoPass Program. Marin Transit currently accepts discount bus tickets for adults and convenience tickets for youth.

## Bicycle Parking

Many towns and cities in Marin County, such as Novato, already require bicycle parking at new developments. A further step may be to allow bicycle parking to substitute for a portion of required automobile parking, as is currently done in Palo Alto.

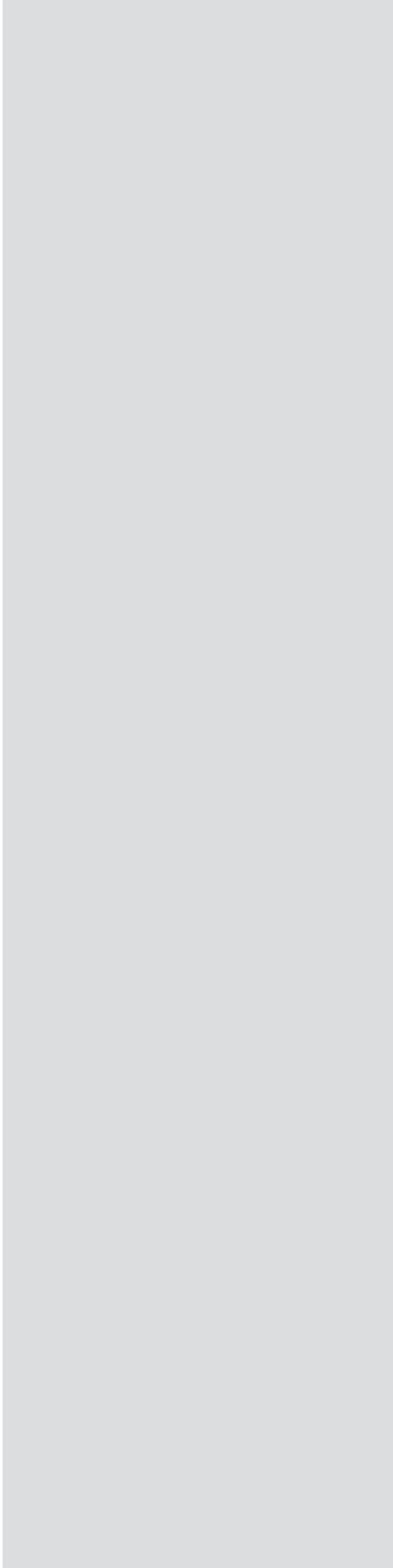
## Other TDM Programs

Other measures that reduce parking demand include shower and changing facilities for cyclists (already required by Novato), Guaranteed Ride Home programs, and carpool matching programs.

## References

- A local example bicycle-supportive TDM ordinance can be found in the Novato Municipal Code, CHAPTER XIX ZONING, Section 19.30.090. Available on-line at <http://ordlink.com/codes/novato/index.htm>.
- Association of Bicycle and Pedestrian Professionals (2002), Bicycle Parking Guidelines. Available at <http://www.bicyclinginfo.org/pdf/bikepark.pdf>.
- Cervero, Robert and Tsai, Yu-Hsin (2003), San Francisco City CarShare: Travel Demand Trends and Second-Year Impacts. University of California at Berkeley, Institute of Urban and Regional Development. Working Paper 2003-05. Documents impact of City CarShare on vehicle ownership and travel.
- Shoup, Donald (1999b), "In Lieu of Required Parking," *Journal of Planning Education and Research*, 18: 307-320. Discusses impact of parking pricing strategies.
- Litman, Todd (2004), "Parking Pricing," TDM Encyclopedia. Available at <http://www.vtppi.org/tdm/tdm26.htm>.

**TOOL P-2 : Demand Management Measures**



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## Tool P-3: Shared Parking

Most land uses have different times of peak demand, allowing them to share the same physical parking spaces. For example, demand from uses such as residential and bars is lowest during the day, allowing shared spaces to be used by office workers.

Most local jurisdictions in Marin County already allow reductions in parking requirements for complementary uses that share parking. In many cases, the lease or other agreement between the parking facility owner and the developer must be filed with the town or city. However, constraints on such use include:

- **Narrow eligibility.** Some jurisdictions (e.g. the County) provide for shared parking only when land uses have different hours of operation that do not overlap. Others, such as Sausalito and Larkspur, allow shared parking between “weekend” and “weekday” uses, and “daytime” and “nighttime” uses. These ordinances may not fully allow for the benefits of shared parking when land uses have different time of peak parking demand (e.g. office and retail), even if their hours of operation substantially overlap. Some jurisdictions (e.g. Novato) do not allow residential uses to share parking.
- **No as-of-right reduction.** Some local jurisdictions make reductions for shared parking subject to staff (e.g. San Rafael) or Planning Commission (e.g. Mill Valley) discretion.
- **Limited distance.** Some towns and cities require shared parking to be within a minimum distance (e.g. 250 feet in Larkspur) of the site that it serves, even if motorists are willing to walk further.
- **Lack of mixed-use development.** Shared parking, by definition, is only useful when mixed-use development is permitted under local zoning codes (either on the same or nearby parcels).

A simpler, more productive approach may be to state that shared parking will be allowed when two or more uses have distinct and differing peak parking usage periods.

### Related Principles:

P2 P3 P5 P6



Figure C-4.6 This parking lot in San Anselmo allows free public parking during the day and permit parking for residents only at night.



Figure C-4.7 This Mill Valley sign allows parking for Miller Avenue retail during business hours, and residential parking at all hours.



Figure C-4.8 Parking behind a mixed-use development in Novato allows customer parking in the daytime and tenant parking at night.

### Related Tools:

Tool LU-2: Mixed Use

Tool UD-1: Site and Project Design

Tool UD-3: Parking Design

### Shared Parking in Tiburon

Downtown Tiburon is “one large shared parking experiment,” says Community Development Director Scott Anderson. While there is plenty of parking downtown, the overwhelming majority of it is in privately owned, paid public lots and private lots used informally by the public. Shoppers and workers can always find a spot, though they may have to walk a few blocks. “It’s not a matter of supply,” Anderson says. “It’s a matter of convenience.” It’s also a matter of pedestrian comfort: good wayfinding signage leads to the ferry, and pedestrian connections to the landing were recently improved. Also, Main Street sidewalks were recently widened: a project funded by merchants through an assessment district. As a result, walking downtown is more pleasant than ever. In fact, Anderson says he heard no complaints when rates were raised in the pay lots.

### References

- Urban Land Institute (2005) Shared Parking. Provides a wealth of data on times of peak demand, allowing shared parking potential to be calculated.
- Institute of Transportation Engineers (2004), Parking Generation, 3rd edition.
- US EPA (January, 2006). Parking Spaces/Community Places. Finding the Balance through Smart Growth Solutions.
  - o Pages 25 through 27 provide examples of successful shared parking arrangements.

## Tool P-4: In-Lieu Fees and Assessments

In-lieu fees are a special form of shared parking. Rather than constructing parking on-site, the developer pays a fee to the town or city to cover the cost of providing spaces in public parking facilities, which provide a shared resource for the entire neighborhood.

In-lieu fees can overcome many barriers to shared parking, such as the need to find a nearby parking facility with surplus spaces. They can also improve urban design, as in many cases on-site parking must be awkwardly squeezed into a parcel. In addition, economies of scale may be realized through centralizing supply and management of parking, and the town or city gains increased control over pricing and management.

Parking assessment districts, in contrast, raise revenue from assessments on property owners to finance common, shared parking facilities. The concept is similar to in-lieu fees, but instead of a one-time payment for new development, annual assessments are made on all property owners.

Both tools work best in downtowns and may be combined with other property assessments (for example, for streetscape improvements or marketing). They are particularly useful where on-site parking is physically difficult or expensive, but can be used in any situation where the town or city wishes to promote shared parking.

In-lieu fees are currently offered by many local jurisdictions in Marin County, such as Larkspur and Mill Valley. However, constraints on their use include:

- Applies in limited area. In Corte Madera, the in-lieu fee option only applies in the Village Square area. In Novato, the option only applies downtown.
- Strict conditions. Some (e.g. Mill Valley) apply the in-lieu fee only to developments that cannot provide required parking on-site. Others, such as Tiburon, allow in-lieu fees as an option for all developers.

Some jurisdictions, most notably San Rafael and Novato, also have downtown parking assessment districts, in which parking requirements are reduced or waived. In downtown San Rafael, parking requirements are waived for the first 1.0 FAR, and the city's draft General Plan includes policies to create new assessment districts where appropriate.

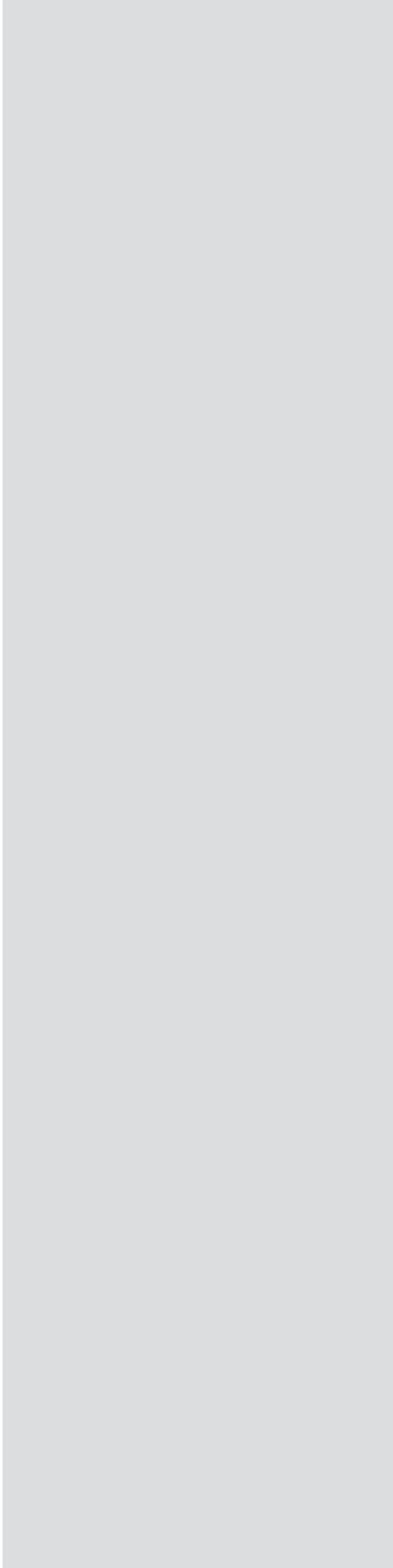
### Related Principles:

P2 P3

### Related Tools:

*Tool P-6: On-Street and Off-Site Parking*

*Tool P-8: Waive Minimum Parking Requirements*



### References

- Kolozsvari, Douglas and Shoup, Donald (2003), "Turning Small Change into Big Changes," Access, Fall 2003, pp 2-7. This article discusses in-lieu fees and other approaches in Pasadena.
- US EPA (January, 2006). Parking Spaces/Community Places: Finding the Balance through Smart Growth Solutions. Pages 20-21 and 52-55 provide examples of successful in-lieu fee systems arrangements.

## Tool P-5: Tandem Parking/Other Flexible Solutions

Flexible solutions such as tandem parking, automated parking lifts, and valet parking allow more parking in less space, helping to reduce housing costs and environmental impacts, and improve urban design. However, many Marin County towns and cities provide detailed specifications for the layout and design of parking areas, making it difficult to introduce these strategies.

Other jurisdictions explicitly prohibit tandem parking, or allow it only for limited uses (most commonly second units or to satisfy guest parking requirements). However, the draft Countywide Plan Update includes a policy to review and amend the County Code to “encourage shared, tandem, elevator and other flexible parking arrangements that will facilitate space-saving and attractive design.”

### References

- Litman, Todd (2006), “Parking Management Best Practices,” Chicago: Planners Press
- City of Emeryville (2005), “Stormwater Guidelines for Green, Dense Redevelopment,” prepared by Community Design + Architecture and Nelson\Nygaard, available at: [www.epa.gov/smartgrowth/emeryville.htm](http://www.epa.gov/smartgrowth/emeryville.htm)
- US EPA (2006), “Parking Spaces/Community Places,” available at [www.epa.gov/smartgrowth/parking.htm](http://www.epa.gov/smartgrowth/parking.htm)

#### Related Principles:

P3 P6



Figure C-4.9 Stacked parking is one solution which can increase the amount of parking fit into a garage or outdoor lot.

#### Tandem Parking in Sausalito

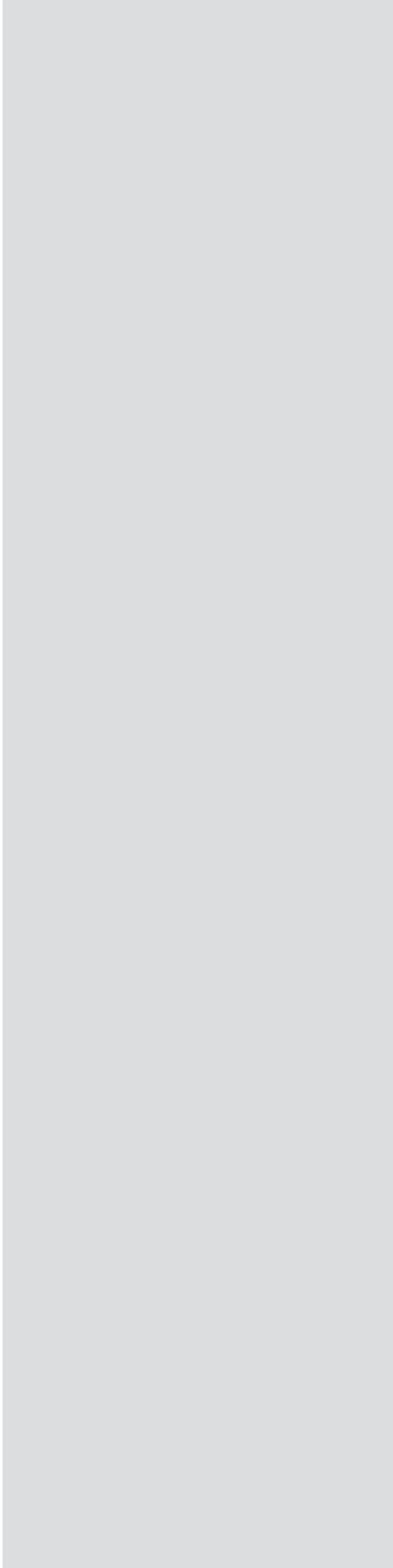
Sausalito is “built on narrow streets and parking is at a premium,” says Community Development Director Paul Kermoyan. As a result, the city has had to experiment with a number of new parking strategies. The planning commission has embraced tandem parking as a solution, though it has resulted in some controversy, as residents fear that rather than risk getting boxed in, their new neighbors will park on the street. Yet the city has found it a successful strategy, particularly for single-family homes. The city has also relaxed parking standards for renovations of old buildings, and leases spaces in city-owned lots to merchants, all helping to creatively address the demand for parking.

#### Related Tools:

*Tool P-8: Waive Parking Minimums*

*Tool UD-3: Parking Design*

**TOOL P-5 : Tandem Parking/  
Other Flexible Solutions**



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## Tool P-6: On-Street and Off-Site Parking

Parking does not need to be located on the same parcel as the use it serves in order to be useful to motorists. Indeed, providing developers with the option of offsite parking can often be desirable if it reduces urban design impacts or promotes shared parking, or if the parcel is small or awkwardly shaped.

Zoning ordinances can also recognize that on-street spaces are functionally the same as off-street parking, by allowing spaces along the property's frontage to count towards parking requirements. Indeed, motorists often prefer curb parking spaces.

Local jurisdictions treat off-site parking in various ways. Some prohibit it altogether or only allow it where on-site parking is infeasible (e.g. San Rafael), while some allow off-site parking subject to approval of a use permit (e.g. Novato). Other towns and cities, in contrast, are extremely flexible and allow parking to be provided within a certain distance of the site as of right (250 feet in Larkspur, and 800 feet in some districts in Corte Madera).

On-street parking is explicitly included in requirements for some land uses in some jurisdictions (e.g. Mill Valley and Larkspur). However, this tends to be inconsistent, applying only to some types of development such as single family. In other cases, on-street parking does not appear to be considered at all when setting parking requirements.

On-Street parking can be valuable to pedestrians as a buffer, as described in Tool T-3.4, and as a component of a multi-modal street, as described in Tool T-3.6.

### References

- Institute of Transportation Engineers (2000), "Residential Permit Parking: An Informational Report"
- Litman, Todd (2006), "Parking Management Best Practices," Chicago: Planners Press

#### Related Principles:

P3 P6



Figure C-4.10 Customers of downtown businesses in Fairfax use the shared municipal lot rather than onsite parking at all stores.



Figure C-4.11 Municipal parking in Tiburon is located off the main street to support denser development there.



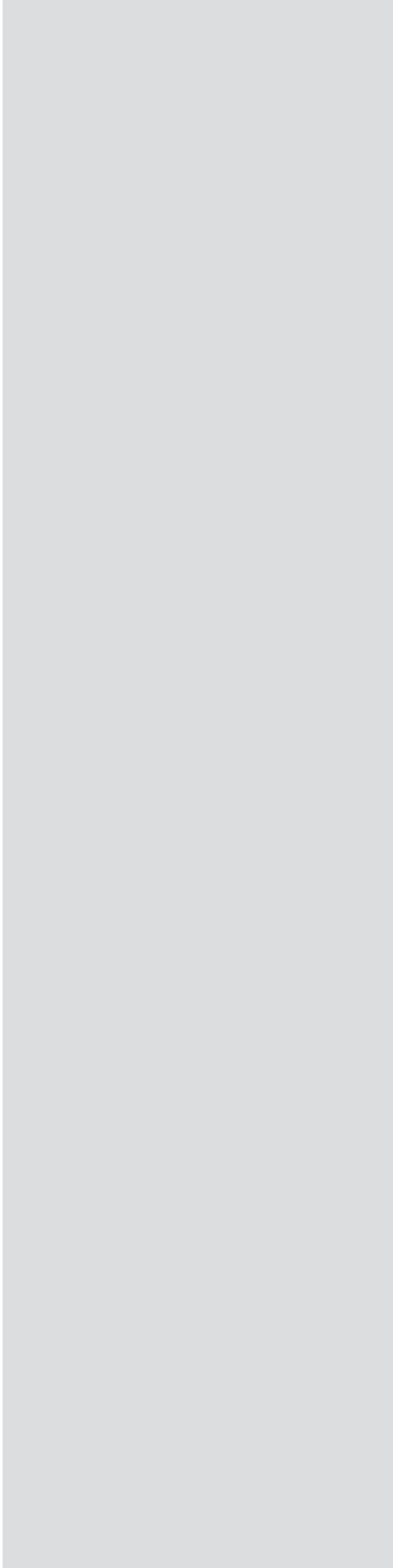
Figure C-4.12 Regulated on-street parking in Mill Valley.

#### Related Tools:

Tool P-8: Waive Minimum Parking Requirements

Tool P-11: On-Street Residential Parking

**TOOL P-6 : On-Street and  
Off-Site Parking**



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## Tool P-7: Landscape Reserves

Estimating parking demand is not an exact science. Landscape reserves acknowledge these uncertainties by allowing developers to set aside land that can be converted to parking if demand is higher than expected, or to cope with future expansions. The strategy also allows the number of spaces constructed to be set at the “best estimate” of demand, without including a margin of error. Landscaping can be used to turn this set-aside land into an attractive amenity. In most cases the developers never need to use that land and it can be kept as a park or landscape reserve for public enjoyment.

Landscape reserves are appropriate anywhere in Marin County. They are already permitted in Corte Madera. Its ordinance states:

“...the planning commission may permit a property owner to designate a portion of his required off-street parking area as a “parking reserve” and to place improvements such as landscaping, tennis courts, and the like in the area which are compatible with the future use of the reserve as a parking lot. If the planning commission finds that the reserve is needed for off-street parking for users of the site, the owner shall improve the reserve as a parking lot within one hundred twenty days from the date the finding is made by the planning commission.”

### References

- US EPA (January 2006). Parking Spaces/Community Places: Finding the Balance through Smart Growth Solutions. Pages 21-22 provide examples of landscape reserves.

#### Related Principles:

P3 P5 P6



Figure C-4.13 Landscaped reserves prevent the excessive waste of space for parking lots which will sit empty.

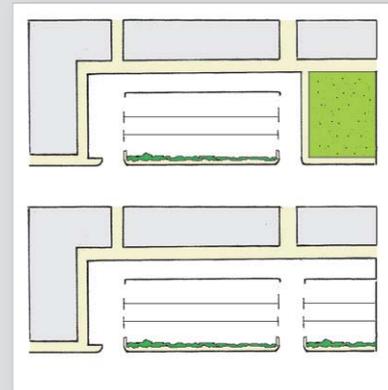


Figure C-4.14 Areas of the parking lot are landscaped until the additional space is needed.



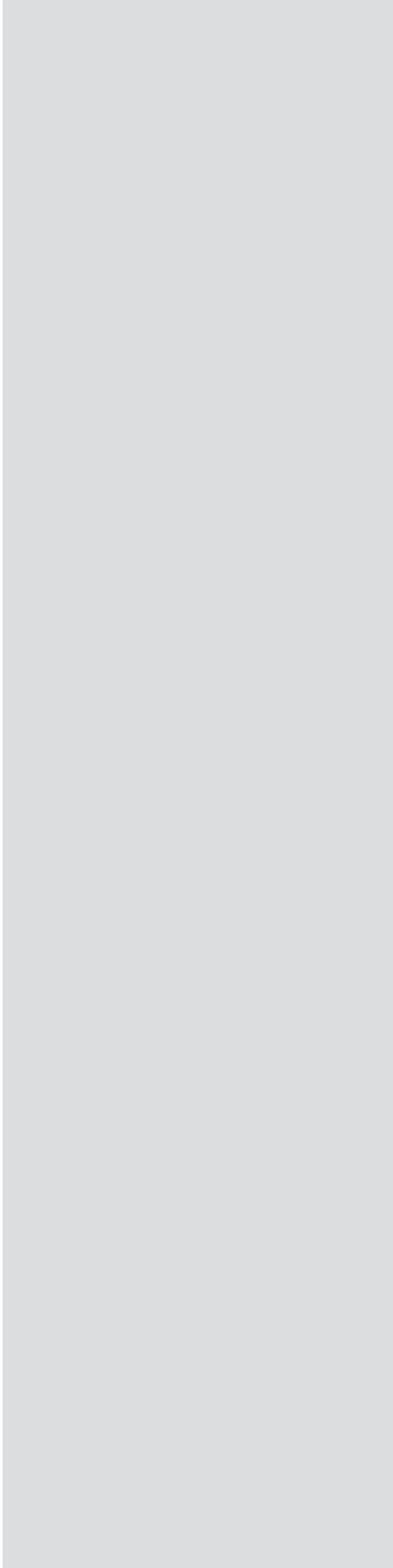
Figure C-4.15 Landscaped areas count toward the off-street parking requirement and provide a community amenity until the parking spaces are actually needed.

#### Related Tools:

Tool UD-1: Site and Project Design

Tool UD-3: Parking Design

**TOOL P-7 : Landscape Reserves**



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## Tool P-8: Waive Minimum Parking Requirements

Minimum parking requirements are intended to achieve specific goals, most commonly avoiding overspill and congestion of on-street parking. In some cases, however, these goals can be achieved through other policies, such as Residential Permit Parking programs or other on-street parking regulation.

Eliminating parking requirements would not mean that no new parking would be constructed. Rather, it would mean that developers would determine the appropriate level of supply, based on market demands.

Minimum parking requirements could be waived anywhere in Marin County where there are measures in place to combat overspill. However, the policy is likely to be most useful in transit corridors and downtowns.

With the partial exception of San Rafael, where a certain amount of parking is provided through the assessment district, no local jurisdiction in Marin County has followed this approach.

### References

- Shoup, Donald (1999). “The Trouble with Minimum Parking Requirements,” *Transportation Research Part A*, 33: 549-574.

#### Related Principles:

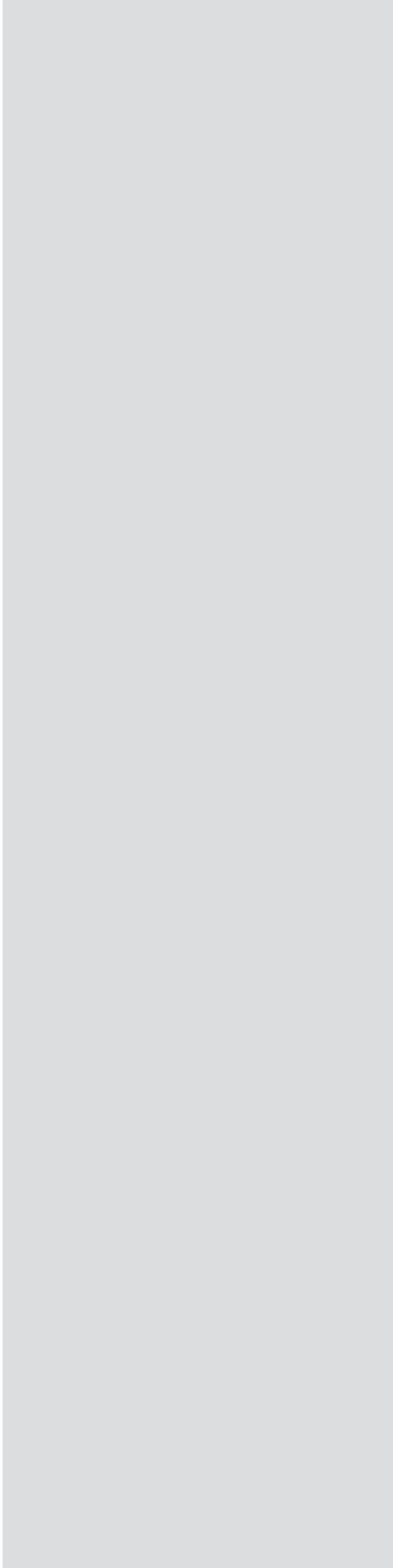
P2 P3 P4 P6

#### Related Tools:

*Tool P-1: Tailored Parking Requirements*

*Tool P-11: On-Street Residential Parking*

**TOOL P-8: Waive Minimum  
Parking Requirements**



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## Tool P-9: Parking Maximums

In contrast to minimum parking requirements, parking maximums restrict the total number of spaces that can be constructed. Reasons for setting maximum requirements may include a desire to:

- Restrict traffic from new development, for example through relating parking provision to roadway capacity
- Promote alternatives to the private automobile
- Limit the amount of land that is devoted to parking, for example to preserve open space or limit stormwater runoff

Parking maximums could be introduced anywhere in Marin County where there are measures in place to combat overspill. While the policy is most likely to be appropriate in transit corridors, downtowns and areas with high levels of traffic congestion, it can be useful in any community that wants to limit traffic or the amount of land devoted to parking. Novato already has parking maximums, which are the same as the city's minimum requirements for most uses.

### References

- Millard-Ball, Adam (2002). "Putting on Their Parking Caps," *Planning*, April 2002, pp 16-21.

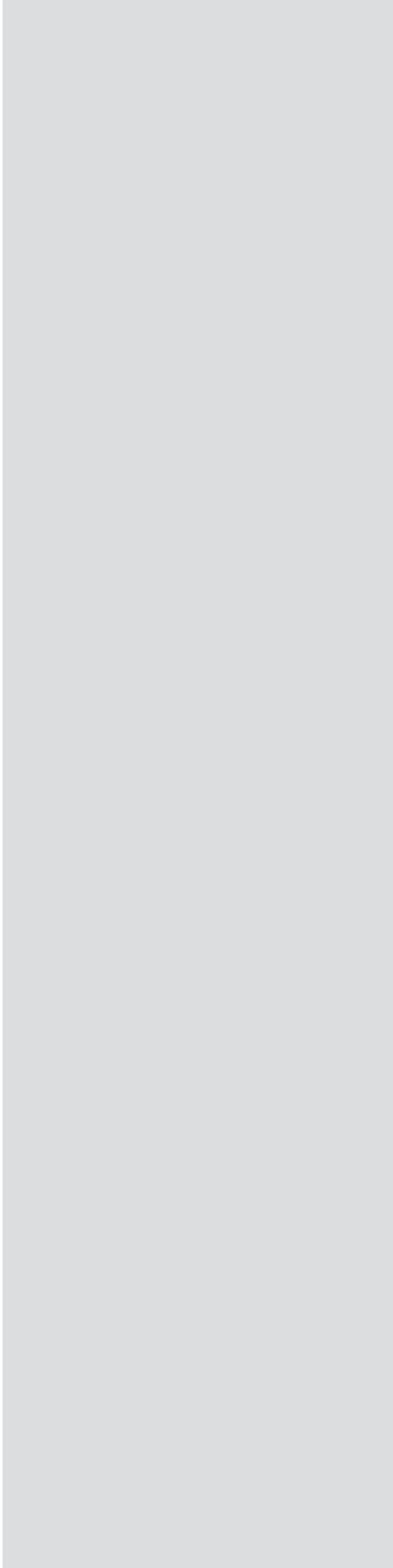
#### Related Principles:

P3 P5 P6

#### Related Tools:

*Tool P-12: Integrating Transportation Demand Management*

**TOOL P-9 : Parking Maximums**



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## Tool P-10: Car-Sharing

Car-sharing provides households with access to a fleet of shared vehicles, allowing them to avoid owning a car, or a second or third car. Car-sharing can also be a tool for businesses and government organizations, which can use it to replace their fleet vehicles. At the same time, car-sharing at the workplace allows employees to take transit, walk or cycle to work, since a car will be available for business meetings or errands during the day.

Car-sharing supports TOD/PeD by reducing parking demand and vehicle travel. According to the Transportation Research Board, each car-sharing vehicle takes nearly 15 private cars off the road. A UC Berkeley study of San Francisco's City CarShare found that members drive nearly 50% less after joining. This allows parking requirements to be reduced accordingly in developments that incorporate car-sharing.

The San Francisco Bay Area has three car-sharing operators. City CarShare, a local non-profit that opened for business in 2001, was joined in 2005 by two private operators, Flexcar and Zipcar. At present, services are limited to San Francisco and the East Bay; relatively low densities and high vehicle ownership rates have deterred expansion to Marin County. However, communities can help attract car-sharing through several mechanisms:

- Establish car-sharing through new development. In return for reduced parking requirements or to mitigate traffic impacts, a developer could provide parking and subsidize start-up costs. Typically, a \$1,200 to \$1,500 monthly revenue guarantee would be required, with the developer making up any shortfall in user fees. Car-sharing can be implemented on a case-by-case basis or, as in San Francisco, formalized in a zoning code.
- Replace vehicle fleets. A public agency or large employer could reduce or eliminate its fleet of pool cars, and allow employees to use car-sharing instead. This would provide a guaranteed level of baseline use, and enable residents and other employees to use the cars in the evenings and weekends. Philadelphia and Berkeley provide good examples; Philadelphia projects savings of \$9.1 million over five years through replacing 500 City-owned vehicles with car-sharing.
- Provide marketing support and other incentives. Should a car-sharing program be established, towns and cities can assist with marketing and promote the service through Transportation Demand Management programs. They can also provide car-sharing operators with parking spaces.

### Related Principles:

P1 P6



Figure C-4.16 Car sharing vehicles are available in many public locations.



Figure C-4.17 Car sharing as part of new developments can accompany lower parking requirements.

### Related Tools:

*Tool LU-1: Density and Intensity*

*Tool T-3.9: Enhancing Transit Facilities*

*Tool P-2: Demand Management Measures*

The most fertile markets for car-sharing will be places where these incentives overlap, and where there is also a wider market with lower vehicle ownership rates. San Rafael, Novato, and Marin City are likely to be the most logical initial sites.

#### References

- “Car-Sharing: Where and How it Succeeds,” TCRP Report 108. 2005. Available at: [http://www.nelsonnygaard.com/articles/article\\_carsharing.htm](http://www.nelsonnygaard.com/articles/article_carsharing.htm)
- “Bringing Car-Sharing to Your Community,” City CarShare. 2004. Available at: [www.citycarshare.org/download/CCS\\_BCCtYC\\_Long.pdf](http://www.citycarshare.org/download/CCS_BCCtYC_Long.pdf)
- “Instant Advocate – Car-Sharing,” Transportation and Land-Use Coalition, 2004. Available at: <http://www.transcoalition.org/ia/carshare/01.html>

## Tool P-11: On-Street Residential Parking

Much of Marin County's housing stock was built early in the 20th Century. Many residences were used as weekend homes for those living in San Francisco, and were also built when car ownership levels were lower. Today, the average Marin County household owns 1.8 vehicles, making it difficult to find a space on some residential streets. Particularly in hillside communities, unrestricted parking on narrow streets can also create fire access concerns.

In turn, residents' fears over parking can hamper the development of new housing – particularly second units. Most Marin County jurisdictions require one new off-street parking space per second unit, which site constraints can render economically or physically infeasible. Some towns and cities, including Corte Madera, Mill Valley, San Rafael and Tiburon, require two spaces for larger second units.

These issues can be addressed in several ways:

- Designate on-street parking spaces. Particularly on narrow hillside streets, it may not always be readily apparent where residents can park without impeding fire access. Corte Madera provides a good example of an on-street parking program, which was implemented in 1993. The Fire and Public Works departments worked in cooperation with other town agencies and local residents to stripe roadways, indicating the width of roadway which must be left clear. Residents may park on-street as long as the vehicle does not extend beyond the striped lines; the restrictions are enforced by the Police Department. According to Corte Madera staff, the involvement of local residents in planning the striping was critical to the program's success.
- Residential Permit Parking (RPP). Under a RPP program, a neighborhood can request that all-day parking on certain streets be restricted to residents only. Non-residents are typically limited to two hours parking during the day. RPP can help improve on-street parking availability, and prevent spillover onto residential streets from employers that charge for parking or otherwise restrict employee driving. Residents typically pay an annual administrative fee of \$5-\$60 per permit. Mill Valley is one Marin County city that has implemented RPP.
- Provide flexible parking requirements for second units. Some towns and cities (e.g. Mill Valley) allow parking for second units to be provided on-street, or as a tandem space (e.g. Larkspur, Ross and San Anselmo).

### Related Principles:

P3 P4 P6



Figure C-4.18 In Mill Valley, on-street residential parking is striped in narrow rights-of-way.

### Striped On-Street Hillside Parking in Corte Madera

In the early 1990s, Corte Madera responded to concerns about parking on narrow hillside streets by holding a “mobile” City Council meeting: Council members walked the streets with residents, noting locations where parked cars could leave enough room for emergency vehicles to pass. The sites were measured, striped, and catalogued, and now, if you want to remove an on-street space for a driveway, you have to replace it, at the very least with a private space. “It’s a good, positive, practical solution,” says Planning Director Bob Pendoley. “Every place they could squeeze in a space they did. But the whole neighborhood was involved.”

### Related Tools:

Tool T-2.1: Speed Management/  
Traffic Calming

Tool T-3.1: Appropriate Widths for  
Traffic Lanes

Tool T-3.6: On-Street Parking



*Figure C-4.19 In areas with large amounts of available on-street parking, these spaces can count toward parking requirements.*

#### References

- Institute of Transportation Engineers, Residential Permit Parking. An Informational Report. 2000.
- Litman, Todd, Parking Management Best Practices. Planners Press. 2006.

## Tool P-12: Integrating Transportation Demand Management

Transportation Demand Management (TDM) refers to a package of strategies to encourage residents and employees to drive less in favor of transit, carpooling, walking, bicycling and telecommuting. It encompasses financial incentives such as parking charges or subsidized transit passes; Guaranteed Ride Home programs to give employees the security to carpool or ride transit; and information and marketing efforts. TDM programs have been shown to reduce commuting by single-occupant vehicle by up to 35%, particularly when financial incentives are provided.

Several towns and cities in Marin County are implementing or have expressed interest in expanding TDM strategies, in order to:

- Allow intensification or expansion of existing uses. In parts of the County such as the I-580 corridor in San Rafael, property owners wish to convert industrial sites to offices or other uses that involve more employees. However, limited on-site parking is a major constraint, which TDM may be able to help mitigate through reducing parking demand.
- Allow new development to take place with less parking and traffic. TDM can be required as a condition of approval for new development projects, reducing traffic impacts and allowing less on-site parking to be provided.
- Provide transportation choices for employees of existing businesses. TDM is not limited to new development or changes of use, but can alleviate traffic, parking and pollution concerns from existing businesses.

South San Francisco provides a good example of a Bay Area TDM ordinance for new development. It requires all large non-residential projects east of US 101 to implement single-occupant automobile trip reduction measures that achieve at least 35% alternative mode usage and allows reduced parking as a result.

Enforcement of TDM requirements, particularly for smaller employers, can be a major challenge. Fines, bonds and monitoring requirements are three common techniques to help ensure that TDM is actually implemented. Smaller employers can be encouraged or required to join a Transportation Management Association, which implements TDM measures on their behalf.

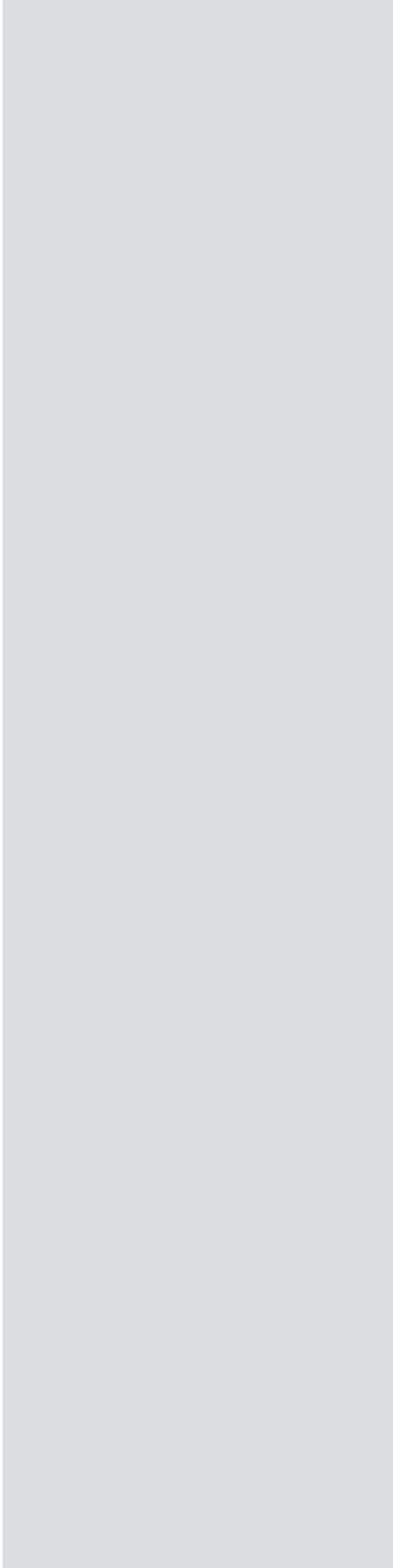
### Related Principles:

P1 P6

### Related Tools:

*Tool P-2: Demand Management Measures*

*Tool P-11: Parking Maximums*



### References

- Center for Urban Transportation Research, “Incorporating TDM into the Land Development Process.” 2005.
- San Diego Association of Governments, “Congestion Mitigation Strategies Research.” 2003.
- US EPA, “Parking Spaces/Community Places. Finding the Balance Through Smart Growth Solutions.” 2005.

## C - 5. Implementation and Funding Guidance

### C-5.1 Land Use and Transportation Planning Implementation and Funding

A variety of local, regional, state and federal sources make funding available to jurisdictions that engage in planning efforts to address TOD, affordability, and transportation improvements (for all modes). Creating and maintaining a transportation network takes considerable funding – often in the multi-million dollar range. As well, the efforts on the part of planning and public works staff, which will be required to see these improvements realized in new development projects, will add to their already burgeoning workload. New projects of all sizes that emerge as a result of the implementation of the TOD/Ped Toolkit will, necessarily, draw upon the limited resources currently available in Marin County. Many of the items can be layered into the ongoing operations of various implementation agencies, provided those agencies are aware of the measures recommended and are able to build these into their work program. Some projects will require additional resources such as new traffic signals, sidewalk extensions, new bike paths or lanes, or a transit plaza. Funding sources such as the Local Housing Incentive Program and Local TLC programs will play a role in project implementation. The HIP program is featured in additional detail to highlight its role at the nexus of transportation and land use. Other funding sources will also be required to ensure that projects move from an idea toward implementation and are featured at a general or specific level.

Following is a list of some of the more significant funding sources currently in use or available in Marin County:

#### Local Housing Incentive Program (HIP)

*Grant Size: \$150,000 - \$500,000. \$970,000 triennially county-wide.*

Local HIP Transportation Capital funds reward local governments giving planning and zoning approvals and building permits to high-density housing, particularly affordable housing, and mixed-use developments at or near transit stops. The key objectives of the Local HIP program are:

- increase the housing supply in areas of the region with existing infrastructure and services in place, including transit, retail, jobs and cultural activities;
- locate new housing where non-automotive transportation options such as walking, bicycling, and taking transit are viable transportation choices; and,
- establish the residential density and ridership markets necessary to support high-quality transit service.

Modeled on a county-level program in San Mateo County, HIP provides capital funding to local governments that enable transit-oriented development. The intent is to produce more housing at densities that support transit. In just a brief period of time, the program is credited with helping to add over 1,600 bedrooms near transit, 65 percent of which are affordable.

HIP funds give local elected officials – who often find it difficult to vote for developments that push the envelope in ways some local citizens may initially fear or oppose – an extra reason to approve projects that have TOD characteristics with respect to density, size, design and location. The program also pays for public amenities that benefit both the residents and neighbors of the new development.

Projects are only eligible for HIP funding if the net density is at least 30 units to the acre (slightly lower in the less transit-rich parts of the region). Grant amounts increase based on the density and affordability of the development; \$1,000 per bedroom at 25 units per acre up to \$2,000 per bedroom for 60 units per acre. The HIP program provides an additional \$500 per bedroom for projects that are affordable.

Qualifying projects must be located within 1/3 mile of a bus stop or 1/2 mile of a rail station, and service must be relatively frequent, with headways of 15 minutes during peak for most areas. In areas slated for transit expansion projects, MTC has allowed housing projects to qualify for HIP funding with 30-minute headways. In essence, HIP funds serve as an interim incentive zoning for the transit area. Funds are intended to be spent by local governments on “livability infrastructure” that can make the difference between a “transit-adjacent development” and a transit-oriented development. The eligible uses include bicycle and pedestrian paths, pedestrian amenities, streetscaping, traffic calming, and transit stops: many of the improvements recommended in this toolkit.

## Joint Development

Public agencies generally cannot create transit-oriented neighborhoods on their own. Joint development is an important tool in the creation of diverse TOD that can be combined with the coordination, planning, and financing tools discussed above. Using the “Policy on Transit Joint Development,” transit agencies around the country have participated in developments on transit-agency owned land that resulted in additional revenue from long-term ground leases or proceeds from construction and future sales. These additional funds can then be used to support additional capital improvements to the system. Joint development allows property interests held by the transit agency to be shared with private entities.

Key challenges to joint development include:

- transit agency emphasis on revenue over ridership or affordable housing goals;
- high costs associated with joint development parcels;
- real estate challenges associated with local transit agency practices regarding sale or lease of transit agency-owned land; and,
- hesitation by many lenders to finance a project with a ground lease instead of ownership.

One way to encourage developers to include development features that initially meet public apprehension is to share the risk and reward. For agencies that own land or can lend funds in a flexible fashion, this can be done through either lease agreements or alternative loan terms. This is often the most practical way to resolve debates over the “value” of transit to the developer, and can help to resolve debates about the marketability of either retail space or residential units that the developer might not independently pursue.

## Tax Increment Financing

Tax increment financing is another method of paying for the higher capital costs of placemaking infrastructure. Within redevelopment areas, property values are frozen at a base level upon passage of the redevelopment plan. The increment in taxable value above this frozen base, multiplied by the overall tax rate, is then available for redevelopment purposes. Some capital improvements to infrastructure qualify to use tax increment financing as a source of debt service for paying off debt incurred in the financing of infrastructure construction.

There are several restrictions to tax increment financing:

- it cannot be used in areas under redevelopment through the passage of a Special Assessment District;
- the new district cannot take any portion of the increment that would normally go to the other taxing agencies without their approval;
- a Special Assessment District can only be formed in areas that are substantially undeveloped; and,
- two-thirds majority approval of all voters in the proposed district is required.

## Development Agreements

A development agreement (DA) is a contract that can be negotiated between a jurisdiction and a developer to establish zoning and regulatory oversight of a project. The DA is entirely negotiable, but it must be consistent with all general and specific plans. A DA allows the public agency to alter normal planning and zoning policies to shape the attributes of new development to a mutual benefit of the jurisdiction and the developer. It is an attractive arrangement for developers because an executed DA gives them a vested right to develop the property according to the negotiated terms. This vested right reduces a developer's risk in the project by creating certainty in the final outcome. A DA can be used in TOD as a means of decreasing standard parking requirements, increasing density or allowing a mix of uses on the site.

## Local TLC Program

*Grant Size: \$150,000 - \$500,000. \$323,000 annually county-wide.*

The Local TLC Capital Program funds transportation infrastructure improvements to pedestrian, bicycle and transit facilities. Key objectives of this program are:

- encourage pedestrian, bicycle and transit trips;
- support a community's larger infill development or revitalization efforts; and,
- provide for a wider range of transportation choices, improved internal mobility, and stronger sense of place.

Typical capital projects include new or improved pedestrian facilities, bicycle facilities, transit access improvements, pedestrian plazas, and streetscapes. Funds can be used for preliminary engineering (design and environmental), right-of-way acquisition, and/or construction.

## Marin County Transportation Sales Tax Measure

*Grant Size: \$331,000,000 over 20 years. \$14 million annually county-wide*

Passed by Marin County voters in November of 2004, Measure A is a half-cent transportation sales tax that is to be collected over the next 20 years and spent on local transportation improvements. These funds also allow local jurisdictions to solicit matching state and federal funding. Revenues from this fund are expected to be used to:

- reduce congestion on Highway 101 (including additional carpooling lanes);
- maintain and improve local roads and infrastructure;
- maintain and improve public transit service and infrastructure;
- maintain and improve paratransit services for the seniors and persons with disabilities; and,
- fund Safe Routes to School Programs.

## Marin Transit Local Initiative Program

*Grant size: project maximum of \$12,500, program maximum of \$62,500*

Following new priorities of the 2006 Short Range Transit Plan, Marin Transit seeks to aid the development of additional local shuttle service in Marin County through the Local Initiative Program. The Program is intended to extend service to areas and groups that do not meet Marin Transit's current productivity standards. This includes shuttle service to lower density areas, and may target specific rider types including seniors, commuters, and special event attendees, as well as evening or owl service or local neighborhood service that cannot be provided by conventional transit under existing Marin Transit standards. Marin Transit will:

- aid local jurisdiction staff to develop their projects before application to the program;
- implement selected projects; and,
- provide up to 50% in matching funds to cover operation costs.

The first round deadline for applications is in September, 2007. Marin Transit intends to implement two selected services in Spring 2007 or Fall 2008, and call for a second round of project proposals in fiscal year 2009/2010.

## Regional Transportation For Livable Communities

*Grant size: \$500,000 - \$3,000,000. \$9 million annually regionally.*

The purpose of the Transportation for Livable Communities (TLC) Capital Program is to support community-based transportation projects that bring new vibrancy to downtown areas, commercial cores, neighborhoods, and transit corridors, enhancing their amenities and ambiance and making them places where people want to live, work and visit. TLC provides funding for projects that:

- are developed through an inclusive community planning effort;
- provide for a range of transportation choices; and,
- support connectivity between transportation investments and land uses.

## Regional Housing Incentive Program

*Grant Size: \$500,000 - \$3,000,000. \$9 million annually regionally.*

The Housing Incentive Program rewards local governments that build high-density housing, particularly affordable housing, and mixed-use developments at transit stops. The key objectives of this program are:

- increase the housing supply in areas of the region with existing infrastructure and services in place, including transit, retail, jobs and cultural activities;
- locate new housing where non-automotive transportation options such as walking, bicycling, and taking transit are viable transportation choices; and,
- establish the residential density and ridership markets necessary to support high-quality transit service.

Local government agencies are required to spend HIP funds on either a TLC capital project that serves the new housing development or a TLC capital project that supports TLC goals but is located elsewhere within the jurisdiction.

## State Safe Routes to Schools

*Grant Size: \$450,000 maximum. \$20,000,000 annually state-wide.*

Safe Routes to School (SR2S) funding comes from the Hazard Elimination Safety (HES) Safety Set-Aside program of TEA-21. One third of the money is now being designated for safe routes to schools (bicycle, pedestrian and traffic calming projects). SR2S is slated to sunset on January 1, 2008.

## Transportation Enhancement Activities

*Grant Size: Varies. \$60 million annually state-wide.*

The Transportation Enhancements Program is designed to strengthen the cultural, aesthetic, and environmental aspects of the nation's intermodal transportation system. Qualifying projects include bicycle, pedestrian, transit, landscaping, public art or historic projects linked to transportation. Money from the federal Transportation Enhancements Program has been rolled into the State Transportation Improvement Program allocation process.

## State Bicycle Transportation Account

*Grant Size: \$1,800,000 maximum. \$7,000,000 annually state-wide.*

The State Bicycle Transportation Account provides state funds for city and county projects that improve the safety and convenience of bicycle commuters. Eligible projects include:

- new bikeways that serve major transportation corridors;
- secure bicycle parking;
- bicycle-carrying facilities on transit vehicles;
- installation of traffic control devices; and,
- bicycle network related planning, improvements, maintenance and hazard elimination.

## State Transportation Fund for Clean Air

*Grant Size: N/A. \$9,000,000 annually regionally; plus \$350,000 to Marin County annually.*

The Transportation Fund for Clean Air (TFCA) is a grant program funded by a \$4 surcharge on motor vehicles registered in the Bay Area. This generates approximately \$20 million per year in revenue. TFCA's goal is to implement the most cost-effective projects in the Bay Area that will decrease motor vehicle emissions, and therefore improve air quality. Projects must be consistent with the 1988 California Clean Air Act and the Bay Area Clean Air Plan. Qualifying projects include:

- bike programs;
- ridesharing;
- clean fuel buses;
- traffic management; and,
- rail/bus integration projects.

### **Transportation Development Act Article 3**

*Grant Size: N/A. \$200,000 annually county-wide.*

TDA states that one quarter cent of retail sales tax is returned to the county of origin for the purpose of funding transportation improvements in that county. These funds can be used for projects such as:

- bicycle and pedestrian facilities;
- safety programs; and,
- transportation planning projects.

### **California Infrastructure State Revolving Fund Program**

This funding source offers infrastructure financing to local governments through the I-Bank, a state of California financing authority. It is typically layered with other funding sources to cover gaps in funding needs. Funding can be applied to tax increment revenues or general fund revenues. The I-Bank is prepared to be a long-term funding source for infrastructure development.

### **Federal Congestion Management and Air Quality Improvement Program**

The Congestion Mitigation and Air Quality (CMAQ) Improvement Program funds projects in Clean Air Act non-attainment areas. Funding can be used for projects that will help attain the national ambient air quality standards stated in the 1990 Clean Air Act amendments. Grants can be used for capital projects or, in some cases, operating funds for a three year start up period for projects.

### **Federal Surface Transportation Program**

The Surface Transportation Program (STP) provides flexible funding that may be used by state and local governments for:

- projects on any federal-aid highway;
- bridge projects on any public road;
- transit capital projects; and,
- public bus terminals and facilities.

Additionally, a portion of funds reserved for rural areas may be spent on rural minor collectors.

## C-5.2 Development Project Approvals Process

The most difficult aspect of a toolkit is the adaptation and implementation of the presented best practices to the specific local community and regulatory context for which it is intended. Interviews with many experts in the development field in Marin revealed that local planners, elected officials, developers and citizens generally accept many of the principles and practices for integrating land use and transportation planning presented in the previous sections, but that realization of individual projects that incorporate these principles is often difficult. For a variety of reasons, there has not yet been broad application of best practice-type developments across the county. Reasons for this include a variety of policy obstacles, regulatory barriers, issues with entitlements processes, and community acceptance addressed in Section B-3.4 of this document.

Implementing best practices involves considering a shift in the way growth and development are approached in Marin County. A number of specific strategies have been identified to address this change. Strategies are organized around common barriers or obstacles to realization of the best practices discussed in this toolkit. Information presented in this chapter is only a jumping-off point for local government officials, developers and others involved in the development process, and not intended to be a definitive resource on all implementation issues.

### Municipalities

Municipalities have the resources and authority to play a large role in defining the development culture within a jurisdiction. By adopting a smart growth vision, comprehensively reflecting that approach in its regulation, and promoting that vision to its citizenry, a municipality can effectively advance a transit and pedestrian-friendly development agenda. To enhance acceptance and implementation of a particular growth vision, jurisdictions can help by articulating the vision to citizens, developers, and staff in all city departments.

### Connecting Transit and Pedestrian-Friendly Development with Broader Environmental Principles

In interviews, Marin planners and developers talked about a need for educating Marin residents about smart growth development and especially the ways that a smart growth approach complements environmental sustainability and the protection of open space. Educating the public about the relationship between smart growth and the environment should also be the responsibility of city staff and elected leaders if it is to succeed. By adopting such a vision and agenda, local municipalities can advocate for and advance smart growth development in concert with the already well-established policies of greenfield protection and environmental stewardship within Marin. Municipalities are uniquely poised to be the leader in blending these approaches.

### Proactive Development Guidance

Once a growth vision is established, clearly written and practicable design guidelines can be developed, discussed in a jurisdiction's General Plan, and supported by appropriate zoning regulations. Jurisdictions can also conduct developer outreach early in the development process, before extensive resources have been used to create a development concept, to convey to developers whether their project is compatible as envisioned, or needs significant changes. In Larkspur, developers can present proposals to the City Council before submitting an application. This vetting process allows developers to get initial reactions to the project so that they can begin to mitigate potential pitfalls early in the development process, before engaging with the regulatory process. Another option for proactively directing development is to create and distribute a guidebook of desirable existing projects, to give developers an idea of what is considered "good" design in Marin and within a given town or city. This allows developers to formulate

proposals that meet the local vision for development. Finally, jurisdictions can provide developers with staff reports on previous similar projects to give them information on the City's response to those projects. Mountain View, California has found this strategy helps developers better prepare successful proposals.

### **Financially Feasible Development Regulations**

A critical component of advancing transit and pedestrian-oriented development is the consideration of a municipality's regulations within the context of economic realities, particularly in communities where development opportunity is largely in-fill or redevelopment. Unfortunately, developing greenfield sites is almost always easier than developing infill within cities or towns. Land is cheaper and easier to acquire, regulations on new development are often fewer, large scale development is more economical and there are fewer neighbors to please. If the cost of building a project in a given jurisdiction places the price of units above the market, developers will not build there. For these reasons, municipalities should consider how existing regulations impact the development potential of infill properties, properties near transit, and brownfield properties. Staff should ensure that regulations do not cause undue constraints on the market and unintentionally dissuade developers from building there, and consider whether regulatory changes could be made to encourage development on these sites.

Marin developers and planners cite 3-story height limits (i.e., 35 feet) in combination with parking requirements as a significant deterrent to new infill development. Particularly for small sites, it can be very challenging from both a design and a financial feasibility perspective to fit a sufficient number of units and their required parking spaces into a 3-story development envelope.

The following example is a simple feasibility analysis of a hypothetical infill project in Marin County. The first pair of scenarios illustrate the effect of parking requirements on economic feasibility. The second pair of development scenarios illustrate the impact that an additional floor of units can have on the feasibility of a development.

Table 5.2.1

<b>Scenario A: 3-Story Building (2 parking spaces per unit)</b>		<b>Scenario B: 3-Story Building (1 parking space per unit)</b>	
<b>Project Details:</b>		<b>Project Details:</b>	
Land Size (acre)	0.5	Land Size (acre)	0.5
<b>Number of Stories</b>	<b>3</b>	<b>Number of Stories</b>	<b>3</b>
<b>Floor Area Ratio</b>	<b>0.6</b>	<b>Floor Area Ratio</b>	<b>0.6</b>
<b>Number of Units</b>	<b>16</b>	<b>Number of Units</b>	<b>16</b>
Average square feet per unit	800	Average square feet per unit	800
<b>Total Residential Square Feet</b>	<b>13068</b>	<b>Total Residential Square Feet</b>	<b>13068</b>
<b>Number of Parking Spaces</b>	<b>32</b>	<b>Number of Parking Spaces</b>	<b>16</b>
<b>Cost Inputs:</b>		<b>Cost Inputs:</b>	
Land price per square foot	\$ 150	Land price per square foot	\$ 150
Residential Cost per Square Foot	\$ 150	Residential Cost per Square Foot	\$ 150
Cost per Parking Space	\$ 30,000	Cost per Parking Space	\$ 30,000
<b>Cost Summary:</b>		<b>Cost Summary:</b>	
Total Cost of Land	\$ 3,267,000	Total Cost of Land	\$ 3,267,000
Construction cost	\$ 1,960,200	Construction cost	\$ 1,960,200
Parking cost	\$ 960,000	Parking cost	\$ 480,000
Soft Costs (40% of hard costs)*	\$ 1,168,080	Soft Costs (40% of hard costs)*	\$ 976,080
<b>Total Project Cost</b>	<b>\$ 7,355,280</b>	<b>Total Project Cost</b>	<b>\$ 6,683,280</b>
<b>Sales Price</b>	<b>\$ 459,705</b>	<b>Sales Price</b>	<b>\$ 417,705</b>
<b>Scenario C: 4-Story Building (2 parking spaces per unit)</b>		<b>Scenario D: 4-Story Building (1 parking space per unit)</b>	
<b>Project Details:</b>		<b>Project Details:</b>	
Land Size (acre)	0.5	Land Size (acre)	0.5
<b>Number of Stories</b>	<b>4</b>	<b>Number of Stories</b>	<b>4</b>
<b>Floor Area Ratio</b>	<b>0.8</b>	<b>Floor Area Ratio</b>	<b>0.8</b>
<b>Number of Units</b>	<b>22</b>	<b>Number of Units</b>	<b>22</b>
Average square feet per unit	800	Average square feet per unit	800
<b>Total Residential Square Feet</b>	<b>17424</b>	<b>Total Residential Square Feet</b>	<b>17424</b>
<b>Number of Parking Spaces</b>	<b>44</b>	<b>Number of Parking Spaces</b>	<b>22</b>
<b>Cost Inputs:</b>		<b>Cost Inputs:</b>	
Land price per square foot	\$ 150	Land price per square foot	\$ 150
Residential Cost per Square Foot	\$ 150	Residential Cost per Square Foot	\$ 150
Cost per Parking Space	\$ 30,000	Cost per Parking Space	\$ 30,000
<b>Cost Summary:</b>		<b>Cost Summary:</b>	
Total Cost of Land	\$ 3,267,000	Total Cost of Land	\$ 3,267,000
Construction cost	\$ 2,613,600	Construction cost	\$ 2,613,600
Parking cost	\$ 1,306,800	Parking cost	\$ 653,400
Soft Costs (40% of hard costs)*	\$ 1,568,160	Soft Costs (40% of hard costs)*	\$ 1,306,800
<b>Total Project Cost</b>	<b>\$ 8,755,560</b>	<b>Total Project Cost</b>	<b>\$ 7,840,800</b>
<b>Sales Price</b>	<b>\$ 402,000</b>	<b>Sales Price</b>	<b>\$ 360,000</b>

## Scenario Description

This scenario demonstrates how height and parking requirements affect the sales price of small-scale infill developments. Often, the challenge of such development is figuring out how to create a product that is not too expensive for the market to bear. If a project is too expensive, it will not be built. Because infill land can be expensive, small, and highly regulated, developers are often limited in the number of units that they can build. Fewer units means that the sale price of each unit must cover a higher portion of the land cost in order to make a development economically feasible for a developer. Increasing height can allow developers to build more affordable units by spreading high land costs over more units. Reducing parking requirements results in a direct reduction in construction cost and, ultimately, sales price. These two approaches help to encourage infill development because they allow small-scale, infill developments to be more affordable and thereby reach a broader market.

Scenarios A & B illustrate the cost of building parking in a 3-story, 16 unit project. Scenario A, with 2 parking spaces per unit, generates a hypothetical sales price of \$459,705. Scenario B, with 1 parking space per unit, generates a sales price of \$417,705, or more than \$40,000 less than Scenario A. The same comparison is made between Scenarios C & D and the same dramatic reduction in price is evident. Scenarios A & C depict the dramatic reduction in sales price that can be realized by adding more units to a project. By adding another story to the building, 6 more

units are added to the project. Because the cost of land is so high, having more units in the development allows the developer to spread that cost over more units, reducing the amount ascribed to each individual unit. In this scenario, the addition of the fourth story allows for a savings of approximately \$57,000 per unit. Finally, Scenario D shows the impact of both the addition of a fourth floor and the reduction in parking requirements. This scenario generates a hypothetical sales price of \$360,000, nearly \$100,000 less than the three-story building with two parking spaces.

***Scenario Assumptions :***

These scenarios outline the construction of a residential project on a half-acre lot. They assume \$150/square foot as the cost of land. The number of units in the development change depending on the height of the structure. Two heights, 3 stories (16 units) and 4 stories (22 units) are shown. In order for height limits to change, the corresponding Floor Area Ratio (FAR) must also change. FAR is a figure that describes the ratio of the total building square footage to the area of the lot. The FARs assumed in this project are 0.6 for the 3-story building and 0.8 for the 4-story building. An average unit size of 800 square feet is assumed because this is a typical 2-bedroom unit size and allows for a hypothetical mixture of 1-, 2-, and 3-bedroom units in the development. Construction costs are assumed to be \$150/square foot. The pro-formas assume two distinct parking regulations of 1 space per unit (16 parking spaces) and 2 spaces per unit (32 parking spaces). For each parking space, structured or underground parking are assumed to cost \$30,000 per space.

**Review of Policies**

Another component of tailoring regulations such that they take development feasibility into consideration is not just examining existing regulations, but also examining the opportunity sites within a given jurisdiction. In other words, municipalities need to target regulations to the type of site they wish to develop. In Marin County, there are very few remaining large development sites near transit or existing communities. For this reason, municipalities need to give special consideration to the types of regulations that make development of small sites possible. For example, regulations that require a very low FAR and DUA are good for encouraging sprawling greenfield development. As the previous example showed, allowing for a higher FAR, DUA, and height limit, on the other hand, helps to maximize the revenue for developers allowing them to spread the high cost of city land over more units.

Municipalities should be mindful that, for developers, the adage “time is money” could not be more true. Every month that developers spend holding land, while wading through entitlements processes, costs their projects money. For this reason, articulating a clear growth and design vision for the built environment and streamlining development approvals processes accordingly makes development less risky for developers. Developers who are already challenged by the constraints of a small infill site may be discouraged from developing at all if the expectations and direction from the municipality are vague or unclear, or if the approvals process is unduly burdensome. Municipalities should regularly evaluate their approvals process to ensure that:

- developers are not required to submit duplicate information to multiple departments;
- individual departments respond to applications in a timely manner;
- sufficient staff is in place to conduct approvals analysis; and
- any required impacts analysis or design rendering is warranted by the scale and/or location of the project.

A well-executed, transparent and clear approvals process should translate into a shorter approvals process, saving money for both developers and municipalities, alike. Shepherding of projects through approvals by one point of contact at the city, rather than a developer dealing with multiple staff at different departments is one strategy that can help to streamline this process. As well, a periodic internal review of a jurisdiction’s development approvals process

can help to identify and understand the challenges that developers and certain development types face, the areas where city resources should be reorganized or improved, and other ways in which the process can be streamlined. The City of Novato is currently in the process of conducting such a review, and has found that, while potentially time-consuming and challenging, in the long run this review will result in a very productive reorganization of the City's approvals process, providing significant time savings, energy and other resources in the future as well as yielding the type of development desired by the City.

## Developers

The argument for TOD and PeD in Marin County is supported by Marin's housing market trends, traffic patterns and the environmental sensibilities of Marin residents. Despite this, there are many myths and misunderstandings about this type of development that must be overcome. In order to successfully surmount this opposition and build quality projects, developers must be willing to educate Marin's residents about the merits of smart growth. To further transit-oriented development in Marin County, developers should make a concerted effort to frame their project as addressing three key TOD and PeD-related concerns that emerged during the outreach process:

- Sustainability and open space protection;
- Traffic congestion; and,
- Population changes, corresponding changes in land use needs, and social equity implications.

These three issues are encapsulated by the Greenbelt Alliance in the publication *AT RISK: The Bay Area Greenbelt*, 2006, in the assertion, "The primary challenge for Marin is to incorporate more compact development within cities with homes affordable to a wider range of incomes, so that people who work in the county can live there as well. This will take pressure off the lands (and the roads) in Marin and beyond."

## Sustainability and Open Space Protection

Interviewees reported that concerns about protecting open space in Marin and beyond are of paramount importance to many Marin residents. The beauty of Marin County and its obvious attractions for lovers of the natural environment has encouraged a strong popular mandate regarding protection of open space, which should be taken into consideration in presenting in-fill and redevelopment projects to the public. Developers can frame their projects by explaining that accommodating growth in cities and places with existing development keeps new growth from consuming undeveloped greenfields at the urban fringes, and from negatively affecting ecosystems in those areas. Whereas, preventing additional growth within cities often drives new development to the fringe of the community. Developers can take a proactive role in educating residents that transit-oriented development and smart growth support their environmental goals.

## Traffic Congestion

Secondly, developers need to acknowledge that traffic congestion in the county is a major concern and any development proposed must address this issue. Developers can point out to concerned citizens that much of the traffic in Marin comes from commuters driving through the county, and that refusing any additional development within the county, particularly transit and pedestrian-oriented projects, will only encourage further development north of Marin and more drive-through traffic. Additionally, urban planners are beginning to study the ways in which different types of development generate different volumes of traffic, using a tool called URBEMIS. Modeling and comparing the traffic impacts of proposed developments could be useful for fielding concerns from a traffic-weary public.

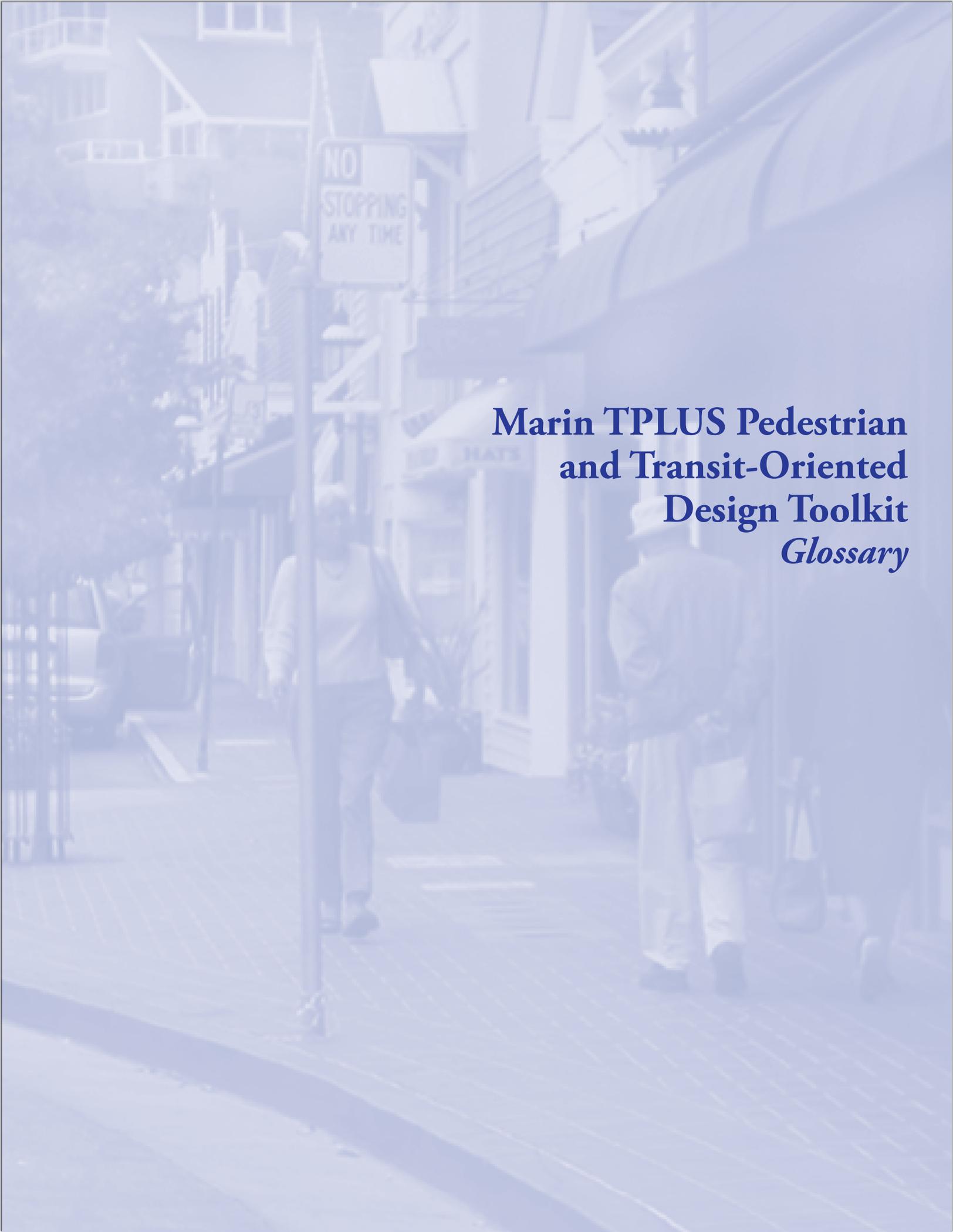
## Changes in Demand: Social Equity

Finally, developers can use information regarding the shifting demographic trends occurring in the county, and nationally, to help local residents understand why attached, higher density housing is necessary to meet both local and regional housing needs. As described in the existing conditions section of this toolkit, demand for housing in Marin will be increasingly for smaller, attached, more affordable housing for seniors, singles, childless couples and other small households. Public development presentations that cite factual statements about the changing demand for housing in Marin County can help to justify more dense development types. Framing a project in terms of a larger demographic context also allows a developer to quantify how a particular project can help a municipality meet a stated goal or objective. Demographic data can also be used to justify building for a mix of incomes. In the interviews conducted as a part of this toolkit, interviewees reported a largely unmet demand for starter homes in Marin. To support this type of development, developers can argue that local teachers, policemen and firefighters should be able to live in Marin and that what is keeping them out is a dearth of entry level ownership housing options, which, given the cost of land in Marin, will necessarily be attached housing.

As developers adopt the case for transit-oriented development as described in this section, they can also seek project endorsements from local or regional advocacy groups working on these areas in Marin County. By joining with the advocates for such causes, developers can strengthen their project's standing within the community, abating the arduous community process and expediting the approvals process. The Novato Whole Foods project, described in detail in the case study in Section C-2.2 of this toolkit, exemplifies the success of this approach. The developer, Signature Properties, sought extensive stakeholder input early in the development process in order to determine the needs and desires of both the general public and the city. Through this process they were able to determine what amenities the residents of Novato wanted, namely a Whole Foods supermarket, and what else could be realized on this property: 125 multi-family residential units in close proximity to a pedestrian-scale downtown and a future SMART commuter rail station. Signature Properties, due in large part to their early outreach efforts, was able to realize a relatively high density TOD project that garnered the support of the city and the public and advanced through the approvals process quite rapidly as a result. Similar early and broad outreach efforts could be a promising strategy for developers throughout Marin.

## Stakeholders and Advocacy Groups

While early and comprehensive developer outreach to stakeholder groups can make the approvals process more efficient, advocacy groups need not wait to be approached for their input. Stakeholders and advocacy groups too can be proactive in informing the development process to make their opinions known early and to foster a more efficient process. With regard to TOD and PeD, advocacy groups should not hesitate to state their support for policy and guidelines, including this toolkit, which will apply to future development projects. If community members and advocacy groups were to state their acceptance of the goals and approach of policies and guidelines, developers would be better informed of what standards they should try to meet in planning their projects. In this way, developers would be able to bring projects to the approvals process with more confidence that they have the support of advocacy groups, and be able to cite the goals that stakeholders embrace and to which the project aspires to realize.

A blue-tinted photograph of a city street scene. In the foreground, a woman in a light-colored sweater and dark pants walks towards the camera. To her right, a man in a light-colored jacket and pants walks away. Further right, another person is partially visible. A 'NO STOPPING ANY TIME' sign is mounted on a pole in the middle ground. The background shows buildings, including one with a sign that says 'HATS', and a street with a car. The overall scene is a typical urban sidewalk.

**Marin TPLUS Pedestrian  
and Transit-Oriented  
Design Toolkit  
*Glossary***



# Glossary

## Glossary of Terms

This glossary of transportation and land use acronyms and terms is based on the Metropolitan Transportation Commission (MTC) document: “Your Guide to the Gobbledygook: A Glossary of Selected Transportation Acronyms and Terms” completed in 2003. Updated and new terms relevant to the TPLUS project added to the MTC compilation are denoted with an asterisk (\*).

Acronym	Agency/Program	Description
ABAG	Association of Bay Area Governments	A voluntary association of counties and cities in the nine-county San Francisco Bay Area. ABAG provides demographic, financial, administrative, training and conference services to local governments and businesses. A member sits on MTC.
ADA*	Americans with Disabilities Act of 1990	Federal law prohibiting discrimination against people with disabilities. Requires public entities and facilities to provide accessible accommodations for people with disabilities.
BAAQMD	Bay Area Air Quality Management District	(Also known as the Air District, since the acronym seems to take longer to say than the full name.) Regulates industry and employers to keep air pollution in check and sponsors programs to clean the air. In a joint effort known as the Regional Agency Coordinating Committee (RACC), the Air District works with MTC and the Association of Bay Area Governments on issues that affect transportation, land use and air quality.
	Bay Area Partnership	Often referred to simply as “The Partnership,” this is a confederation of the top staff of various transportation agencies in the region, including MTC, public transit operators, county congestion management agencies (CMAs), city and county public works departments, ports, Caltrans and the U.S. Department of Transportation (DOT) as well as environmental protection agencies. The Partnership works by consensus to improve the overall efficiency and operation of the Bay Area’s transportation network, including developing strategies for financing transportation improvements.
Caltrans	California Department of Transportation	The state agency primarily charged with maintaining and operating California’s highway system. Caltrans also manages and subsidizes the most extensive network of intercity passenger trains and feeder buses in the nation.
	Capital Funds	Money to cover one-time costs for construction of new projects — such as roads, bridges, bicycle/pedestrian paths, transit lines and transit facilities — to expand the capacity of the transportation system, or to cover the purchase of buses and rail cars.

<b>Acronym</b>	<b>Agency/Program</b>	<b>Description</b>
	<b>Census Data</b>	Demographic information used by transportation planners to make projections about future Bay Area travel patterns, housing needs and the like. Required by the U.S. Constitution, the U.S. Census is a complete enumeration of the population conducted every 10 years by the U.S. Census Bureau (the last one was completed in 2000).
<b>CMA</b>	<b>Congestion Management Agency</b>	Countywide agencies responsible for preparing and implementing a county's Congestion Management Program. CMAs came into existence as a result of state legislation and voter approval of Prop. 111 in 1990. Subsequent legislation made them optional. Most Bay Area counties still have them. Many CMAs double as a county's sales tax authority.
<b>CMAQ</b>	<b>Congestion Mitigation and Air Quality Improvement Program</b>	A federal source of funding for projects and activities that reduce congestion and improve air quality, both in regions not yet attaining federal air quality standards and those engaged in efforts to preserve their attainment status.
	<b>Commuter Rail*</b>	A fixed-rail transit system operated on a fixed schedule primarily to serve home-to-work trips with frequent headways in peak hours and limited off-peak service.
	<b>Compact Development*</b>	The planning concept of using site design and urban design techniques to decrease the land needed to develop a given land use. In the case of TOD, this is done with the goal of improving transit access.
<b>CTC</b>	<b>California Transportation Commission</b>	A state-level commission, consisting of nine members appointed by the governor, that establishes priorities and allocates funds for highway, passenger rail and transit investments throughout California. The CTC adopts the State Transportation Improvement Program, or STIP, and implements state transportation policy
	<b>Environmental Justice</b>	This term stems from a Presidential Executive Order to promote equity for disadvantaged communities and promote inclusion of racial and ethnic populations and low-income communities in decision-making. Local and regional transportation agencies must ensure that services and benefits, as well as burdens, are fairly distributed to avoid discrimination.
<b>FAR*</b>	<b>Floor Area Ratio</b>	The amount of enclosed gross floor area in relation to the amount of site area. For example, a floor area ratio of 0.5 is equal to one square foot of floor area for every two square feet of site area.
<b>FHWA</b>	<b>Federal Highway Administration</b>	U.S. Department of Transportation agency responsible for administering the federal highway aid program to individual states, and helping to plan, develop and coordinate construction of federally funded highway projects. FHWA also governs the safety of hazardous cargo on the nation's highways.

<b>Acronym</b>	<b>Agency/Program</b>	<b>Description</b>
	<b>Flexible Funding</b>	Unlike funding that flows only to highways or only to transit by a rigid formula, this is money that can be invested in a range of transportation projects. Examples of flexible funding categories include the Surface Transportation Program (STP) and the Congestion Mitigation and Air Quality Improvement (CMAQ) program.
<b>FTA</b>	<b>Federal Transit Administration</b>	U.S. Department of Transportation agency that provides financial and planning assistance to help plan, build and operate rail, bus and paratransit systems. The agency also assists in development of local and regional traffic reduction programs.
<b>FY</b>	<b>Fiscal Year</b>	Annual schedule for keeping financial records and for budgeting transportation funds. California's fiscal year runs from July 1 through June 30, while the federal fiscal year runs from Oct. 1 through Sept. 30.
<b>HIP</b>	<b>Housing Incentive Program</b>	A program initiated by MTC to provide seed money to municipalities and their development partners to encourage the development of compact residential communities near public transit hubs.
<b>HOV Lane</b>	<b>High-Occupancy-Vehicle Lane</b>	The technical term for a carpool lane, commuter lane or diamond lane.
	<b>Intermodal</b>	The term "mode" is used to refer to a means of transportation, such as automobile, bus, train, ship, bicycle and walking. Intermodal refers specifically to connections between modes.
	<b>Lifeline Transportation Network</b>	An MTC initiative to enhance low-income residents' access to key destinations such as job centers, government buildings and medical facilities during both peak commute periods and off-peak hours. While most of the Lifeline network identified by MTC is already served by existing transit routes, some low-income communities and/or destinations are not served by transit or lack service at specific times of day. MTC is working with transit operators and potential funding partners to fill these gaps in the network.
	<b>Location Efficient Mortgage</b>	A mortgage that takes into consideration the fact that people located in transit-rich locations will use their car less, or not at all, resulting in considerable savings that can be applied to mortgage payments, and thus allows home buyers to pay a higher percent of their income toward their mortgage.
<b>LIFT</b>	<b>Low-Income Flexible Transportation</b>	An MTC program that provides financial assistance for services to help low-income residents get to and from work and other locations. Examples of eligible LIFT projects include new and expanded public transit services, transportation to child care centers, development of child care facilities at transit hubs, rideshare activities and "guaranteed ride home" programs.
	<b>Live-Work*</b>	A residential unit that is also used for commercial purposes for a time, with minimum of 50% of the total building area given to the commercial use within the same structure as the residential component.

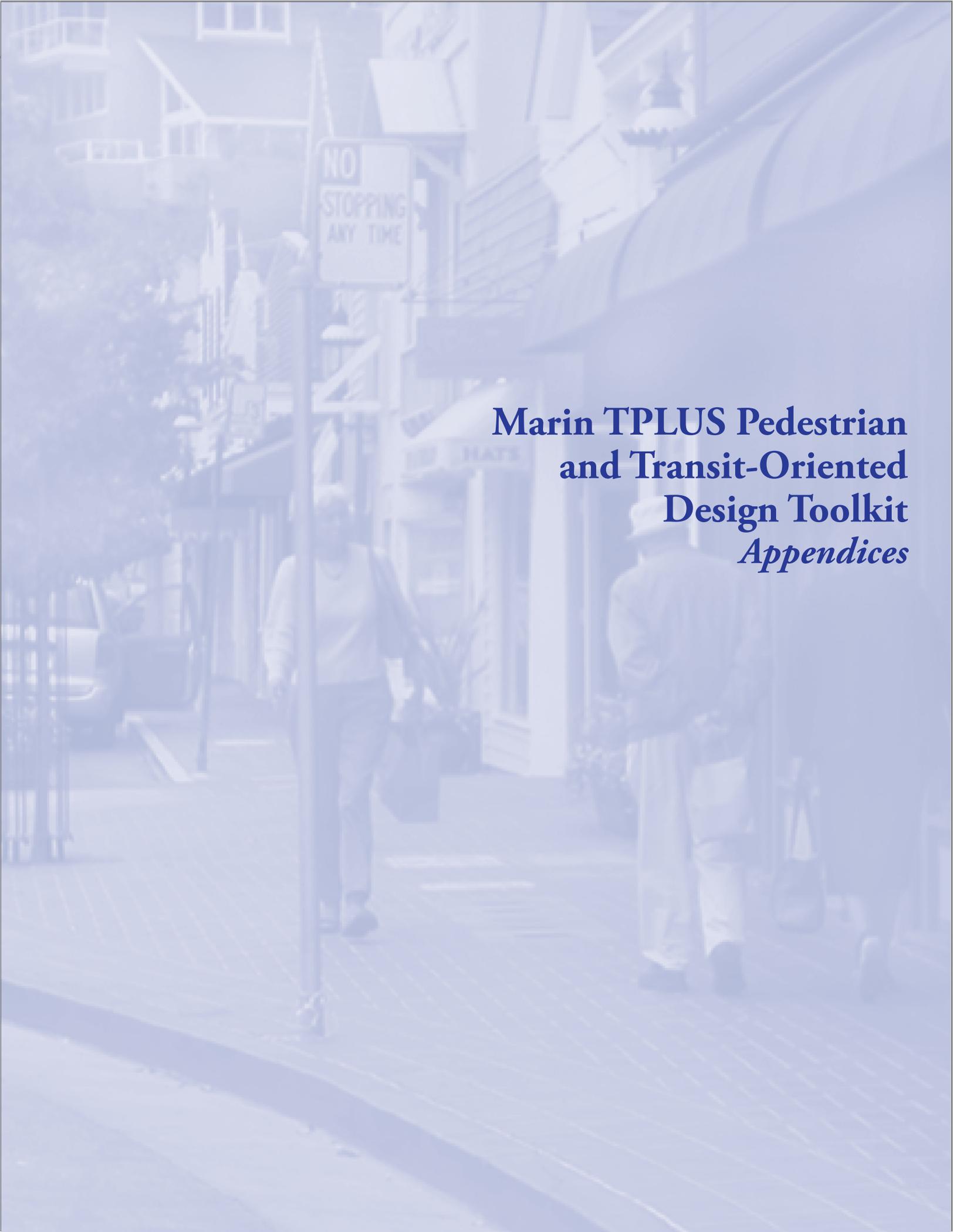
<b>Acronym</b>	<b>Agency/Program</b>	<b>Description</b>
LRT*	<b>Light Rail Transit</b>	A fixed guideway transit system that can operate on a variety of rights-of-way ranging from on-street to grade separated.
	<b>Marin Transit</b>	Provides local transit and paratransit service in Marin. Marin Transit does not own buses or pay drivers, but contracts to providers including Golden Gate Transit, West Marin Stagecoach, and other local service providers.
	<b>Measure A</b>	A Marin County sales tax measure, passed by voters in 2004, that funds transportation improvements and supports local transportation agencies including TAM and Marin Transit.
	<b>Mixed-Use*</b>	Development contained within a single-parcel (horizontally or vertically) or adjacent parcels that contains different uses that are complementary to each other and provide activity throughout the day.
MPO	<b>Metropolitan Planning Organization</b>	A federally required planning body responsible for the transportation planning and project selection in its region; the governor designates an MPO in every urbanized area with a population of over 50,000. MTC is the Bay Area’s MPO.
MTC	<b>Metropolitan Transportation Commission</b>	The transportation planning, financing and coordinating agency for the nine counties of the San Francisco Bay Area.
MTS	<b>Metropolitan Transportation System</b>	A defined network of streets and roads, highways, mass transit routes, bikeways, transfer points, airports and seaports considered essential to regional mobility.
	<b>Paratransit</b>	Door-to-door bus, van and taxi services used to transport elderly and disabled riders. Sometimes referred to as dial-a-ride service, since trips are made according to demand instead of along a fixed route or according to a fixed schedule.
PeD*	<b>Pedestrian-Oriented Design</b>	The design of communities, neighborhoods, streetscapes, sites, and buildings that emphasizes pedestrian access, comfort, and visual interest. Transit-Oriented Design is a particular type of Pedestrian-Oriented Design that includes design and intensity of land use to support transit in addition to pedestrians.
	<b>Performance Measures</b>	Indicators of how well the transportation system or specific transportation projects will improve transportation conditions.
	<b>Program</b>	(1) verb, to assign funds to a project that has been approved by MTC, the state or another agency and (2) noun, a system of funding for implementing transportation projects or policies, such as through the State Transportation Improvement Program. (Also see “STIP.”)
RACC	<b>Regional Agency Coordinating Committee</b>	A nine-member committee—composed of three representatives each from MTC, the Bay Area Air Quality Management District and the Association of Bay Area Governments—that coordinates activities of the three agencies on issues that affect transportation, land use and air quality.

<b>Acronym</b>	<b>Agency/Program</b>	<b>Description</b>
	<b>Regional Transit Expansion Program</b>	An identified list of high-priority rail and express/rapid bus improvements to serve the Bay Area's most congested corridors. The program was adopted in December 2001 pursuant to MTC Resolution 3434 to establish clear priorities for the investment of transit expansion funds over the next decade.
	<b>Resolution 3434</b>	See Regional Transit Expansion Program.
	<b>Return to Source</b>	A requirement with some funding programs (such as TDA) that the money flow back to the county where it originated from tax revenues, regardless of need.
<b>RTIP</b>	<b>Regional Transportation Improvement Program</b>	A listing of highway, local road, transit and bicycle projects that the region hopes to fund; compiled by MTC every two years from priority lists submitted by local jurisdictions. The California Transportation Commission (CTC) must either approve or reject the RTIP in its entirety. Once the CTC approves an RTIP, it is combined with those from other regions to comprise 75 percent of the funds in the State Transportation Improvement Program or STIP. (Also see "STIP.")
<b>RTP</b>	<b>Regional Transportation Plan</b>	A master plan to guide the region's transportation investments for a 25-year period. Updated every three years, it is based on projections of growth in population and jobs and the ensuing travel demand. Required by state and federal law, it includes programs to better maintain, operate and expand transportation. The Bay Area's 2005 update of its long-range transportation plan, now under way, is known as Transportation 2030.
<b>SAFE</b>	<b>Service Authority for Freeways and Expressways</b>	As the region's SAFE, MTC, in partnership with the California Highway Patrol and the California Department of Transportation, oversees the installation and operation of call boxes along Bay Area freeways and highways, and administers a roving tow truck service to quickly clear incidents from the region's most congested roadways. State legislation in 1987 created the MTC SAFE, which is funded in part through a \$1 surcharge on motor vehicle registrations.
<b>SAFETA-LU*</b>	<b>Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users</b>	Signed into law in August of 2005, SAFETA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009.
	<b>Sales Tax Authority</b>	An agency that administers a voter-approved county transportation sales tax program; in most Bay Area counties, the congestion management agency (CMA) also serves as the sales tax authority.

Acronym	Agency/Program	Description
	<b>Self-Help Counties*</b>	A term used to describe counties that have taken the initiative to supplement available state and federal funds by enacting local voter-approved funding mechanisms — such as half-cent sales taxes — to pay for transportation improvements. In the Bay Area, six counties have passed such measures: Alameda, Contra Costa, San Francisco, San Mateo, Santa Clara, and Marin.
	<b>Shared Parking*</b>	Parking facilities shared by two or more uses taking into account the variable peak demand times of each use; the uses can be located on more than one parcel.
	<b>Smart Growth</b>	A set of policies and programs designed to protect, preserve and economically stimulate established communities, while protecting valuable natural and cultural resources and limiting sprawl.
SOV	<b>Single-Occupant Vehicle</b>	A vehicle with one occupant, the driver, who is sometimes referred to as a “drive alone.”
STA	<b>State Transit Assistance</b>	Provides funding for mass transit operations and capital projects
STIP	<b>State Transportation Improvement Program</b>	The State’s transportation programming document, derived by the California Transportation Commission (CTC) after combining various RTIPs, as well as a list of specific projects proposed by Caltrans. Covering a five-year span and updated every two years, the STIP determines when and if transportation projects will be funded by the state. Projects included in the STIP must be consistent with the long-range transportation plan.
STP	<b>Surface Transportation Program</b>	One of the key funding programs in TEA 21. STP moneys are “flexible,” meaning they can be spent on mass transit, pedestrian and bicycle facilities, as well as on roads and highways.
	<b>System Management</b>	A coordinated series of programs involving MTC and partner agencies such as the California Highway Patrol and Caltrans to make the region’s existing transportation system work more efficiently. These efforts include congestion relief initiatives such as the roving Freeway Service Patrol tow trucks, and traveler information programs such as the toll-free 511 phone service and the <www.511.org> and <www.transitinfo.org> Web pages.
TAM*	<b>Transportation Authority of Marin</b>	The Congestion Management Agency (CMA) for Marin County. (Also see “CMA”)
TCM	<b>Transportation Control Measure</b>	A strategy to reduce driving or smooth traffic flows in order to cut auto emissions and resulting air pollution. Required by the Clean Air Act, TCMs for the Bay Area are developed by MTC. Examples of TCMs include carpool lanes, roving tow truck patrols to clear stalls and accidents from congested roadways, new or increased transit service, and ridesharing services to get people into carpools and vanpools.

<b>Acronym</b>	<b>Agency/Program</b>	<b>Description</b>
TCRP	Traffic Congestion Relief Program	A five-year state transportation investment plan passed by the California Legislature and signed into law by Governor Gray Davis in 2000. The plan originally called for \$6.8 billion of spending (with \$1.7 billion to the Bay Area) from fiscal 2000–01 to 2005–06, but subsequent refinancing agreements postponed the funding until fiscal 2002–03 to 2007–08.
TDA	Transportation Development Act	State law enacted in 1971. TDA funds are generated from a tax of one-quarter of one percent on all retail sales in each county; used for transit, special transit for disabled persons, and bicycle and pedestrian purposes. TDA moneys are collected by the state and allocated in the Bay Area by MTC to fund transit operations and programs. In non-urban areas, TDA funds may be used for streets and roads under certain conditions.
TEA	Transportation Enhancement Activities	A TEA 21 funding category. Ten percent of STP moneys must be set aside for projects that enhance the compatibility of transportation facilities with their surroundings. Examples of TEA projects include bicycle and pedestrian paths, restoration of rail depots or other historic transportation facilities, acquisition of scenic or open space lands next to travel corridors, and murals or other public art projects.
TEA 21	Transportation Equity Act for the 21st Century	Passed by Congress in May 1998, this federal transportation legislation retains and expands many of the programs created in 1991 under the Intermodal Surface Transportation Efficiency Act (ISTEA). Reauthorizes federal surface transportation programs for six years (1998–2003) and significantly increases overall funding for transportation.
	Title VI	Refers to Title VI of the Federal Civil Rights Act of 1964, and requires that transportation planning and programming be nondiscriminatory on the basis of race, color and national origin. Integral to Title VI is the concept of environmental justice. (Also see “Environmental Justice.”)
TIP	Transportation Improvement Program	A short-term (covering three years) program of transportation projects that will be funded with all federal funds expected to flow to the region; the projects contained in the TIP are drawn from, and consistent with, the long-range transportation plan.
TLC	Transportation for Livable Communities	Program created by MTC in 1998 to fund small-scale, community- and transit-oriented projects that improve neighborhood vitality.
TOD	Transit-Oriented Development	A type of development that links land use and transit facilities to support the transit system and help reduce sprawl, traffic congestion and air pollution. It includes housing, along with complementary public uses (jobs, retail and services), located at a strategic point along a regional transit system, such as a rail hub.
	Transportation 2030 Plan*	The long-range transportation planning effort to guide transportation investments and strategies from 2005 to 2030.

Acronym	Agency/Program	Description
	Travel Demand Model	Used by transportation planners for simulating current travel conditions and for forecasting future travel patterns and conditions. Models help planners and policy-makers analyze the effectiveness and efficiency of alternative transportation investments in terms of mobility, accessibility, and environmental and equity impacts.
U.S. DOT	United States Department of Transportation	The federal cabinet-level agency with responsibility for highways, mass transit, aviation and ports; it is headed by the Secretary of Transportation. The DOT includes the Federal Highway Administration and the Federal Transit Administration, among others. There also are state DOTs (known in California as Caltrans).
	Value Pricing	The concept of assessing higher prices for using certain transportation facilities during the most congested times of the day, in the same way that airlines offer off-peak discounts and hotel rooms cost more during prime tourist seasons. Also known as congestion pricing and peak-period pricing, examples of this concept include higher bridge tolls during peak periods or charging single-occupant vehicles that want to use carpool lanes.
VMT	Vehicle Miles Traveled	One vehicle (whether a car carrying one passenger or a bus carrying 30 people) traveling one mile constitutes a vehicle mile. VMT is one measure of the use of Bay Area freeways and roads.

A blue-tinted photograph of a city street scene. In the foreground, a 'NO STOPPING ANY TIME' sign is mounted on a metal pole. A person is walking on the sidewalk to the left of the sign. In the background, there are buildings, a car, and another person walking. The overall scene is a typical urban street with pedestrians and signage.

**Marin TPLUS Pedestrian  
and Transit-Oriented  
Design Toolkit  
*Appendices***



## A. Marin TPLUS Vision Statement and Principles

During the initial phase of work on the TPLUS project, the Marin TPLUS Advisory Committee discussed and formulated an overall vision statement intended to set the overarching goal of the process and content of the toolkit document (also see Appendix B: Advisory Committee and Public Outreach Process). The vision statement is:

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**Envision a future for Marin County with a safe, efficient multi-modal transportation system and a broad range of housing choices, including housing which is affordable to the full range of our workforce and community, with a compact development footprint and minimal environmental impacts.**

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In order to further identify and clarify the goals of Marin's TPLUS program, the Advisory Committee laid out the following six principles. Each of the principles is associated with benefits that are expected to flow from their implementation in Marin County.

### Principle 1:

**Create a well-connected multimodal transportation system and network of places that reduces the reliance on single-occupancy automobiles and integrates pedestrians, bicycles, and transit.**

#### Discussion

Key components of a multi-modal transportation system are: appropriately sized, continuous sidewalks and pedestrian walkways; an interconnected network of streets, with well designed intersections; an interconnected bicycle network; and a seamless, interconnected transit system that provides attractive service not only for commuters but also to other destinations where frequent activities of daily life occur.

The design and use (including a determination of appropriate speed) of individual streets in the multimodal transportation system will differ depending on adjacent land uses and the function of the street within the road-way network. At a minimum, streets need to provide appropriate access, safety, and mobility for pedestrians including the disabled, seniors, and youth, and—wherever possible—should provide a quality environment for those strolling, shopping, resting, and taking part in public life.

#### Benefits

##### Interconnected Street Networks:

- Provide shorter routes for pedestrians and bicyclists.
- Distribute traffic allowing limited right-of-ways to serve multiple modes.
- Reduce short distance trips on already congested arterial roads.

### **Multi-modal Streets:**

- Enhance mobility by encouraging and supporting walking, bicycling, and transit use as competitive alternatives to driving.
- Increase “person-trip” capacity of the existing street system.
- Provide enhancements to bicycle circulation and safety such as bike lanes and paths

### **Pedestrian-oriented Design:**

- Creates a walkable and human-scaled environment that encourages walking, bicycling, and transit use.
- Encourages transit use by providing safe and direct connections between transit stops and destinations.
- Enhances all transportation choices because virtually all trips involve walking to begin and end the trip.
- Maximizes access to existing land uses.
- Creates safe access routes for children to their schools and other destinations (i.e. community facilities, friend’s homes etc.)

### **A Walkable Environment:**

- Advances public health by providing opportunities for walking to improve personal physical health.
- Discourages crime by making streets more active, providing additional “eyes on the street.”
- Improves air quality by reducing the number of trips by single-occupancy vehicles.
- Improves access for seniors and disabled persons.

## **Principle 2:**

**Target new development to areas that are already developed, particularly locations that can be effectively served by transit.**

### **Discussion**

Mixed-use developments that concentrate jobs and housing should be targeted to appropriate areas in existing downtowns, village and neighborhood centers, along Marin’s major transit corridors, and in potential commuter rail station areas. Here development can capitalize on existing infrastructure and services, such as roads, utilities, transit, and public facilities. Opportunities for development on brownfield sites should be explored as well as diversification of land uses in existing retail or employment areas (i.e. though conversion of parking lots to structured parking and development of air-rights) offers the opportunity to create mixed-use districts and centers allowing people to work, shop, be entertained, and engage in a variety of activities in one location and thus reduce the number of trips they take.

## Benefits

### Focusing Development:

- Promotes the vitality of business districts and neighborhoods by directing investment into existing areas.
- Supports better transit service by concentrating jobs and housing, creating a larger transit customer base, which justifies more frequent transit service throughout the day and into the evening. This attracts additional customers, particularly those sensitive to time and convenience of service
- In the case of infill and redevelopment, often allows use of existing sewer and water systems, police and fire services, schools, etc., thus reducing the need for significant new public investments.

## Principle 3:

**Create compact community places with a diverse mix of uses through infill, redevelopment, and reuse of developable property.**

### Discussion

Places with a diverse mix of uses and compact development, such as traditional downtowns have long been popular with pedestrians, bicyclists, and transit users because they offer a multitude of destinations within convenient distance. Where mixed-use areas are located close to residential neighborhoods, they can reduce vehicle trips as walking is opportune. Similarly, mixed-use areas in proximity of employment centers allow workers to walk for daily errands shopping, dining, or entertainment and thereby reduce overall vehicular trips. Housing provided as part of mixed-use developments provides proximity to goods and services, and potentially jobs.

## Benefits

### Compact and infill development:

- Slows down land consumption for new development.
- Supports walking, ridesharing, cycling, and transit use by enabling people using these modes to make other trips conveniently. Consequently, vehicle trips and dependence on cars are reduced.
- Generates off-peak transit use because trips to and from mixed-use developments occur throughout the day and into the evening
- Adds to the economic vitality of business districts by increasing the diversity of retail and commercial services offered. Also, mixed-use districts provide a convenient mix of goods and services to employees during the day and residents in the evening. As a result many businesses have a steady flow of customers all day.
- Contributes to neighborhood livability by providing activities within easy walking distance of neighborhoods. With these choices available, residents tend to walk more in their neighborhoods, increasing the area's safety, friendliness, and livability.

## Principle 4:

**Provide Marin residents with quality housing choices that address their broad range of household types and incomes.**

### Discussion

Broadening the range of housing choices in Marin, with particular focus on affordability and a variety of household types, can contribute to reduction of vehicular trips by allowing more people who work in Marin to live in Marin. Mixed-use development strengthens economic vitality of an area by bringing in additional consumers. Providing workforce housing in proximity of well-served transit lines will further reduce automobile trips and also advance social equity by reducing the need for car ownership among a population that can least afford it.

### Benefits

- Transit-oriented development can increase opportunities for affordable housing, as it both encourages higher-density development and is attractive for low-income households who can reduce their spending on automobile transportation (14 to 22% of household income).
- Affordable housing provided in the vicinity of transit prevents people without cars from being isolated.
- Affordable housing ensures that the workforce is able to live in close proximity to work, increasing the employee pool available for businesses, and reducing the length of trips.
- Affordable housing provides local housing for public safety workers, increasing their ability to provide services in an emergency.

## Principle 5:

**Design a network of human-scaled places that fit the distinct character of Marin’s communities and environment.**

### Discussion

A primary challenge for new housing and other development, including transportation facilities, in Marin County is achieving compatibility with the distinct character of existing communities and the surrounding natural environment (rephrased from County-wide Plan, Built Environment, page 3-94).

In order to complement existing community and environmental character it is important that design of new development—its site plan, layout, architectural composition, and building materials—is in keeping with the best examples found in the immediate surrounding. Equal attention will ideally be given to the construction of new transportation facilities or the enhancement of existing roads to be multi-modal. The careful detailing of the streetscape increases the economic viability of a shop-lined street, creates new vital public places, or beautifies a neighborhood.

### Benefits

- Well-designed and appropriately scaled buildings are more likely to be supported by the community.
- Enhancing existing transportation facilities for multi-modal use provides opportunities for streetscape beautification specific to the locale.
- Introducing pedestrian-oriented streetscape elements makes larger roadways more compatible with communities of small and medium scale and the natural environment.

## Principle 6:

**Coordinate land use- and transportation-related planning efforts and decision making in Marin to promote the vision and principles of the Marin TPLUS program.**

### Discussion

As for all counties in California, land use and transportation decisions in Marin are made by a broad variety of cities, towns, agencies, the County, and the State. The National and State Park facilities, watershed facilities, and regional transportation that come to and pass through Marin add further complexity.

If local jurisdictions and the County improve the coordination of their land use and transportation decision making it will improve the ability to achieve a single-occupant automobile trip-reducing mix and intensity of land uses and multi-modal transportation network. This is critical because most of the remaining developable land in Marin is located in the County's cities and towns, while most decisions about the future transportation system are made on a countywide and regional level. In addition, coordination between cities can also improve the effectiveness of incremental improvements for pedestrians and bicyclists within the local road network. The City of Novato's and the County's joint efforts regarding Gness Airfield are an example of successful cooperation between jurisdictions.

### Benefits

Coordinated land use and transportation can:

- Optimize use of natural, infrastructure, and fiscal resources.
- Improve quality of life and livability for all communities in the County.
- Improve air quality throughout the region.

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## B. Summary of Advisory Committee and Public Outreach Process

### Introduction

During the fall of 2005 and late summer of 2006, meetings with key staff and interested elected officials from each of Marin's jurisdictions and the County of Marin were conducted as part of the outreach effort around the preparation of a TOD/PeD Toolkit envisioned under the TPLUS Program. This outreach effort was a result of suggestions from the TAM Executive Committee and a meeting with the Marin City Managers group, and was coordinated through the City Manager's Offices of each jurisdiction.

The following is a summary of input provided by the participants in these meetings. The summary is divided into three sections:

1. Marin Specific Issues and Barriers to TOD/PeD;
2. Suggestions for Toolkit Content; and,
3. Policies and Built Examples to Explore for Use in the Toolkit.

Comments and input under each section have been grouped into subsections organized by subject matter. Comments from CD+A and TAM staff are in [square brackets].

### *1. Marin Specific Issues and Barriers to TOD/PeD*

#### **Smart Growth and TOD Development**

1. Case for TOD in Marin is weakened or rendered unconvincing by poor existing bus transit service in Marin, and belief that bus service will not improve in the foreseeable future (Fairfax, Tiburon/Belvedere, Mill Valley)
2. Communities consider themselves as (mostly) built out. (Tiburon/Belvedere, Mill Valley, San Anselmo/Ross)
3. Increasingly one or two story buildings are being nominated for listing as landmarks and this may prevent the intensification of land uses even if sites are zoned for higher intensity uses. (San Rafael)
4. Changes to the State density bonus regulations (SB1818) for affordable and senior housing increase the potential for denser housing with less parking without a change in local land use or parking policies. (San Rafael)
5. Residential condominium liability exposure deters developers from building condominiums, and therefore dense multi-family housing especially given that current market conditions constrain the viability of rental housing. (San Rafael)

6. It is difficult to adequately document for CEQA the benefits of TOD and infill in order to defensibly reduce traffic impacts or parking requirements. (San Rafael)
7. Fairfax’s program for amnesty for illegal second units on residential properties allows units to be “grandfathered in” even if they do not meet parking requirements. This may cause equity problem as new second units need to meet current parking requirements, and these can be difficult to satisfy because of specific site constraints. (Fairfax)
8. Talk about TOD and density just fires up the anti-SMART crowd, who argue it is proof that SMART is growth inducing. (Novato)

## Local Public Opposition to TOD-type Development

### General

1. While the public tends to agree with a number of Smart Growth concepts at the General Plan level, this may change when a project becomes more specific and is located in ones neighborhood. (Tiburon)

### Density and Design Issues

1. Public opposition to denser development often leads to a reduction in the number of approved units during the public hearings process even for sites already zoned for higher density development. (County)
2. Proposal of high-density housing would face community opposition. (Fairfax, Novato)
3. Quality of design is a major community concern with regard to infill development projects. Need to further improve the discretionary design review process to address design. (San Rafael, County)
4. While mixed-use and affordable housing projects on Miller Avenue in Mill Valley enjoy relative community support, this is not the case in other locations. (Mill Valley)

### TOD-related Transportation Issues

1. Traffic is the most important issue raised by the public around new development. (San Rafael)
2. Need to be able to address concerns over impeded traffic flows and reduced LOS in conjunction with new (denser) development (Corte Madera).
3. Concerns over resource consumption of added development and added traffic due to mismatch between job/housing location (Fairfax)

## Transportation Issues

### Vehicular Traffic/Roadway Network

1. Many intersections in Marin’s towns and cities are uniquely configured (i.e. intersecting streets meet at odd angles). (Corte Madera, Fairfax)
2. Speeding in residential neighborhoods: 80 to 90% of speeding drivers are found to be from neighborhood themselves. (Larkspur)
3. High number of daily vehicular trips per household is an issue for Marin. (Mill Valley)
4. In general, people who live in hilly locations are likely to conduct all of their trips by car, including downtown. (Tiburon)
5. East-west travel to communities west of San Rafael is a major issue as transit to these communities cannot provide significant relief and adding more capacity to alternative routes or constructing new ones meets with community resistance. (San Rafael)
6. School traffic and resulting congestion near school sites is a major issue and speeding on school routes and near schools a frequent occurrence (Larkspur, Corte Madera)

## **Transit**

1. Lack of east-west transit is a major issue. (Corte Madera, Larkspur)
2. Need to understand better how to get people to use shuttles and transit once provided. (Corte Madera)
3. Need better designed transit stops. (Larkspur)
4. Some reorientation of traffic patterns has occurred in Marin and patterns now include more county-internal and northbound commute trips. People are now looking for convenient transit connections within the county and to Sonoma. (Mill Valley)

## **Bicycle and Pedestrian Travel and Facilities**

1. Crosswalk and pedestrian safety are key issues on major streets. (Corte Madera, San Anselmo, Tiburon/Belvedere)
2. Completion of linkages between existing bicycle routes is important to provide better network for alternative travel. (Larkspur)
3. Highway 101 presents barrier to multi-modal transportation improvements. (Corte Madera)
4. Caltrans ownership of rights-of-way (i.e. Tiburon Boulevard) has hampered local initiatives for the implementation of pedestrian and bicycle improvements. (Tiburon/Belvedere)
5. Requirements of California Environmental Quality Act (CEQA) can become barrier to completing multi-purpose path linkages through environmentally sensitive areas. (Corte Madera)
6. There are no good guidelines for how much bicycle parking a development should include, or where it should be located. (Novato)

## **Bicycle and Pedestrian Improvements in Confined Rights-of-Way**

1. Difficult to implement bicycle lanes or wider sidewalks in many of Marin's confined rights-of-way. Space needed for the accommodation of utilities and ADA requirements particularly affect the creation of sidewalks on streets that currently don't have any. Many roads have only one parking lane and one travel lane in each direction, which provides little room for tradeoffs if removal of parking is not an option or opposed by residents. This condition leads to conflicts between vehicular and particularly bicycle travel and discourages travel by alternative modes. (Corte Madera, Fairfax, San Anselmo, Mill Valley, Larkspur)
2. Where sidewalks or multi-use paths exist on only one side of a street, this can lead to serious crosswalk safety issues. (Tiburon/Belvedere)

## **Safe Routes to School**

1. Program has become somewhat bureaucratic and should be come more grassroots driven again. (Fairfax)
2. Topography is hampering bicycle and pedestrian access to school sites. (Tiburon)

## **Alternative Transportation Performance Measures**

1. Alternatives to LOS, such as corridor travel time, do not seem viable given current local and regional policies for major roads. (San Rafael)

## **Alternative Transportation Standards**

1. City of San Rafael believes it needs to apply Caltrans highway design standards to major roads within the City to avoid unacceptable liability exposure. However, unified standards between different communities would be of benefit in corridor planning and implementation. (San Rafael)

## ADA Related Issues

1. Frivolous lawsuits divert already limited funding and staff resources and prevent a more coordinated approach to ADA improvements targeted to the most frequently used areas. (Larkspur, Corte Madera)
2. ADA requirements do not provide enough flexibility to allow for slight deviations necessitated by local conditions. In many of Marin's hillier locations, ADA slope requirements are difficult or impossible to meet because of confined rights-of-way or slope issues (Corte Madera, Fairfax, Novato).
3. Need more choices for selecting attractive, ADA-compliant paving materials in order to be compatible with existing pedestrian improvements. (Larkspur)

## Funding and Staff Resources

1. Lack of funding required to implement multi-modal transportation improvements is a major issue (San Anselmo, Mill Valley, San Rafael)
2. Funding for planning of capital improvements is issue in light of shortage of staff (San Anselmo)

## Coordination between Marin's Jurisdictions

1. Public Works Directors (through their PWD Meeting) assign a single project manager to capital improvement projects that involve more than one jurisdiction. Similar coordination is difficult to achieve on a land use planning and project approvals level. (Larkspur)

## 2. Suggestions for Toolkit Content

### General

1. Recommendations need to be relevant to Marin
2. Toolkit needs to be practical and concrete, geared toward assisting overburdened staff.
3. Toolkit should focus on constructively addressing concerns raised by communities.

### Smart Growth and TOD Development

1. Consider minimum densities for opportunity sites (County).
2. Existing shopping malls may expand and include mixed-use components: need design ideas on this retrofit process and how to create a more walkable environment (Corte Madera)
3. Look at options that help to address the quality of design, i.e. form-based codes, comprehensive and clear design guidelines, and an improved discretionary review process. (San Rafael)
4. Provide tool about how to design a successful mixed-use building that addresses commonly encountered challenges such as odor, noise, construction cost, and other building code issues. (Larkspur, Tiburon)

### Local Public Opposition to Development at TOD-level Densities

1. Focus public's attention on design and not on density aspects of project. (County, San Rafael)
2. Provide case studies and photo examples and/or PowerPoint slides of successful residential and mixed-use development for the use in public meetings. Need to be applicable to scale of place where development is proposed. (Larkspur, Tiburon/Belvedere, County, Fairfax)
3. Provide public with a countywide development framework that addresses concerns for an incremental deterioration of Quality of Life. (County)

4. Educate public about tradeoffs between development near transit and the preservation of greenfield and environmentally sensitive sites. (County)
5. Suggest “upfront” input from the public as recommendation for development review process. (San Rafael)
6. Provide education about trip generation and LOS of TOD. (Corte Madera)
7. Good developer outreach and offering the public something they need or want (e.g. Whole Foods) can sell anything. The right combination of use, not housing for housing sake, but rather creating a community amenity that may include housing, is key to a project. A developer outreach tool to help assess this need would be valuable. (Novato)

## Parking

1. Address how on-street parking can be responsibly reduced in order to create space for alternative modes (i.e. bicycles). (Fairfax)
2. Interest in definition of new parking standards for commercial development in mixed-use, downtown, or transit-oriented situations. (San Rafael)
3. Definition of “right” balance between space stall dimension and average size of autos and SUVs. (San Rafael)
4. Provide a tool that addresses vehicular and bicycle parking needs at transit stops. (San Anselmo)
5. Provide parking standards and alternative parking policies that have proven successful in places similar to those in Marin. (Tiburon)

## Multi-modal Street Improvements

### Travel Behavior

1. Look at “Street Smarts” program by the City of San Jose, a campaign directed at changing driver, pedestrian, and bicyclist behavior. (Fairfax)
2. Identify which amenities encourage walking as travel mode and how they can be implemented. (Tiburon)

### Bicycle and Pedestrian Improvements

1. Revise Tool T-B8 to fit better with Marin’s conditions (few intersections in Marin look like the one depicted) (Corte Madera)
2. Pedestrian Planning Advisory Committee could give similar boost to pedestrian related planning efforts as Bicycle Planning Advisory Committee has for bicycle matters. (San Anselmo)
3. Address best practices (i.e. width standards) for multi-use paths. (Tiburon/Belvedere)

### Bicycle and Pedestrian Improvements in confined Rights-of-Way

1. Provide tool on how to accommodate bicycle and pedestrian improvements in limited rights-of-way
2. Need tool that addresses how to get bicycles through uniquely configured intersections (of which there are many in Marin). (Fairfax)
3. Ross has been successful in applying “fogline” as tool to provide space for bicyclists where full bike lanes were not feasible.

### **Roundabouts**

1. Provide tool that addresses the design of different types of roundabouts. (Larkspur)

### **Transit**

1. Include tools about Safe Routes to Transit. (Fairfax)
2. Providing exciting transit options may convince people to use transit (i.e. trolley line on Sir Francis Drake). (Fairfax)

### **Safe Routes to School**

1. Wendi Kallins can provide additional input on reference and resource list for Safe Routes to School section of toolkit. (Fairfax)
2. Look into car pooling as one of several measures to reduce the number of vehicular school trips. Some schools achieve this by discouraging single parent/single student drop off at the most convenient drop off locations. (Larkspur)
3. Educate high school students and their parents about alternative modes of transportation (i.e. bicycling) to head off view that getting drivers license and driving to school is only option. (Larkspur)

### **Traffic Calming**

1. Include toolkit section and educational material about traffic speed and successful traffic calming measures for residential neighborhoods. (Larkspur)

## ***3. Policies and Built Examples to Explore for Use in the Toolkit***

### **Policies**

1. County is working on Housing Overlay that will allow the transfer of units allocated to sites in environmentally sensitive areas to sites near transit.
2. County is considering adding housing to existing shopping centers (Marinwood, Tam Junction, Marin City, and Strawberry)
3. Fairfax is planning on using a zoning overlay for its downtown to identify opportunity sites for mixed-use development and infill housing.
4. Mill Valley has and Fairfax is planning on conducting an amnesty on illegal second units to increase the (legally) available number of units on the housing market.
5. Public Works Directors (through their PWD Meeting) assign a single project manager to capital improvement projects that involve more than one jurisdiction.
6. Mixed-use and affordable housing projects proposed for sites along Miller Avenue in Mill Valley are the result of the (as of yet unapproved) Miller Avenue Precise Plan and the political will of the City Council to generate affordable housing.
7. Safe Routes to School Program in Mill Valley has greatly contributed to reducing the number of vehicular school trips.
8. Bicycle Planning Advisory Committee has given great boost to bicycle related planning (Fairfax, San Anselmo)

## Built Examples

1. Downtown Novato:
  - a) Grand Avenue,
  - b) Rowe Ranch,
  - c) Whole Foods(not built, in planning stages);
2. San Rafael:
  - a) Rotary Senior Building,
  - b) Senior Housing development behind Whole Foods (same as above?)
3. Corte Madera: Aegis project on Pacific Drive;
4. Larkspur:
  - a) Creekside development on Magnolia Avenue (beyond Doherty Drive),
  - b) Mixed-use project in Larkspur Landing (by Campus Development);
5. Mill Valley: Mixed-use project next to Whole Foods;
6. San Anselmo:
  - a) Mixed-use project on Mariposa Avenue,
  - b) Project on Butterfield Road (example of ped/bike improvements in a confined right-of-way);
7. Explore usefulness of examples built in Berkeley using the state density bonus program;
8. Use Marin's downtowns as positive examples for walkability and livability;

## Ideas and Concepts

1. ADA: Create an Accessibility Advisory Commission to help prioritize ADA related improvements (Corte Madera).
2. Transit:
  - a) Corte Madera formed informal partnership with Larkspur to explore possibility of an east-west transit shuttle focused on the needs of school kids and seniors.
  - b) A feeder bus system could further increase the success of the ferry out of Tiburon.
3. Toolkit Application: The toolkit could specifically be useful for preparation of the Transportation Element (Mill Valley); the update of the Zoning Ordinance, future specific plans (Corte Madera); Downtown Plan (Tiburon).

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## C. Summary of Parking Outreach Process

### I. Parking Workshops

Nelson\Nygaard coordinated five workshops around the County, discussing parking policies and potential zoning changes/management policies to achieve the goals of the Marin TPLUS effort.

Five cities/towns scheduled a workshop for their staff, and one was given for the County. All workshops were held between December 2005 and June 2006. The number of participants ranged from three to more than ten. A list of participants and their workshop date is given below:

- Tiburon/Belvedere, December 7, 2005
- San Rafael, January 31, 2006
- County – Unincorporated Areas, March 15, 2006
- Corte Madera, April 14, 2006
- Fairfax, June 1, 2006

### 2. Workshop Summary

Overall, reaction to the workshops was positive, with participants considering several of the discussed parking strategies and requesting more information. The location, size, and attractions, among other factors, of each city/town create parking challenges unique to the location. As a result, each participating locale focused on different strategies to address their specific challenges and issues. Challenges raised at each workshop are listed below.

#### **Belvedere**

1. Limited land to build additional development or parking; Boardwalk Shopping Center may be redeveloped in the future

#### **Corte Madera**

1. Limited right-of-way in residential neighborhoods for the number of cars
2. The parking ordinance may be too strictly defined for the mixed land uses
3. Converting previous retail/commercial spaces to different uses such as restaurants that require more parking

#### **County (Unincorporated Areas)**

1. Traffic impacts and parking overflow due to parents dropping off/picking up students from private schools

2. Small child day care facilities in residential areas also have peak drop off/pick up congestion and parking shortages
3. Lack of parking for infill development
4. Water quality and stormwater runoff concerns are becoming greater
5. Increasing congestion
6. Difficulty enforcing permit parking, commercial vehicles often park in residential areas
7. Complicated catering to different types of parking demand, retailers want high turn over parking and residents want exclusive spaces

### **Fairfax**

1. Parking on Saturday nights in the downtown/commercial area can be difficult. Parking shortages are not an issue the other nights of the week
2. Downtown visitors prefer to park in front of the store, rather than a short walk away. A reason for this type of behavior may be due to unfriendly pedestrian infrastructure
3. Business owners and their employees often park in front of their stores in the downtown area
4. Residential areas close to downtown face parking overspill issues from the commercial uses
5. Second housing units are illegal unless a designated parking space is provided, which is difficult for many property owners
6. Limited parking capacity in the residential hillside areas
7. Fire access to hillside areas due to parking on narrow streets

### **San Rafael**

1. Bicycle parking regulations should be further development, i.e., with a flat requirement rather than a % requirement.
2. Suburban parking requirements may be too high
3. Difficulties in implementing shared parking because tenants want their own parking supply.
4. Commercial uses located in areas zoned for industrial use do not have adequate parking supply. This is a particular issue on the I-580 corridor, where intensification is occurring.
5. Some neighborhoods are interested in having a residential permit parking program.
6. The environmental and aesthetic qualities of parking areas should be enhanced.
7. San Rafael is an older city, and most of the large sites appropriate for large projects are fully developed. As a result, most new projects will be redevelopment projects on small infill sites.

### **Tiburon**

1. There is no shortage of supply in downtown, but merchants and visitors can perceive a shortage as there are few “front-door” spaces
2. Downtown parking lots are shared by all the merchants
3. Tiburon controls a small percentage of spaces in downtown – most parking is privately owned and operated. This limits what the Town can do (e.g. on-street management).

Though the issues varied by area, several common themes emerged, including revising residential parking requirements and dealing with parking requirements for changes in use. The common issues are detailed below:

- Historically, many residences were used as weekend homes for those living in San Francisco, and were also built at a time when car ownership levels were lower. As a result, the small parcel sizes and narrow streets are sometimes inadequate. Currently, some households have two or more vehicles that are parked on-street, creating fire access concerns. This issue was raised by both Corte Madera and Fairfax.
- In-law or second units are being developed in a number of areas. In Fairfax, as in most other towns and cities, each second unit must have an off-street parking space, which can be a difficult requirement to meet given site constraints. Parking requirements are thus limiting the feasibility of developing second units, which for many are affordable housing.
- Both San Rafael and Corte Madera discussed the challenge of parking requirements for changes to more intensive land uses. For example, in San Rafael, where industrial sites are converted to office buildings there may not be enough parking capacity to comply with office parking requirements. In Corte Madera, previous commercial spaces are being converted to restaurants which also require more parking.
- As most areas are built out, complying with parking requirements for infill development is difficult in the limited space available.
- There is potential to introduce Transportation Demand Management (TDM) strategies as a means to address congestion as well as parking issues. However, enforcement is a concern, particularly for small employers.
- Overspill from office or commercial uses to adjacent commercial or residential areas is an issue for several communities, including Fairfax and San Rafael.

### 3. Parking Policies Being Considered

Nelson\Nygaard discussed a number of parking zoning changes and management policies including:

- Tailored/flexible parking requirements
- Parking Pricing
- Car-Sharing
- Transportation Demand Management (TDM) Programs
- Waive Minimum Parking Requirements
- Parking Maximums
- Design Requirements

Policies that the participants consider to be possible solutions to their challenges are listed, by area, below. Note that these policies are not necessarily being pursued; rather, the table gives a flavor of the interests of various workshop participants.

## **Corte Madera**

1. Shared parking
2. Lowering in-lieu fees
3. Parking enforcement on commuters
4. Parking meters in the downtown area
5. Car-sharing at affordable housing developments
6. Tandem parking
7. Permitting parking in front setbacks

## **County**

1. Instituting parking fees for all employees driving alone to their place of work in the County. Parking charges can reduce the drive alone rate by 15 to 25 percent – essentially solving the County’s congestion problem
2. Further promote shared parking, especially using office parking spaces during non-peak times
3. Audit parking policies periodically to determine effectiveness

## **Fairfax**

1. Providing incentives or charging fees to prevent downtown merchant from parking in customer spaces
2. Parking lots off the main street in downtown for residents to park their second, third or commercial vehicles
3. Residential permit program on the weekends to help stop downtown visitors from parking in these areas
4. Promote walking and biking to downtown instead of driving
5. Promote parking at remote lots, especially for out-of-town visitors to downtown
6. Incorporate additional bike parking in the downtown area
7. Stripe on-street spaces to help guide residents on where they are able to park
8. Promote shared parking

## **San Rafael**

1. Funding and creating a Transportation Management Association (TMA)
2. Responding to neighborhood requests for a Residential Permit Parking program
3. Implementing a car-share program where feasible
4. Improve regulations that enhance the environmental and aesthetic qualities of parking areas, including drainage and landscaping

## **Tiburon**

1. Tailor residential parking requirements, particularly for affordable and senior housing
2. Seek to gain public control over more parking

## Some communities requested additional information. The information sent is listed below:

- Corte Madera: tandem parking and parking in the front setback of residential parcels
- Incorporated County: parking cash out and parking charges
- Fairfax: contact information for Petaluma residential parking program, Corte Madera residential striping program and City of Berkeley carsharing
- San Rafael: Setting up TMAs, enforcing TDM programs at small companies and financing TDM

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