

Street Design Guidelines for Healthy Neighborhoods

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ABSTRACT

A major shift in the way we design neighborhoods is taking place across America and street design is re-emerging as a major element of neighborhood street engineering, town planning and real estate development. These guidelines identify ways to design new neighborhoods that will be more interactive, walkable, enjoyable and livable.

INTRODUCTION

A major shift in the way we design neighborhoods is taking place across America. People are working together to identify better ways to design new neighborhoods or retrofit existing ones to be more interactive, walkable, enjoyable and livable. After years of neglect, street design is re-emerging as a major element of neighborhood street engineering, town planning and real estate development.

Several real estate studies reveal that the top preference in purchasing a home combines low traffic volume, slow street speeds and minimal noise. Many people seek neighborhoods with parks, schools and other activities nearby for their children, while many “baby boomers”—anticipating the changing mobility of their older years—are asking for sidewalks, trails, greenways, and open space.

The desire for healthy, interactive neighborhoods is not a new phenomenon, but only quite recently have real estate marketers started to promote quiet, neighborly streets as a main incentive to buy houses in particular neighborhoods.

These street-making guidelines were designed to assist communities that want to build new neighborhoods based on the principles of traditional neighborhoods built in cities throughout the nation before 1940. They are also designed to help preserve and revitalize traditional neighborhoods. The following guidelines show how to understand, preserve and resurrect characteristics of older neighborhood streets and how to build them again with urban infill and new development.

A Rutgers University study determined that “small towns” rank highest on the list of five different types of living places. Fifty percent of Americans want to buy homes in village-style neighborhoods, compared with 22 percent for conventional suburbs.

Before the Walt Disney Corporation built Celebration, its new town in Florida, they conducted an extensive market study of what home buyers wanted. Focus groups revealed that one out of every two Americans wanted to live in a village-style or traditional neighborhood. However, since less than one percent of current new development is styled on older, traditional patterns, a major demand for neighborhoods that retain old town living styles goes unfulfilled.

The types of streets our grandparents lived on are still the best streets types today. To build these quiet streets and street patterns we must look both into the past and toward the future.

Overview

Traditional streets are an important component of healthy neighborhoods and livable communities. Pedestrians in most cities say they want well-designed neighborhood alleys, lanes and streets that keep motorist speeds between 10 and 25 mph, and provide on-street parking, sidewalks, shade, benches, street lamps, and other community amenities.

These design elements combine to create an ideal environment that encourages walking, bicycling and a sense of community: streets should be well connected to offer a variety of walking routes and to distribute motorized traffic. Streets should have regular terminating vistas—prominent features where they end or at the apex of curves—and offer plenty of variety along the way. Intersections should have turning radii that require low speeds, yet allow access by infrequent street users such as fire trucks, sanitation trucks, and delivery vehicles. Ideally, blocks are not longer than 300–450 feet. Houses are located close to the street. Parks, schools, churches and small shops are found at walkable distances from each home.

Walkable, bike-friendly, transit-oriented neighborhoods eliminate the need for many nonessential, motorized trips. Traffic volume, speed and noise are reduced. By slowing motorized traffic, people discover that the front portions of their homes are pleasant places. They spend more time in front yards and porches, and meet neighbors along walkways and at street corners. Putting more people outside further slows traffic and enhances neighborhood security. As more people meet, make friends, and share information, neighborhood bonds are strengthened and people watch out for each other. Over time, parents feel more comfortable about allowing their children to be outdoors more often, and they permit children to walk or bike to many of their favorite destinations. These attitudes foster activity and personal interaction that benefit the physical and emotional health of children, seniors, and, indeed, every resident who plays a part in creating a truly safe and healthy neighborhood.

How Did Current Street Standards Become the Norm?

As researchers examined town codes nationwide, they found that new towns typically copied existing codes or adopted published standards without question. Rarely had anyone conducted research to find the right combination of elements needed to make streets successful. This lack of understanding has often resulted in noisy, high-speed, high-volume roads, which isolate neighborhoods and increase the need for auto trips.

In *Rural by Design*, Randall Arendt captures this copycat code syndrome of neighborhood street-making. He cites *Residential Streets*, published jointly in 1990 by the American Society of Civil Engineers (ASCE), National Association of Home Builders (NAHB) and the Urban Land Institute (ULI), which strongly criticizes current street-making practices. According to *Residential Streets*, current practices can be attributed to early standard-setting based upon readily available state highway department manuals. Several states still set standards for local, neighborhood street-making. While these standards may be acceptable for major roads, they are out of character in a neighborhood and produce

inappropriate driving behavior by motorists. Street-making is a simple art. However, because it is crucial to neighborhood and community design, many disciplines must collaborate to achieve the best street patterns for each neighborhood. Motorist behavior is primarily dictated by street design. Left solely to traffic engineering, neighborhood street design often reflects the interests of cars rather than the needs of people and healthy neighborhoods.

Origins of the Street Guidelines

These street-making guidelines were initially prepared for communities in California's San Joaquin Valley, the fastest growing region in California, with a population that is estimated to more than double from 5 million today to 12 million by 2040. In the past, land use patterns and economic vitality in the Valley have been primarily based on agriculture. Increasingly, Valley planners and policymakers face the challenge of meeting housing, employment, and infrastructure demands created by this growing population while trying to preserve their communities' historic rural character and the economic viability of their agricultural businesses. Responding to these concerns, a task force of planners, city managers, elected officials, and nonprofit representatives gathered to help develop these healthy neighborhood street design guidelines.

Although developed in the San Joaquin Valley, the guidelines can easily be applied to street design across the U.S. and were intended for national dissemination. These design principles are consistent with low-speed street-making across the country and are based on the larger planning concepts of "traditional" or "village-style" neighborhood design. Draft versions of these guidelines have already been used for state and national training courses and local street design in cities across the United States and Canada—and as far away as Australia.

These guidelines embrace the published art of street-making found in dozens of engineering, planning and town-making manuals. Many popular references were consulted and used in their preparation including the following: the often-quoted American Association of State Highway Transportation Officials (AASHTO) *Policy on Geometric Design of Highways and Streets* ("The Green Book"); the Institute of Transportation Engineers (ITE) *Traditional Neighborhood Development Street Design Guidelines*; ITE's *Traffic Engineering Handbook*; *Residential Streets: Objectives, Principles and Design Considerations*, published by the American Society of Civil Engineers (ASCE), National Association of Home Builders (NAHB) and Urban Land Institute (ULI); and the ASCE's *Residential Streets*. The National Fire Code and the San Diego Metropolitan Transit Development Board's "Designing for Transit" manual were also used. A number of other town-making texts, such as Randall Arendt's *Rural by Design* and Christopher Alexander's *The Timeless Way of Building* and *A Pattern Language*, were also consulted.

All the street dimensions recommended in these guidelines fall within the acceptable guidelines and principles established by these important national and regional organizations.

METHODOLOGY BEHIND THE GUIDELINES

To prepare these street design guidelines, we assembled a team consisting of two professional engineers, an architect, a town planner, a historic redevelopment specialist, a

citizen planner, an attorney, and a walkable communities instructor. To “field-test” the guidelines, our team measured successful streets across the country, asked both residents and motorists why they liked their streets, and counted the number of people walking and bicycling along them.

To prepare these guidelines, the team visited, measured and talked with residents and drivers in over 80 traditional neighborhoods and sixteen neo-traditional neighborhoods. Dan Burden, the principal author, recently completed a 30-month tour of 542 cities in each of the major regions of the U.S. and across North America. Meeting with groups interested in walkable communities in each of these cities, Burden has identified some of the most critical and common street-making issues, practices and principles.

A Nationwide Review of Neighborhood Street Design

The streets, neighborhoods and communities we studied were diverse. They included Cambridge, Massachusetts; Albany and Saratoga, New York; East Lansing and Kalamazoo, Michigan; Crested Butte, Grand Junction and Boulder, Colorado; the Ballard, Green Lake, Lake City and Capitol Hill neighborhoods in the Seattle area; Gig Harbor and University Place, Washington; Eugene, Oregon; Eureka, Davis, Chico, Santa Monica, Pasadena and San Diego, California; Denton, Arlington, Austin, McAllen and Dallas, Texas; Juneau and Anchorage, Alaska; Liberty, St. Louis, Springfield and Independence, Missouri; and Brevard, Asheville, Charlotte and Waynesville, North Carolina.

Among the new “traditional” neighborhoods we studied or visited were Seaside, Abacoa, Celebration, Mizner Park and Truman Annex in Florida; Middle Towne Arch in Norfolk, Virginia; Kentlands near Gaithersburg, Maryland; Laguna West, Village Homes and San Diego’s 4S Ranch in California; Northwest Landing in Washington; and Fairview Village in Portland, Oregon.

Winter Park and Celebration, Florida

We used Central Florida as our laboratory to test the feasibility of these guidelines. In the Orlando area, we explored streets of early 1900s town-making in historic Winter Park and compared them to the new town of Celebration built in the 1990s. By comparing the streets of the past with those of today, we were able to draw up several workable points of contrast.

Our first calculations at the Winter Park Fire Department measured the width of their fire trucks. The trucks are 9.5 feet wide (from mirror to mirror). Explaining our interest in creating new street standards, we asked the local fire fighters to direct us to Winter Park’s narrowest streets. After first assuring us that they could handle any street in town, they chose 20 streets for our study. Arriving at the designated tree-canopied neighborhood, we found streets as narrow as 16 feet with parking on one side. Other streets with parking on two sides had total widths of 22–24 feet. These streets were extremely narrow, richly canopied with 60-to-70-foot-tall oak trees, but workable as access streets to homes. The residents and motorists we talked with were pleased with every function performed on those streets.

Before leaving Winter Park, we should note that planners there today remind us that it is harder to defend these old, successful street designs to the current traffic

engineers than it was to build them. The lost knowledge of traditional, healthy street-making takes its toll. It is essential that we rediscover this art, if for no other reason than to preserve the successful, historic living places of the past.

For a contrast to sleepy, historic Winter Park, we traveled to Central Florida's newly built town, Celebration, created by Walt Disney Corporation as one of the most complete and comprehensive "traditional" towns of recent years. In Celebration, we found many people out walking; children were plentiful along these quiet streets. A variety of streets enhance the community. One-way streets wrap around parks with on-street parking on one side of the street. We found the 18-foot lane section acceptable, if not delightful. Other street types featured average widths of 28 feet with parking on both sides of the street. Even with well-utilized parking space on both sides, fire trucks traveling down this street have ample room. With cars parked on both sides taking up as much as 12 feet total, 16 feet is left for maneuvering fire trucks at whatever speed can be accommodated on the short, interconnected blocks.

Celebration's residents described their streets as wholesome, charming and "just right." Some visitors, they told us, find "the streets slow them down too much." This pace makes residents happy, however. We regarded the 28-foot streets as too wide, but an acceptable compromise for wide-street proponents (although these streets would not reduce traffic speeds if adjacent homeowners did not park their cars there).

Of course, the criterion for evaluating street design is not simply whether it is wide enough for a truck or car to drive along or park on, but how it fulfills a multitude of traditional, healthy town-making and neighborhood/house design principles such as the ones this guidebook embraces.

USING THE GUIDELINES

Where These Guidelines Can Be Applied

These guidelines can be used primarily to design new, traditional neighborhoods, but are also useful to help protect turn-of-the century and village-style neighborhoods. We share the concern of the Institute of Transportation Engineers' Traditional Neighborhood Development Street Design Guidelines, which caution readers not to apply traditional, healthy neighborhood street guidelines to conventional neighborhoods.

Applying the Guidelines to Conventional Neighborhood Development

Conventional, sprawl-style subdivisions have land uses that are highly segregated. Blocks and streets are often wide and long, generating higher speed traffic. There are few ways in and out of a conventional subdivision neighborhood, and streets are organized on a rigid hierarchy in which minor streets feed into collector streets which then funnel into large arterials. As a result, conventional neighborhoods may not benefit—and may even suffer—from designs presented in this manual. Along with the Institute of Transportation Engineers, we recommend further research on how these principles and practices might affect conventional development before applying them to retrofit these neighborhoods. (See Part IV for further discussion of conventional street design.)

Using These Guidelines Successfully

In contrast to the flexibility exhibited in conventional street design and construction, traditional, healthy neighborhood street measurements must be exact. When design specifications dictate that alleys should be 10–12 feet wide, for example, it is not wise to construct pavement at 14 or 16 feet. To obtain the desired motorist behavior on a traditional street, it must be designed and constructed with precision.

In some cases, specification values can be reduced; but in very few instances should they be increased. For instance, although we found that 26-foot-wide roadways are most desirable, we measured numerous 24-foot and even 22-foot wide roadways, which had parking on both sides of the street and allowed delivery, sanitation and fire trucks to pass through unobstructed. By contrast, Celebration, Florida's 28-foot street widths work, but do not reduce speed as well as narrower streets. In traditional, healthy neighborhood street design, the old adage of "more is better" simply does not hold.

A note about street widths. While right-of-way dimensions (from property line to property line) are important in defining "the outdoor room," the critical dimension in creating safe, healthy, civilized streets is the width from curb to curb. In this document, all roadway dimensions are given from curb face to curb face. However, a key feature implied by this approach is that well-designed streets should always have a vertical curb (with the exception of alleys and roads in rural areas or adjacent to natural settings, such as parks). A vertical curb clearly distinguishes the space allocated for the automobile from the space provided for pedestrians and people in wheelchairs. So-called "rollover curbs" found in many conventional neighborhoods encourage drivers to park their cars up on the sidewalk—ironically, to protect them from other cars often traveling at excessive speeds in the roadway. This not only creates a hostile environment for pedestrians and people with disabilities, but it defeats the potential street-narrowing effect that parked cars can help provide on many streets. Rollover curbs are also very difficult for people in wheelchairs to deal with.

If streetscape features, such as tree canopies, must be omitted because severe soil, desert or other constraints exist, street designers must consider alternative features to retain the quality of place.

Principles Guiding Healthy Neighborhood Development

These guidelines will work in new or existing neighborhoods where many of the following elements are considered or favored:

- Higher "traditional neighborhood design" densities (6–12 dwelling units/acre), instead of conventional densities (1–5 dwelling units/acre).
- Mixed uses, including parks each $\frac{1}{8}$ or $\frac{1}{4}$ mile, schools each mile, convenience stores, plazas or other gathering places, a nearby post office, and other destinations that convert and absorb trips.
- Homes that face or "greet" the street with friendly architecture (garages located in the rear or set back behind the façade).
- Accessible transit within one-quarter of a mile.
- Parks and homes that have "transparency," with many eyes on the street and on adjacent properties, thus creating a safer neighborhood.

WHAT ARE HEALTHY STREETS?

Healthy Streets Create Healthy Neighborhoods

Healthy, or traditional, streets are networks of roadways and connector trails in communities, designed primarily for use by people, not just motorized vehicles. Such streets are designed for motorists to feel comfortable operating at low speeds (15–20 mph). Low traffic volume and low noise, easy access, and multiple routes to destinations are also featured. Pedestrian and bicycle movements are favored.

Walkable streets form the backbone of friendly, interactive, safe, secure neighborhoods. Along these streets, people know their neighbors, some of whom may live three blocks away. Walkable streets allow responsible motorists who live in or travel through the neighborhood to feel most comfortable at lower rather than higher speeds. Motorists traveling too fast for the neighborhood feel uncomfortable on curves, at intersection turns, and with the short length of blocks. Motorists who go the correct speed feel relaxed and in tune with the neighborhood. Neighbors, in turn, feel comfortable and safe walking, riding a bicycle, or chatting with neighbors along such streets.

Conventional Streets Create Conventional Neighborhoods

Conventional neighborhoods have a strong road hierarchy, with wide roads and broad intersections. These neighborhoods have long, unconnected blocks, with perhaps only a few entry points. They have ample off-street parking and cul-de-sac streets. Often the roads lack sidewalks and street-side landscaping. It is not unusual for these neighborhoods to lack schools, parks, churches, stores, and other conveniences and attractions.

Since there are so few destinations within conventional neighborhoods, residents typically take 10 to 12 car trips per household every day. With few neighborhood destinations, most children also have to be driven or taken by bus to many locations, including schools and playgrounds. Motorists using these streets feel comfortable and safe driving at higher speeds (30–40 mph). People living in these neighborhoods have little or no desire to walk along these streets. Built following World War II, most of these conventional neighborhoods are considered “unsustainable” urban design, because they typically generate significant polluted water runoff, encourage fossil fuel consumption, create more individual motorized trips that generate more air pollution, and increase traffic congestion.

Eliminating the Need for Conventional Street Hierarchy

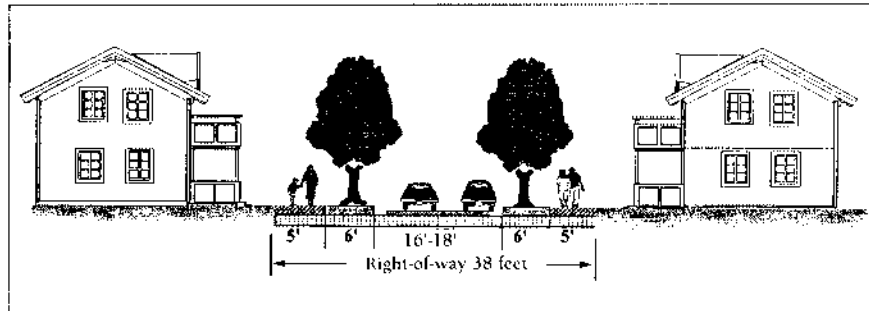
Because conventional neighborhoods are laid out with a strong street hierarchy, they tend to concentrate traffic into collectors and arterial streets offering few, if any, alternate routes. Cul-de-sac streets run into higher volume sub-collectors, then into higher trafficked collector streets, and then major arterials. Healthy neighborhoods disperse traffic, making this hierarchy irrelevant. It is likely that most streets in new traditional neighborhoods will have low-volume traffic, with only a few distributor routes.

Healthy or traditional neighborhoods are less dependent on road hierarchy. They purposefully have narrow streets, short blocks, many connections, sidewalks, and landscaping. Many of these neighborhoods were built before automobiles were plentiful, although a few such neighborhoods are now being planned and built. Traditional neighborhoods often have schools, parks, churches, corner stores, post offices and other important destinations.

Children can walk or bicycle to schools in older neighborhoods. As a result of layout, connectivity, route choices and strong support for walking, children are often able to reach schools and other destinations by themselves, which reduces the number of daily car trips. Well-designed, traditional neighborhoods are therefore considered “sustainable” development.

Healthy Street Categories

The following types of streets are recommended for healthy street-making: trails, alleys, lanes, streets, main streets, boulevards, and parkways. The characteristics of these street types are outlined in Figures 1–6. There has been confusion in recent years on street naming by type of street. For example, a lane should be both the type and name of any roadway connecting single-family homes where parking is found on only one side. Consistent naming (i.e., lane, street, avenue) will help identify the purpose, function and design of roadways. We further recommend that names used in conventional neighborhoods that lack functional or descriptive meaning (i.e., vista, circle, way, etc.) not be used to name roadways in healthy neighborhoods.



Lane

Purpose: Provides access to single-family homes.

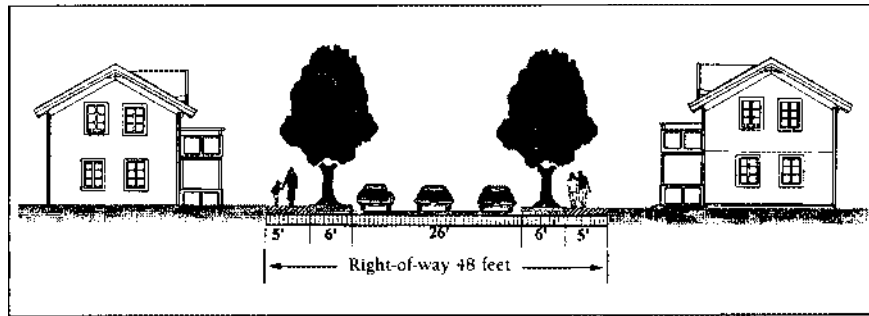
Street Features

- Street width 16-18 ft. with curb, gutter and informal parking
- Planting strips 6 ft.
- Sidewalks 5 ft. on each side
- Average speed 15 mph
- Requires a 38-foot ROW
- Utility location — underground or alley
- Drainage — Curb and gutter
- Two to six blocks long

Buildings and Land Use

- Residential — primarily single family
- Buildings brought close to sidewalk
- Consistent building line recommended

FIGURE 1



Street

Purpose: Provides access to housing.

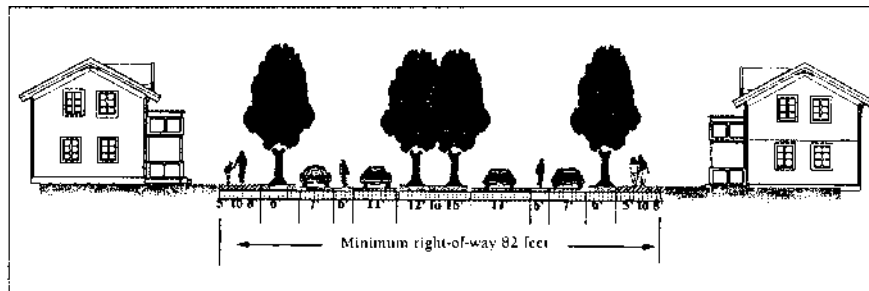
Street Features

- Street width 26 ft. with curb, gutter and informal parking
- Planting strips 6 ft.
- Sidewalks 5 ft. on each side
- Average speed 20 mph
- Requires a 48-foot ROW
- Utility location — underground or alley
- Drainage — Curb and gutter
- Two to six blocks long

Buildings and Land Use

- Residential — many residential types
- Residences brought close to sidewalk
- Consistent building line recommended
- Front porches encouraged

FIGURE 2



Avenue with Parking

Purpose: Connects town centers and neighborhoods. Avenues go from neighborhoods to town centers, and are not long (no more than one mile). Avenues may circulate around a square or neighborhood park.

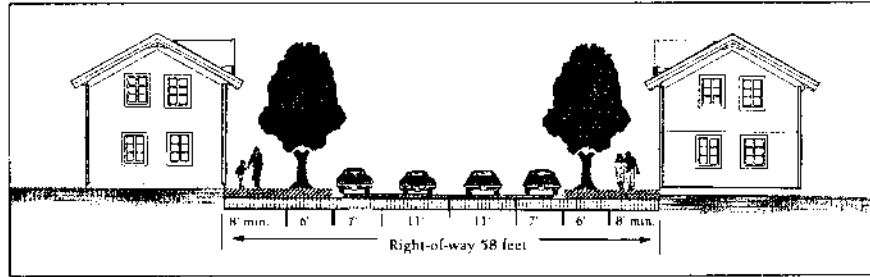
Street Features

- Street width 24 ft. on both sides of median with on-street parking (17 ft. if no parking), curb and gutter
- Median width 12-16 ft.
- Travel lanes 11 ft.
- Maximum two travel lanes
- Bike lanes and planting strips 6 ft.
- Sidewalks 5-8 ft. on each side
- Average speed 25-30 mph
- Utility location — underground
- Drainage — Curb and gutter, median can have swale for natural drainage and water retention

Buildings and Land Use

- Mixed residential and commercial use
- Buildings brought close to sidewalk
- Consistent building line recommended
- Place prominent public buildings and plazas at end of vista

FIGURE 3



Main Street without Median

Purpose: Provides access to, and a space for, neighborhood commercial and mixed-use buildings.

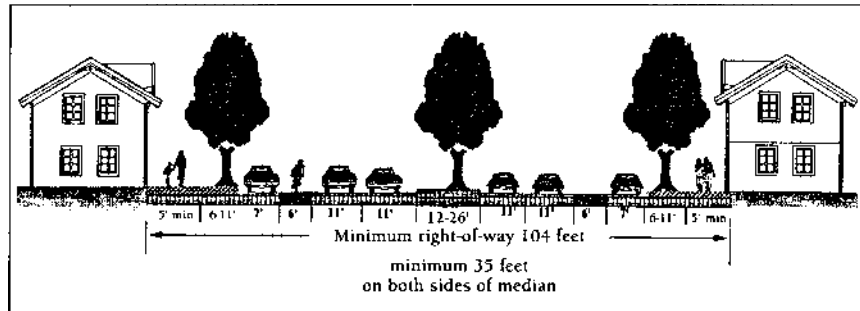
Street Features

- Travel lanes 11 ft. w/striped parking
- Maximum 6 travel lanes
- Planting wells 6 ft. / landscaped median optional
- Sidewalks minimum of 8 ft. each side
- Average speed 20-25 mph
- Utility location — underground
- Drainage — Curb and gutter
- Includes bulbouts at intersections and mid-block crossings
- Bike lanes optional but preferred

Buildings and Land Use

- Commercial and mixed use
- Buildings next to sidewalk
- Consistent building line recommended
- Pedestrian awnings, arcades, sidewalk dining and retail recommended

FIGURE 4



Boulevard

Purpose: Provides multi-lane access to commercial and mixed-use buildings, and carries regional traffic.

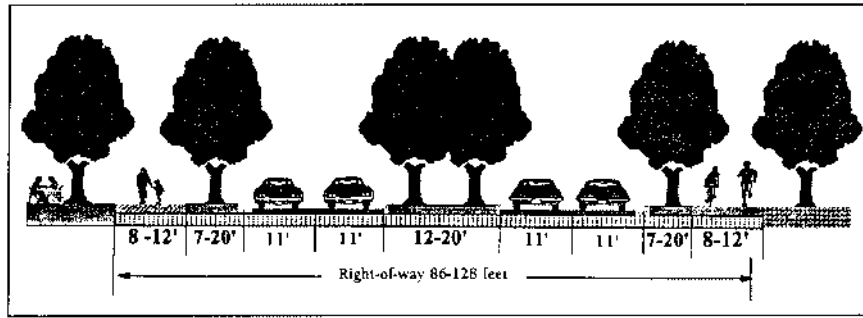
Street Features

- Lanes 11 ft. with striped parking and bike lanes
- Maximum 6 travel lanes
- Planting wells 6-11 ft.
- Sidewalks 5 ft. minimum each side
- Average speed 30-35 mph
- Utility location — underground
- Drainage — Curb and gutter

Buildings and Land Use

- Commercial and mixed use
- Buildings next to sidewalk
- Consistent building line recommended
- Sidewalks and bike lanes on both sides
- Pedestrian awnings and arcades recommended

FIGURE 5



Parkway

Purpose: Parkways bring people into town, or pass traffic through natural areas. Parkways are not designed for development. When the parkway enters town, it becomes a boulevard.

Street Features

- Travel lanes 11-12 ft.
- Median width 12-20 ft.
- Average speed 45-55 mph
- Multi-use trails 8-12 ft.
- Planting strips 7-20 ft.
- Bike lane not adjacent to travel lane
- Utility location — underground
- Drainage — swales allowed, or curb and gutter
- 6 ft. minimum paved shoulder on high-speed parkway (>50 mph)

Buildings and Land Use

- No buildings, preserve nature
- Parkways are designed to be on the edge of towns, nature preserves or agricultural areas
- Multi-use trails may be on either or both sides. Criteria for dual trails include absence or presence of rivers, lakes, canals, railroads, etc.

FIGURE 6

Healthy, traditional streets are categorized by the work they perform for the neighborhood. For simplicity, street types can be broken into three groups:

- Category One: providing neighborhood access such as trails, alleys, lanes and streets;
- Category Two: roadways providing transitional access to neighborhood streets, i.e., avenues and main streets; and
- Category Three: roadways providing regional access, i.e., boulevards and parkways.

Category One—Alleys, Lanes, Streets and Trails

Category One connectors, which form the heart of quiet neighborhood streets, function primarily to provide access to neighborhood destinations and make numerous connections within neighborhoods. All of these connectors—alleys, lanes, streets, and trails—provide access, utility and walking infrastructure. Traffic speeds of 15–20 mph are appropriate to such functions. Alleys, lanes and streets are measured on how well they add to the quality of the neighborhood by offering access, parking, tranquility, and safety.

Just like plant or animal cells, neighborhoods work best with many connections from the edges. Connections to centers of neighborhoods are appropriate too, but they

should not move significant amounts of traffic, nor move that traffic too quickly. People entering neighborhoods should feel rewarded by ease of access to specific locations, but also encouraged to travel by foot or bicycle.

Trails

Trails are nonmotorized connectors through neighborhoods. They often follow their own independent rights-of-way or utility corridors. Serving as an independent alternative transportation system, trails connect many homes to parks, schools, transit stops, and other common destinations. Trails can provide access into commercial districts, linking with bike lanes for added access to more distant commercial districts, employment centers and major transit hubs.

Neighborhood trails also make connections to natural areas and parks, and should provide links to regional greenways and open spaces. In a healthy neighborhood, trails may comprise 20–40% of the total residential connectors. For example, Village Homes, a 1970s development in Davis, California, has more miles of trails than roadways.

Alleys

Alleys are slow-speed (10-mph) service easements running behind and sometimes between rows of houses. Alleys (typically 10–12 feet wide) provide public service workers easy access to utilities and sanitation, and residents easy access to garages, backyards, and any accessory units. Alleys also offer second or third approaches for fire response.

Lanes (Figure 1)

Lanes are among the most desired types of access roadways in traditional, healthy neighborhoods. These narrow roads (typically 16–18 feet wide) are the prime means of access to single-family residences. Lanes allow parking on one side only. Thirty-eight-foot rights-of-way are usually required. One-way lanes can operate around parks or nature preserves. They also work well as two-way facilities in many other contexts. Landscaping and sidewalks fill the remainder of the available public right-of-way. Lanes are short, purposefully running only two to six blocks before they terminate.

Streets (Figure 2)

Streets are the other most common type of access road in healthy neighborhoods. Paved portions of these roadways are generally 24 to 26 feet wide. Streets provide access to single- or multi-family housing. Parking is provided on both sides. A right-of-way of 48 to 50 feet is typically required. Landscaping and sidewalks use the remainder of the available public right-of-way. Streets are also short, terminating in two to six blocks. They can also encircle a square or other public space. On-street parking should be encouraged. If on-street parking is light or non-existent, or limited to only one side, streets will fail to properly slow traffic.

Category Two—Transitional Avenues and Main Streets

Category Two roadways connect neighborhoods to commercial centers. Avenues and main streets are “transitional” roadways: in addition to providing access, they carry large and more diverse amounts of traffic. Avenues and main streets host deliveries and efficient emergency responses. They anchor neighborhood commerce, serve bicyclists and pedestrians, and improve transit operations. Category Two streets must operate at low to moderate speeds, since many people live, work, shop, and play within these street environments. Parking is found on many, but not all, avenues and main streets.

Avenues (Figure 3)

Avenues connect neighborhoods to town centers, and as such can extend up to one mile. Two-lane roadways contain 17 feet of pavement per side—6 feet for bicyclists and 11 feet for motorists—with raised medians in the center. Avenues can also operate without a median, although the raised center island is often preferred. On-street parking is optional. Triple-canopy landscaping, bike lanes and sidewalks are provided. Avenues are richly landscaped, since they are civic spaces that serve as gateways to town centers. Avenues should have the tallest, most spectacular tree canopies. They often have colorfully planted medians during spring and summer. Since avenues serve as the transition between the town and its neighborhoods, speeds should be kept low, typically 30 mph to keep neighborhood speeds low. Avenues also serve as major transit routes.

Main Streets (Figure 4)

Main streets provide access to neighborhoods, as well as places for neighborhood commercial and mixed-use buildings. On-street parking is very desirable. Due to the 20–25-mph, low-speed environment, bike lanes are optional, but preferred. Main streets usually do not have medians, but medians with low shrubs are acceptable if they do not detract from terminating vistas and attractive storefronts. To help pedestrians across the street and calm traffic, “bulbouts”—wider sidewalks that extend into the roadway—should be provided at intersections and, if blocks are long, at mid-block crossings.

Category Three—Boulevards and Parkways

Category Three boulevards and parkways connect town centers to the greater region. Boulevards and parkways are essential for combining motorized and nonmotorized traffic in safe, efficient, welcoming environments. Since the success of commerce and traffic circulation depends on effective street design, much attention has to be paid to the orderly and balanced movement of all transportation modes on boulevards and parkways. On these streets, car traffic, delivery trucks, emergency responders, and transit must operate with high levels of efficiency. Pedestrians and bicyclists must also be welcomed. Indeed, pedestrians and bicyclists have even greater need of support on these streets through bike lanes and sidewalks, due to the higher speeds and amount of traffic.

Boulevards (Figure 5)

Boulevards provide multi-lane access to commercial and mixed-use buildings, and they carry regional traffic. For these reasons, speeds on these streets are higher (30–35 mph). Boulevards have bike lanes and sidewalks, and they may have sections of parking to support commerce, parks, schools, and other attractors along their routes. In conventional neighborhoods, boulevards are classified as “arterial” roadways.

Parkways (Figure 6)

Parkways bring people into town, or they carry traffic through natural areas. Parkways are not designed to accommodate adjoining development. Roadway speeds may be 45 mph or higher. When parkways enter towns, they become boulevards, and speeds are reduced to 30–35 mph. Bike facilities are found on the edges of parkways, separated by distances of 10 feet to hundreds of feet. In conventional neighborhoods and town designs, parkways are classified as “arterial” roadways.

Where to Find Healthy, Traditional Streets

Healthy or traditional streets can be old or new, and are found in every region of the country. As a general rule, these streets were either built before the 1930s, following classic, pre-streetcar or streetcar era neighborhood designs, or are now being built again. The new streets are often found in neighborhoods that have “traditional neighborhood designs.” Many other names have been given to these developments, including “livable,” “traditional,” “new urbanist,” “transit-oriented development,” “urban villages,” and “pedestrian pockets.” Whatever the label, these streets and neighborhoods are the ones idealized in movies and television shows, the streets that fill automobile magazine ads and our memories, the places we visit on our vacations.

Measuring a Street’s Success

Healthy streets are walkable streets, best measured by how pedestrians act and feel when walking along them. Strolling along healthy streets, pedestrians feel relaxed. They enjoy the experience of walking in this environment and feel connected to their surroundings. Pedestrians in healthy street environments feel confident and in control, and do not feel threatened when encountering strangers.

Another measure of successful streets is the number of people walking along them. Streets are working especially well if people stop and talk with others. Walkable streets also foster a sense of ownership by everyone who uses them. People who feel comfortable on well-designed streets have the desire to protect and look after them. When a healthy street gets “sick,” the people who live on it want to nurture it back to health rather than move away. The health of a community can often be measured by the health of its streets.

Other measures can be used to rate the success of streets:

1. **Movement Choices.** Healthy streets allow for a diversity and co-existence of movement. The streets support people who want to walk, bicycle, use transit, or drive to destinations.

2. **Connectivity.** Healthy streets connect places where people live, work, attend school, and shop. Pedestrians, bicyclists, and wheelchair users should have more than one route to get to their destinations.

3. **Number of People.** Healthy streets have many people on them. The presence of people helps the streets feel safe and inviting.

4. **Diversity of People and Activity.** The most successful streets have the greatest diversity of people, ranging from young children to senior citizens. Healthy streets have people engaged in different activities, including sidewalk café dining, shopping, sitting on benches, visiting with friends, reading newspapers, window shopping, strolling, jogging, meeting people, walking dogs—as many activities as can be imagined. People can be seen walking and bicycling on healthy streets during most hours of the day.

5. **Creating a Civic Stage.** Healthy streets host people who go there to see and be seen, to meet others and watch the daily “parade” of cars and pedestrians. The “drama” on the street is free theater for many people. When people feel comfortable moving among strangers, the street environment is healthy, safe, and working correctly.

Meeting People’s Six Basic Needs

Marketing professionals have identified six basic needs of people who visit retail stores, service centers, streets, neighborhoods, or towns. These basic needs are Security, Convenience, Efficiency, Association, Comfort and Welcome. Walkable streets are places where people find all of these basic needs met.

ACKNOWLEDGMENTS

These street-making guidelines were initially prepared for communities in California’s San Joaquin Valley under sponsorship of the Local Government Commission’s Center for Livable Communities, and Walkable Communities, Inc. Funding was provided by the U.S. EPA Region IX, the San Joaquin Valley Air Pollution Control District, Walkable Communities, Inc., and the Physical Activity Health Institute of the University of California at San Francisco and California Department of Health Services. The following individuals were part of the team that developed the guidelines: Michael Wallwork, P.E.; Ken Sides, P.E.; Ramon Trias, Community Development Director of Ft. Pierce, Florida; and citizen planner Harrison Bright Rue.

This paper was excerpted from the *Street Design Guidelines for Healthy Neighborhoods* published in January 1999 by the Local Government Commission’s Center for Livable Communities. The complete, illustrated copy of the 52-page document includes a chapter on “Healthy Neighborhood Street Design Principles” with 25 key elements of street design. To purchase a copy please log on to the Center’s page at www.lgc.org/clc.