

# 3.2 Pedestrian Oriented Development

## BACKGROUND AND PURPOSE

Pedestrian oriented development (POD) is a pedestrian friendly policy providing clear, comfortable pedestrian access to commercial and residential areas and transit stops. POD is employed through a combination of land design practices including compact development, mixed-use, traffic calming, pedestrian – and public transit-orientation, and a mix of housing types. While POD works well in community centers and downtowns, it also can be applied successfully in rural and suburban areas.

Successful implementation requires a shift from modern, automobile-dependent development toward more traditional design practices that provide safe, convenient opportunities for walking, biking and otherwise accessing key destinations such as school or work. This transition to pedestrian- and public transit-oriented development will help to eliminate quality of life impairments, such as congestion and air pollution, loss of open space, costly road maintenance and public health services, inequitable distribution of economic resources, and loss of a sense of community.

New residential and commercial developments can and should incorporate pedestrian circulation into site layouts by providing not only sidewalks and walkways, but also human-scale landscaping, lighting and other features that promote a sense of safety and encourage people to make use of pedestrian amenities.

## BENEFITS OF PEDESTRIAN ORIENTED DEVELOPMENT

Potential benefits of POD design at the community-scale include the following.

### Environmental Health

In the last 30 years, vehicle miles traveled across the U.S. have increased three times as fast as the population (FHWA, 1997). This increase in auto-dependency has created adverse environmental impacts such as air and water pollution, which in turn affect environmental and human health. Land use practices that increase opportunities for pedestrian- and transit-oriented transportation will help to reduce these adverse effects.

### Economic Health

Social interaction created in town mixed use areas promotes a healthy economy by combining accessibility, networking, convenience, and creativity for people's daily rou-

### RELATED TOOLS:

- Village Plan Alternative
- Access Management
- Infill Development
- Transit Oriented Development
- Inclusionary Housing
- Energy Efficient Development

According to the Vermont Agency of Transportation, “Walkability is a tourist magnet. Tourists coming to Vermont to walk and bicycle in the scenic, human-scale towns and compact, pedestrian-friendly town centers have proved to be an economic boon. In 1992, an estimated 32,500 visiting cyclists spent \$13.1 million in Vermont – about twice the amount of money generated by Vermont’s maple syrup producers in a good year.” (Bicycle Touring in Vermont and Vermont’s Scenic Byways Program, Bruce Burgess for the Vermont Agency of Transportation, 1995.)

tines. Further, communities that implement POD practices that result in less traffic noise, traffic speeds and vehicle-generated air pollution than other modern communities, are likely to generate higher property values. Studies show a distinct trend in the increasing rate of homeowners and businesses choosing to locate in areas with high livability and walkability (Eppli, et al., 1999; National Association of Local Government Environmental Professionals, 1999). Tourism, which supports local and state economies, is enhanced by walkable community centers.

### Human Health

Our community environments play a critical role in our ability and willingness to engage in regular physical activity required

for a healthy lifestyle. According to the U.S. Center for Disease Control and Prevention, “moderate physical activity performed on most days of the week can substantially reduce the risk of dying from heart disease, the leading cause of death in the United States, and can reduce the risk of developing colon cancer, diabetes, and high blood pressure. Currently, more than 60 percent of American adults are not regularly active, and 25 percent of the adult population is not active at all” (CDC National Physical Activity Factsheet, [www.CDC.gov](http://www.CDC.gov), 1/31/06). Human-scale, pedestrian-oriented development provides safe, accessible opportunities for integrating physical activity into our daily routines. For example, sidewalks can create safe environments for children to walk to school while bike lanes may encourage more people to bike to work.

### Social Health

Alternative modes of transportation such as walking, biking, and public transit provide opportunities for social interaction that are less prevalent when traveling in a personal automobile. Additionally, these alternative transportation modes allow us to be more acutely aware of the environment around us, thereby creating an appreciation for our community’s natural areas and resources. This combination of increased social opportunities and appreciation for our surroundings contributes to our sense of community and may result in an increased willingness to participate in local government, volunteer for emergency services, or assist with organizing events such as Old Home Days.

## APPROPRIATE CIRCUMSTANCES AND CONTEXT FOR USE

Pedestrian Oriented Development design comprises the following components:

### Mixed-Use Development

Mixed-use development combines housing, commercial, retail, civic and office uses, placing these key community elements and destinations within close proximity to one another, e.g., a short walk, bike ride or transit stop. Benefits of mixed-use development include increased pedestrian activity and social interaction by bringing key destinations closer together.

## Compact Development

Compact development supports efficient use of land and reduces loss of open space by allowing for increased density in areas of existing development such as town centers and downtowns.

Compact development regulations might include requiring:

1. large, true neighborhoods located adjacent to the town center/downtown to ensure reasonable access to destinations;
2. redevelopment of underused and vacant spaces into new uses, including parks or green spaces designed at a human-scale;
3. maximum standards, rather than minimum standards, for the number of parking spaces where on-street parking is available; and
4. appropriate square footage standards for commercial development in the town center/downtown.

Benefits of compact development include reduced infrastructure costs, increased support for neighborhood retail and transit services, and reduced auto-dependence by locating destinations in closer proximity to one another.

## Interconnected, Traffic-Calmed Streets

Safe, efficient pedestrian, bicycle and vehicle circulation is provided through block form or pattern streets that have frequent linkages to destinations and neighborhoods. Roads are designed to move traffic at safe, slow speeds by requiring narrow, tree-lined streets and employing affordable methods to manage speed and access, e.g., one-way streets, access management plans, and/or appropriate corner radii to limit turning speed. Designs should ensure opportunities for accessing destinations are provided for people of all ages and abilities.

## Public Spaces Pedestrian-Scale Design

Pedestrian-scale design is development that balances pedestrian – and auto-transit needs while providing comfortable environments and places for people to assemble, plan and associate with others. Community design should be human-scale with services in reasonable distance from one another, to the best extent possible. For example, Dan Burden of Walkable Communities Inc. suggests the following standards: homes within ¼ mile of most services; neighborhood elementary schools within ¼ mile of homes; high schools accessible to most children within 1 mile of most homes; parks within ⅛ mile of homes; public transit access within ¼ to ½ mile of most homes; town center/downtown should provide a balance of retail and commercial stores and services, e.g., hair salon, hardware store, pharmacy, grocery/deli, restaurants, clothing, specialty, post office, library, town/city hall, within ¼ mile walk of the absolute center. Areas not being used by pedestrians should be assessed to determine possible reasons for lack of use, e.g., not handicapped accessible, limited store hours, no place to walk or places to walk feel unsafe.

### Pedestrian Orientation

Encouraging people to walk, rather than drive, to local destinations requires the integration of safe, human-scale pedestrian access throughout sites. In subdivisions, pedestrian opportunities may be provided in the form of sidewalks throughout a development or walkways linking new development with existing destinations. Within commercial developments, pedestrians should be separated from vehicular traffic through the use of walkways and landscaped buffers that promote a sense of safety and visual appeal that encourage people to walk. Pedestrian circulation should consider not only movement within a site or development, but also access to adjoining development. Increased use of pedestrian walkways between adjoining developments improves traffic safety by reducing the number of vehicles turning into and out of streets and commercial driveways along public highways.

### Mix of Housing Types

Allowing for a mix of housing types throughout the community, particularly within areas of greater density, ensures equitable access to services for people of all ages and income levels.

## LEGAL BASIS AND CONSIDERATIONS FOR NEW HAMPSHIRE

The following discussion presents the legal basis for and an overview of how POD can be integrated into local land use planning through master plans, zoning ordinances and subdivision and site plan regulations:

### MASTER PLAN

As provided in RSA 674:2.I, municipal master plans should guide local planning boards toward achieving "...the principles of smart growth, sound planning, and wise resource protection." POD design can help support a community's economic, environmental, human, and social health goals, by promoting human-scale development consistent with the community's vision.

### ZONING ORDINANCE

When identified as a goal in a municipal master plan, POD design can assist municipalities with accomplishing some of the basic purposes of zoning as provided in RSA 674:17, including reducing traffic congestion, promoting general health and welfare, and preventing overcrowding of the land.

RSA 674:16 authorizes the adoption of innovative land use controls consistent with the methods contained in RSA 674:21. Though POD design is not explicitly included among the list of innovative land use controls provided within the statute, it is consistent with the innovative methods described therein, and is therefore permitted under this statute. POD is innovative because it encompasses a variety of planning techniques that in practice, either individually or in combination with one another, promote appropriate uses of land for the purpose of creating healthy, balanced communities.

## SUBDIVISION AND SITE PLAN REGULATIONS

Addressing certain components of POD may be most effective when the requirements are determined on a site- or project-specific basis. For example, pedestrian circulation requirements within parking lots may vary greatly depending on the size of the lot, type of development, and zoning district or location of the site. Adopting POD requirements as part of a community's subdivision and site plan review regulations, rather than exclusively within a local zoning ordinance, will provide greater flexibility for applying such requirements.

RSA 674:36 authorizes planning boards to adopt subdivision regulations that may “require innovative land use controls on lands when supported by the master plan.” In addition, the statute permits subdivision regulations to provide for open spaces of adequate proportions; require the proper arrangement and coordination of streets within subdivisions in relation to other existing or planned streets or with features of the official map of the municipality; provide for harmonious development of the municipality and its environs; provide for efficient and compact development that promotes retention and public use of open space and wildlife habitat; require, in proper cases, that plats showing new streets or narrowing or widening of such streets be submitted to the planning board for approval and shall show a park or parks suitably located for playground or other recreational purposes; and, include provisions that will tend to create conditions favorable to health, safety, convenience, or prosperity.

Similarly, RSA 674:44 grants planning boards the power to adopt site plan review regulations that may “require innovative land use controls on lands when supported by the master plan.” More specifically, the statute permits site plan regulations to guard against undesirable and preventable pollution; provide for open and green spaces of adequate proportions; provide for development harmonious with the municipality and its environs; and, require proper arrangement and coordination of streets within the site in relation to other existing or planned streets; and, include provisions that will tend to create conditions favorable for health, safety, convenience, and prosperity.

## EXAMPLES AND OUTCOMES

Pedestrian oriented communities come in all sizes, though the opportunities provided in smaller and larger communities may vary. The following examples highlight successful local and national applications of various POD practices. While each of these communities has successfully implemented one or more of the POD components, it is important to understand that these techniques can be difficult, and may take time to implement.

### LITTLETON, NEW HAMPSHIRE:

#### Livable, Walkable Community

Dan Burden, a leading expert on designing walkable communities, praises Littleton's “nearly 98 percent walkable scale and features” ([www.walkable.org](http://www.walkable.org), January 11, 2006). Yet such praise did not come easily for the town of Littleton. For the last ten

years, Littleton has had communication, cooperation, and economic and infrastructure investment from local businesspersons, professionals, civic leaders, town officials and community members in an effort to establish a powerful sense of community. Such efforts have included the following:

- **Infill Development.** The community recognized that existing schools were badly in need of upgrades and repairs, without which the town would have had a difficult time attracting new businesses. Following a lengthy strategic planning effort, a citizen's committee, *Envisioning Littleton's Future*, recommended a plan to the school board that called for renovating the existing high school and elementary school located in the downtown and constructing a new middle school nearby, rather than constructing new schools away from the community's center. This plan would help to maintain a strong sense of community and promote vitality for the community's downtown businesses.
- **Adaptive Re-Use.** The community encourages reuse of existing structures rather than construction of new buildings, focusing recruitment of new Main Street businesses on those providing goods and services not offered by big-box retailers, and offering programs to help businesses such as an initiative for painting historic building facades.
- **Pedestrian Orientation.** The community strove to promote a pedestrian-friendly, walkable environment, inviting Dan Burden of Walkable Communities Inc. to help the community understand how to design streets and neighborhoods that will entice people to walk. Riverfront improvements, including a new covered walking bridge, were recently completed to provide a recreational opportunity and scenic walk for residents and visitors.
- **Mix of Uses.** The downtown and areas just beyond the community's center are largely residential, dotted with retail shops, services, schools and traditional neighborhood markets for residents, commuters and travelers.

## NEWMARKET, NEW HAMPSHIRE

### Redevelopment of Vacant or Underused Parcels:

#### Brownfields Revitalization

Land that is vacant or underused due to the presence or suspected presence of contamination (brownfields) may provide development opportunities that reduce the need to develop greenfields, or undeveloped land. The U.S. EPA Brownfields Program provides grant funding to states, regional planning commissions, and municipalities for the assessment and clean-up of vacant and underused sites suspected or known to be contaminated. Many communities in New Hampshire have made productive use of this funding opportunity to create usable, livable places within their communities.

In 1997, the town of Newmarket, working with funding from the NH Brownfields Program, undertook an initiative to convert one of the historic, multi-use Essex Mills, located in the community's town center, into residential housing. Following several years of planning and environmental site assessment, approximately 1,200



tons of soils impacted with petroleum and other contaminants were removed from the site in 2001. By 2004, a development milestone was marked with the completion of 36 condominium units in the revitalized, cut granite building. Future phases of development on the remaining two-thirds of the mill site may bring office space or other mixed-use occupants.

In addition to the significant tax revenue increases (from \$6,100 annually prior to redevelopment to a whopping \$300,000 + annually), the mill restoration project seriously enhanced the community's livability and walkability. For example, the developer provided an iron pedestrian bridge next to the Lamprey Falls connecting the two mill facilities as it was in the past. Additionally, the developer provided deeded right-of-way through the property for pedestrians, and deeded canoe and kayak access to the Lamprey River at the development's dock. The sidewalks will eventually be part of Newmarket's River Walk.

## SHORELINE, WASHINGTON

### Mix of Housing Opportunities: Cottage Housing

The community of Shoreline, Wash. a coastal city north of Seattle with a population of approximately 52,000, has taken a unique approach in addressing the need for a "mix of housing opportunities." To increase housing opportunities for singles and single-parent households, Shoreline recently amended its zoning ordinance to include provisions for "cottage housing." The following excerpt describes "cottage housing" and Shoreline's efforts to integrate this innovative housing concept into the community.

At a time when a median new single-family home is 2,114 square feet, according to the National Association of Home Builders, a development concept that puts eight 1,000-square-foot units on three-quarters of an acre may seem like madness. But the Greenwood Avenue Cottages in Shoreline, Wash., combine a true sense of community with a size that fits singles and single-parent households. "In 1953, the average home was only 1,000 square feet," says Jim Soules, president of the Cottage Co., which developed the community and suggested the idea of a cottage housing code. The basic code is a supplement to residential zoning and incorporates such features as a common open area, square-footage limits, 25-foot height limitations, and parking for each unit away from entrances. "The code not only increased density but also reflects the values of the residents," says Shoreline's Assistant Planning Director Anna Kolousek. "The cottages provide a new benchmark for what is reasonable density in the community and open the way to increase Shoreline's housing options." For more information, refer to [www.cottagecompany.com](http://www.cottagecompany.com). (Evans, 6/1/04)

While provisions for cottage housing would need to be considered on a New Hampshire-scale and community-specific basis, the efforts of Shoreline, Wash., clearly highlight an innovative approach to providing a range of housing types.

## Model Language and Guidance for Implementation

---

To assist communities with promoting safe, convenient pedestrian access that encourages people to walk, rather than drive to destinations, sample language for incorporating pedestrian oriented design requirements into local regulations is provided below. The language addresses pedestrian circulation in conjunction with new development, by providing pedestrian orientation requirements for both subdivision and site plan review regulations.

While opportunities for pedestrian access are crucial for community health and safety, poorly planned pedestrian access can have negative impacts on a community's character. Thus, pedestrian orientation should be designed on a site-specific basis with consideration given to a site's unique features. For example, requiring sidewalks in front of a new development that fronts on a state highway may be appropriate for a site located in a community center, and may be equally inappropriate for a site far from the community center or other destinations. Similarly, requiring new development to provide sidewalks or walkways between new and existing development should be required where new development adjoins community destinations such as schools or playgrounds, but may present an unfair burden on an applicant if the linkage does not provide reasonable public benefits.

The model language below was developed to provide the greatest amount of flexibility for applying pedestrian orientation requirements on a site-specific basis. Authority to require pedestrian access in conjunction with new development is granted in the zoning ordinance, while specific pedestrian orientation requirements are included in the subdivision and site plan review regulations.

While these regulations will help promote livability and walkability in conjunction with new development, it is important to note that they do not address design considerations for improving pedestrian orientation within existing town centers or downtowns. Rather, communities desiring pedestrian improvements in existing centers should develop a community-specific comprehensive pedestrian circulation improvement plan that considers existing conditions, recommends community facility improvements, and establishes requirements for existing sites when uses are expanded or changed.

Prior to the adoption of these regulations, the Access Management and Landscaping chapters of the guidebook should be reviewed carefully to ensure pedestrian design requirements are balanced with innovative auto-orientation and landscaping practices.



## MODEL ZONING ORDINANCE

A community's zoning ordinance should contain language, similar to that below, which establishes the authority of the planning board to adopt pedestrian orientation requirements as part of the subdivision or site plan regulations. Prior to the adoption of such language, communities will need to determine whether pedestrian orientation requirements provided in subdivision and site plan review regulations will apply to development in all zoning districts, or only specific zoning districts such as a village, town center or downtown. If pedestrian requirements will apply to all districts, the following language may be included in the General provisions. If such requirements will apply to specific district(s), then the following language should be included within the provisions for those district(s).

General Provisions or \_\_\_\_\_ Zoning District

To provide safe and efficient opportunities for people of all ages and abilities to access destinations, to encourage people to walk rather than drive to destinations so as to reduce traffic congestion and environmental impacts from automobiles, and to promote economic, environmental and personal health and well-being, sidewalks, pedestrian access routes and walkways shall be provided in new development in accordance with the requirements of the Town of \_\_\_\_\_ Subdivision and Site Plan Review Regulations.

Communities should consider adopting local landscaping requirements to enhance the landscaping minimum requirements included in the model subdivision and site plan regulations.

## MODEL SUBDIVISION REGULATIONS

### SECTION \_\_\_: PEDESTRIAN ORIENTATION

Applications for subdivision in the Town of \_\_\_\_\_ must comply with the following pedestrian orientation requirements.

#### I. SIDEWALKS AND WALKWAYS

- A. When subdivisions are proposed along existing street frontage and when sidewalks exist parallel to said street and the sidewalk ends at, along, or just before the property frontage, the owner and/or developer shall extend existing sidewalks along the existing frontage of the parent lot(s). New sidewalks shall conform to the design and construction requirements provided in this section. Alternative sidewalk design(s) that promote visual continuity between new and existing sidewalks and comply with Americans with Disabilities Act requirements will be considered by the planning board.
- B. When an application for subdivision proposes the creation of new street(s) to provide access to proposed new lots, sidewalks shall be located on at least one side of the street. Sidewalks shall be placed parallel to the street, with exceptions permitted to preserve natural features or to provide visual interest. The planning board may require sidewalks on both sides of the street in high volume areas. Alternative routes that propose locating sidewalks or walkways within and throughout a development away from street systems will be considered by the planning board.

Communities should review local regulations to ensure **vegetative buffer** planting requirements in this section are consistent with local stormwater management and landscaping requirements.

For more information on the **Americans with Disabilities Act**, contact the Accessibility Specialist at the Governor's Commission on Disability at (603) 271-4177 and refer to [www.usdoj.gov/crt/ada/adahom1.htm](http://www.usdoj.gov/crt/ada/adahom1.htm). For the ADA Standards for Accessible [www.ada.gov/stdspdf.htm](http://www.ada.gov/stdspdf.htm). For the ADA Standards for Accessible Design for accessible route, refer to [www.usdoj.gov/crt/ada/reg3a.html#Anchor-17516](http://www.usdoj.gov/crt/ada/reg3a.html#Anchor-17516).

In addition to the requirements of this section, communities that do not already have sidewalk design, grading and construction standards will need to adopt specific construction specifications to address requirements for: earthwork (i.e. grading, clearing), subgrade, materials (e.g. concrete, bituminous pavement), curbing, and loaming and seeding application and installation procedures. Communities that already have sidewalk construction specifications should review existing regulations to ensure they do not conflict with suggested requirements in this section. The New Hampshire State Building Code, RSA 155-A, also applies to the construction and renovation of sidewalks; see [www.gencourt.state.nh.us/rsa/html/indexes/155-A.html](http://www.gencourt.state.nh.us/rsa/html/indexes/155-A.html).

- C. Wherever sidewalks already exist along a traveled way providing access to a new street, sidewalks shall be extended along the new street such that they connect with existing sidewalks.
- D. A minimum 5-foot buffer shall be provided between the street edge and a paved sidewalk or walkway area. The buffer area shall be vegetated with native grass seed, ground cover or low height shrubs.
- E. Sidewalks or walkways may be placed behind designated transit stop locations, when applicable.
- F. Winter snow storage areas shall be located so as to not block sidewalks or walkways.
- G. Where sidewalks or walkways cross high volume streets, crosswalks may be required.
- H. The paved portion of sidewalks or walkways shall be designed, graded and paved in accordance with the following specifications.
  - 1. The paved area shall be a minimum width of 5 feet in rural areas, and a minimum of 8 feet and maximum of 12 feet in width in commercial areas.
  - 2. Maximum side slopes of 1:3. When the vertical drop is more than 30 inches, exceeds a down slope grade of 1:2, and is located less than 4 feet from the edge of the sidewalk or walkway, a guard rail shall be provided.
    - a. When required, railings shall be a minimum of 3.5 feet in height.
    - b. Uphill slopes shall not exceed 1:3, and retaining walls immediately adjacent to trails shall be avoided wherever possible. When retaining walls are necessary, retaining walls shall be screened with landscaping or be designed with an attractive face.
    - c. Grades in excess of 5 percent are not permitted.
    - d. All pedestrian amenities shall meet ADA Standards for Accessible Design and the applicable requirements of the New Hampshire State Building Code.
- I. Curb ramps (or curb cuts) with detectable warnings shall be provided wherever a curb is part of a path of travel and shall be incorporated into the path of travel to/from crosswalks, when provided.

## II. NON-MOTORIZED (PEDESTRIAN AND BICYCLE) ACCESS ROUTES

- A. Pedestrian and bicycle access rights-of-way of not less than 14 feet in width may be required to provide linkages to existing development and/or access to essential services including but not limited to schools, parks/playgrounds, shopping centers, transportation access, or other community facilities. Where such pedestrian and bicycle access routes are required, the developer and/or owner shall
  1. Clear the right-of-way area of obstructing rocks, trees, branches and undergrowth;
  2. Bring the right-of-way to a suitable grade of less than 5 percent; and
  3. Construct a sidewalk for pedestrians and bicycles of at least 5 feet in width within the right-of-way, in accordance with the sidewalk design specifications in this section.
- B. Bollards shall be located at both ends of pedestrian and bicycle access routes to prevent motorized vehicle travel through the right-of-way. Bollards shall be a minimum of 30 inches in height, and shall be spaced a minimum of 5 feet apart. Wherever non-motorized access routes serve as an emergency access, bollards shall be designed so as to be removable in the event of an emergency.
- C. Winter snow storage areas shall be located so as to not block pedestrian and bicycle access routes.

Communities may want to consider allowing street furniture, planter boxes, light fixtures or other amenities to be used in place of **bollards**. The need and ability to remove such amenities in the event of an emergency should be considered.

## III. LANDSCAPING

New streets shall be bordered by trees on both sides. Street trees shall conform to the following standards.

- A. Trees shall be drought-tolerant, native or non-invasive species, upward branching so as to limit the need for irrigation and obstruction of sidewalks.
- B. Trees shall have a caliper of no less than three inches when planted.
- C. Trees located under utility wires should be low-growing varieties.
- D. Trees planted along a given street shall include a minimum of three species in equal quantities.
- E. Planting of trees susceptible to insect damage should be avoided.
- F. Trees shall be located no more than thirty-five (35) feet apart. Trees should be located so as to avoid obvious obstruction of visibility and so that branches do not protrude into the pedestrian path of travel, and to avoid interference between root systems and utilities. Trees may be planted individually or clustered.
- G. Incentive Bonuses
  1. Each existing healthy and native or non-invasive tree, with a caliper of three inches or greater, preserved within the required planting area may be substituted for one required street tree.
  2. Where an applicant proposes leaving a significant portion of healthy trees within the construction area, the planning board will consider alternative landscaping designs.

Refer to the landscaping chapter of the guidebook for more information on landscaping standards.

## MODEL SITE PLAN REGULATIONS

The planning board shall ensure that the applicant has properly designed and coordinated pedestrian access and circulation within the proposed development and in relation to adjoining development. Site designs shall provide for pedestrian orientation with due consideration of unique circumstances of the site and adjoining properties, in accordance with the following requirements.

### SECTION \_\_\_\_: PEDESTRIAN ORIENTATION

For the purposes of this section, parking lot size is defined as follows.

**Small Parking Lots:** Up to 10 parking spaces, including one van-accessible parking space (an 8-foot wide space with an adjacent access aisle (a No-Parking Zone) that is also 8 feet wide).

**Medium Parking Lots:** More than 10 and less than 50 parking spaces, including one van-accessible parking space (an 8-foot wide space with an adjacent access aisle (a No-Parking Zone) that is also 8 feet wide) and at least one accessible parking space for every 25 parking spaces provided (an 8-foot wide space with an adjacent access aisle (a No-Parking Zone) that is 5 feet wide).

**Large Parking Lots:** 50 or more parking spaces, including one van-accessible parking space (an 8-foot wide space with an adjacent access aisle (a No-Parking Zone) that is also 8 feet wide) and at least one accessible parking space for every 25 parking spaces provided (an 8-foot wide space with an adjacent access aisle (a No-Parking Zone) that is 5 feet wide).

## I. PARKING LOT DESIGN

Parking lot design must include detailed information on pedestrian access to and through the development, including access to adjoining sites. Demarcation shall be required by using a combination of 1) change in paving surface materials, 2) landscaping, or 3) safety and directional lighting.

- A. Parking areas should be designed to minimize breaks in the pedestrian environment along the public street and create safe and comfortable passage for pedestrians.
- B. Parking lots shall be located behind buildings whenever possible. If circumstances somehow prohibit rear of building parking, front or side of building parking will be permitted as determined necessary by the planning board. Expansion of parking for existing uses or structures may be located in front of the primary building facade only when deemed necessary by the planning board.
- C. Where rear of building parking is provided, an entrance shall be provided in the rear of the building that is accessible from the parking lot, in addition to an entrance provided at the front or side of the building.
- D. Medium and large parking lots shall be visually and functionally segmented into several smaller lots. Parking lots shall occupy no more than one-third of the frontage along public streets, with no more than 75 feet per section of parking area.

Communities should review local regulations to ensure requirements in this section do not conflict with local access management standards or requirements.

- E. To maintain pedestrian comfort and calm the speed of entering traffic, drive-ways to parking areas with high traffic volume may be required to provide pedestrian islands to create a break between entrance and exit travel ways. The requirements for an accessible route apply to these areas. Curb ramps (or curb cuts) with detectable warnings must be provided wherever a curb is part of a path of travel.
- F. To maintain pedestrian comfort and calm the speed of entering traffic, turning radii shall be no less than 10 feet and no greater than 15 feet.
- G. Parking lots shall be designed with a perimeter buffer from any public right-of-way. The buffer shall be a minimum of 5 feet for smaller lots, and a minimum of 10 feet for large parking lots. The buffer area shall be covered with vegetation including native or non-invasive trees, shrubs, or ground covers and up to 30 percent non-living landscape material including crushed stone, mulch, or gravel.
- H. Rows in medium and large lots shall not contain more than 28 contiguous parking spaces. Landscaped islands shall be provided between every 14 contiguous parking spaces.
- I. Large parking lots shall have vegetated areas at the end of each row, the width of which shall be a minimum of 10 feet. To promote on-site water retention and filtration, vegetated areas shall be depressed in a manner that guides stormwater from impervious parking areas, sidewalks and walkways to the vegetated areas.
- J. Trees planted in buffers or other required planting areas shall have a caliper of no less than 1½ inches when planted. Ground covers shall be planted in such a manner so as to present an attractive appearance and reasonably complete coverage within one year of planting.
- K. In sites with high traffic volume where pedestrian traffic will also be high, (e.g. shopping centers) traffic calming techniques shall be provided throughout the parking lot area for pedestrian safety. Speed tables or bumps are required at the edges of pick-up/drop-off zones in front of building entrances.
- L. When adjoining parking areas are interconnected for vehicular access, pedestrian access shall be provided along the front of buildings and between buildings.
- M. One-way traffic flow may be required for high volume parking lots.
  1. When one-way traffic flow is required or provided, van-accessible parking spaces shall be located such that the access aisle is located on the passenger side of the parking space.
  2. When one-way traffic flow is required and when more than one van-accessible parking space is required based on the size of the lot, two accessible parking spaces may share an 8-foot wide access aisle, located between the two parking spaces.
- N. Stop signs shall be provided where vehicular travel ways intersect with pedestrian travel ways.

Communities should review local regulations to ensure **vegetative buffer** planting requirements in this section do not conflict with local stormwater management and landscaping requirements.

Refer to the landscaping chapter of the guidebook for more information on **landscaping standards for parking lots**.

Communities should establish maximum number of parking space requirements for new development based on the type and scale of development. Requiring a maximum rather than minimum number of spaces will encourage the use of on-street parking where available and reduce impervious surfaces created by excess parking spaces. These standards should be established with flexibility for consideration of context-specific parking needs based on development location, type and size/density, and availability of nearby parking and alternative transportation choices such as public transit or a local/regional transportation management program. It should be noted that on-street parking spaces cannot provide accessible parking unless there is no curbing and an adjacent and parallel access aisle is provided. Thus, where on-street parking is encouraged, new parking lots may need to provide accessible parking spaces in addition to the minimum required number of accessible spaces.

## II. PEDESTRIAN FLOW

- A. Parking lots shall be designed to allow pedestrians to safely move from their vehicles to the building. In small lots, this may be achieved by providing a sidewalk at the perimeter of the lot. In medium and large lots, pedestrian walkways or corridors within the parking area should channel pedestrians from the car to the perimeter of the lot or to the building. These corridors may be delineated by a paving material that differs from that of vehicular areas.
  1. An accessible path of travel must be provided directly from van-accessible parking space(s) to a sidewalk.
  2. Curb ramps (or curb cuts) with detectable warnings must be provided wherever a curb is part of a path of travel and must be incorporated into the path of travel to/from crosswalks, when provided.
- B. When a sidewalk exists along a portion of a public street abutting the lot, the sidewalk shall be extended along the portion of the lot abutting said street. Sidewalks shall be placed parallel to the street or access road, with exceptions permitted to preserve natural features or to provide visual interest.
- C. Continuous internal pedestrian walkways shall be provided from existing or proposed public sidewalks to the customer entrance of all buildings on the site. Walkways shall connect pedestrians to transit stops, street crossings, buildings and store entry points, and central features and community spaces on or adjoining the site. Landscaped areas shall be provided along the length of the sidewalk or walkway that include trees, shrubs, benches, flower beds, ground covers, or other such materials without obstructing the path of travel or creating protruding objects. The landscaped area may be contiguous or segmented, but shall be provided along no less than 50 percent of the length of the sidewalk or walkway.
- D. In medium and larger parking lots, walkways shall be provided the full length of the building featuring a customer entrance, and along any facade abutting public parking areas. A minimum 6-foot wide planting area shall be located between the walkway and the parking lot area along the length of the walkway, to separate vehicles and pedestrians. The planting area may be contiguous or segmented, but shall be provided along no less than 50 percent of the length of the walkway.
- E. Sidewalks and walkways required in this section shall comply with the following requirements.



1. The paved area shall be a minimum of 5 feet in width for small parking lots, 6 feet in width for medium parking lots, and 8 feet in width for large parking lots.
2. Maximum side slopes of 1:3. When the vertical drop is more than 30 inches, exceeds a down slope grade of 1:2, and is located less than 4 feet from the edge of the sidewalk or walkway, a guard rail shall be provided.
3. When required, railings shall be a minimum of 3.5 feet in height.
4. Uphill slopes shall not exceed 1:3, and retaining walls immediately adjacent to trails shall be avoided wherever possible. When necessary, retaining walls shall be screened with landscaping or be designed with an attractive face.
5. Grades in excess of 5 percent shall be avoided.
6. Sidewalks or walkways may be placed within a utility easement so long as the sidewalk or walkway is not located above utilities in a manner that would require removal of some portion of the sidewalk or walkway for maintenance or other access of said utilities.
7. Sidewalks and walkways may be placed behind designated transit stop locations, when applicable.

In addition to the requirements of this section, communities that do not already have sidewalk design, grading and construction standards will need to adopt specific construction specifications to address requirements for earthwork (i.e., grading, clearing), materials (e.g., concrete, bituminous pavement), curbing, and loaming and seeding application and installation procedures. Communities that already have sidewalk construction specifications should review existing regulations to ensure they do not conflict with suggested requirements in this section. The NH State Building Code, RSA 155-A, also applies to the construction and renovation of sidewalks [www.gencourt.state.nh.us/rsa/html/indexes/155-A.html](http://www.gencourt.state.nh.us/rsa/html/indexes/155-A.html).

Provisions for sidewalk maintenance should also be included in approved plans.

- F. To encourage pedestrian circulation, amenities such as seating and planters shall be provided near public service entrances. Benches or other seating shall be provided throughout parking lots as follows: one bench or other seating in small parking lots; a minimum of one bench or other seating located every 40 feet along walkways or sidewalks in medium parking lots; and a minimum of one bench or other seating located every 60 feet along walkways or sidewalks in large parking lots. When required or provided, such amenities shall be located so as to avoid obstructing the path of travel or creating protruding objects.
- G. As an alternative for large parking lots, pedestrian amenities may be clustered in a defined area in a manner that provides or creates a neighborhood-type space or area for socializing and gathering.
- H. Bicycle parking racks shall be provided near public and service entrances.
- I. All internal pedestrian crosswalks shall be distinguished by the use of durable, low maintenance surface materials such as pavers, bricks, stamped asphalt, or scored concrete to enhance pedestrian safety and comfort, as well as the attractiveness of the walkways.

Communities with high **bicycle usage** rates may want to consider establishing volume standards that link the number of required bicycle parking racks to the type and scale of the proposed use.



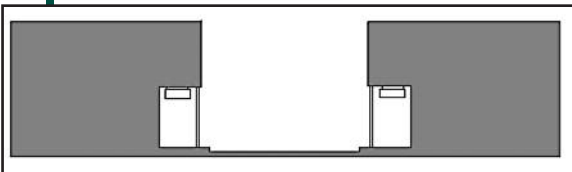
- J. Landscaping shall be used to delineate vehicular and pedestrian circulation patterns.
- K. Winter snow storage areas shall be located so as to not block sidewalks or walkways or otherwise prevent safe pedestrian circulation.
- L. All pedestrian amenities shall meet ADA Standards for Accessible Design and the applicable requirements of the NH State Building Code.

### III. BUILDING LOCATION, SCALE AND FAÇADE

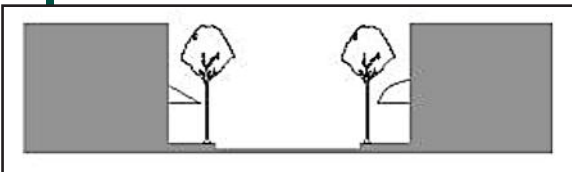
New buildings that exceed the scale and volume of existing buildings may demonstrate compatibility by varying the massing of buildings to reduce perceived scale and volume and integrate larger buildings with pre-existing smaller buildings. Appendages appropriate to the type of use such as porches, patios, and columns are encouraged to promote the transition between a public street or parking area and the building(s).

Buildings shall address the street or parking area in one of the following seven ways.

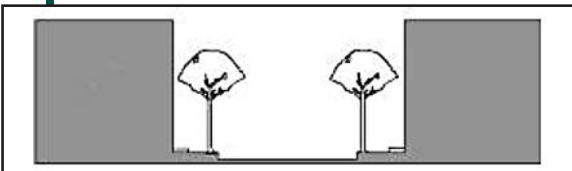
Streetscape examples and drawings from Huntersville, North Carolina Zoning Ordinance, Article 12.2.1 General Definitions.



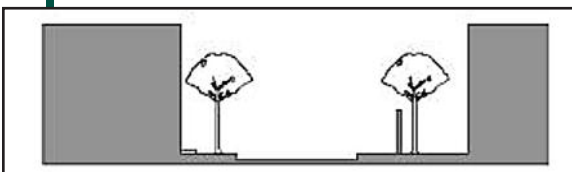
1. **Arcade:** A covered passage with shops on one or both sides that may have a series of arches with columns or piers. Generally, the façade overlaps the sidewalk while the storefront remains setback. Sidewalk is fully covered with overhang.



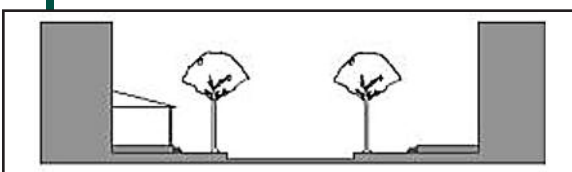
2. **Storefront:** A business or retail use where the façade is aligned directly on the frontage line with the entrance at grade; typical of sidewalk retail. Storefronts often have awnings or a colonnade (series of columns). A transition line should separate the signage from the façade below.



3. **Stoop:** The façade is aligned directly on the frontage line with the first floor elevated to secure privacy at window height. This type is suitable for residential uses such as row houses and apartment buildings. An easement may be necessary to accommodate an encroaching stoop.

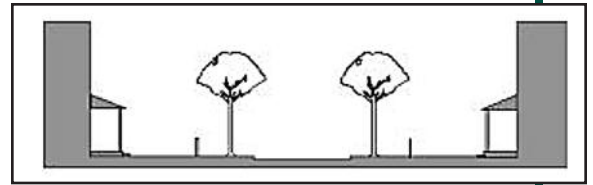


4. **Forecourt:** The façade sets back and is replaced by a low wall at the frontage line. The forecourt is suitable for gardens and car drop offs. It should be used sparingly and in conjunction with a storefront or stoop. Trees within the forecourt should be placed to have their canopies overhanging the sidewalks.

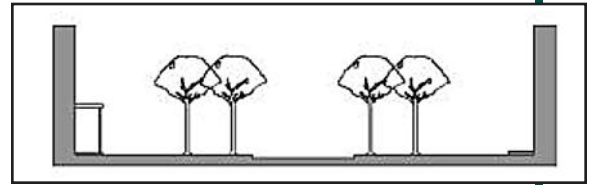


5. **Dooryard:** The façade is set back from the frontage line with an elevated garden or terrace between. This type effectively removes the front yard from the sidewalk and reinforces privacy. A roofed and elevated terrace is especially suitable for restaurants and cafes.

6. **Porch and Fence:** The façade is set back substantially from the frontage line with an encroaching porch. The porch should be within conversational distance of the sidewalk. The fence at the frontage line establishes the demarcation of private from public use. The fence row may be designated by a vegetative hedge or structural material, but should not be less than \_\_\_\_ feet nor more than \_\_\_\_ feet in height.



7. **Front Lawn:** The façade is set back substantially from the frontage line. The front lawn should be visually continuous with adjacent yards and should be unfenced. The large setback provides a good buffer from heavy traffic volumes and is an appropriate design in areas where large lot single family homes are placed along a boulevard.



Communities that adopt pedestrian orientation regulations may also be interested learning about traffic calming. Traffic calming is an approach to designing streets and managing traffic in order to reduce vehicle speeds, improve safety and enhance quality of life. For more information on traffic calming refer to the following resources.

TrafficCalming.org ([www.trafficcalming.org](http://www.trafficcalming.org)) that has traffic calming history, definitions, examples and resources.

The Institute of Transportation Engineers (ITE) Traffic Calming Library, [www.ite.org/traffic](http://www.ite.org/traffic), that includes databases, articles and reports on traffic calming.

NH DOT Bicycle/Pedestrian Information Center, [www.state.nh.us/dot/nhbikeped/links.htm](http://www.state.nh.us/dot/nhbikeped/links.htm).

## RESOURCES

### Centers for Disease Control and Prevention

The Centers for Disease Control and Prevention CDC promotes physical activity as a mechanism for disease control and prevention based on research revealing the correlation between obesity and the built environment. For more information on the CDC's "Designing & Building Healthy Places" initiative, see [www.cdc.gov/healthyplaces](http://www.cdc.gov/healthyplaces).

### City of Pasadena, California

The city of Pasadena's Arroyo/Seco Master Plans Design Guidelines, Chapter 9: Parking, Traffic Control and Paving; [www.ci.pasadena.ca.us/publicworks/PNR/ArroyoSeco/pdfFiles/Design%20Guidelines%20Final/chp9rfinal\\_2-5-05.pdf](http://www.ci.pasadena.ca.us/publicworks/PNR/ArroyoSeco/pdfFiles/Design%20Guidelines%20Final/chp9rfinal_2-5-05.pdf).

### City of Nashua, N.H.

The city of Nashua Land Use Code (adopted November 6, 2005, effective January 2, 2006) has helpful examples of parking and landscaping requirements. The city's "Standard Specifications for Sidewalk Construction" (approved and adopted August 28, 1995) may be a helpful example for communities that want to develop sidewalk construction specifications. Both of these documents are available on the city's website [www.gonashua.com](http://www.gonashua.com).

### City of Sequim, Washington

The city of Sequim's "Design Standards & Guidelines for Large Retail Establishments," adopted October 2003, provide general design specifications pedestrian circulation. The Guidelines can be found at <http://www.ci.sequim.wa.us/planning/designguidelines/storageandtrash.cfm>.

### Local Government Commission, Center for Livable Communities

The Center for Livable Communities is an initiative of the Local Government Commission (LGC) that helps local governments and community leaders in California be proactive in their land use and transportation planning, and adopt programs and policies that lead to more livable and resource-efficient land use patterns. For more information, refer to the LGC website at [www.lgc.org](http://www.lgc.org).

### Livable Walkable Communities Program

Livable, Walkable Communities (LWC), a program of New Hampshire Celebrates Wellness (NHCW), is designed to increase awareness of the importance of physical activity among all ages through helping New Hampshire communities evaluate and explore ways neighborhoods can improve the quality of life for residents. The Livable Walkable Communities Program has a toolkit designed to assist communities with achieving livable/walkable goals. For more on LWC or other NHCW programs, refer to the NHCW website at [www.nhcw.org](http://www.nhcw.org).

### Model Development Code and User's Guide for Small Cities

Prepared by Otak Inc. (September 1999) for the Transportation and Growth Management Program of the Oregon Department of Transportation and Oregon Department of Land Conservation and Development, the model code and guide provides simple to understand language to assist communities with the development of local land use codes. In particular, the information on pedestrian access and circulation and landscaping with street trees were useful in the preparation of the model pedestrian orientation regulations. The code and user's guide can be found on the Oregon DOT website at <http://egov.oregon.gov/LCD/TGM/modelCode05.shtml>.

### National Associate of Local Government Environmental Professionals (NALGEP)

NALGEP is a not-for-profit organization that represents local government personnel responsible for ensuring environmental compliance and developing and implementing environmental policies and programs. *Profiles of Business Leadership on Smart Growth: New Partnerships Demonstrate the Economic Benefits of Reducing Sprawl* (1999) is a NALGEP publication referenced in the development of this chapter. For additional information, refer to the NALGEP website, [www.nalgep.org](http://www.nalgep.org).

### Pedestrian & Streetscape Guide

The "Pedestrian & Streetscape Guide" (September 2003) prepared by Otak Inc. with sponsorship from the Georgia Department of Transportation is a comprehensive design toolkit that addresses a wide variety of pedestrian and streetscape design considerations. The toolkit includes a discussion of ADA accessibility requirements and as well as helpful diagrams for visualizing how certain design features will look on the ground. The toolkit also includes information on traffic calming, site design

and pedestrian access to transit as well as pedestrian and street design issues related to school zones and recreational trails and pathways.

### **Pedestrian- and Transit-Friendly Design: A Primer for Smart Growth**

Written by Reid Ewing for the Smart Growth Network, this document identifies the essential features of pedestrian- and transit-oriented design. General guidelines for developing local requirements as well as numerous diagrams help the reader understand the interaction of various design features. The Smart Growth Network website can be found at [www.smartgrowth.org](http://www.smartgrowth.org).

### **Project for Public Spaces (PPS)**

PPS is a non-profit organization dedicated to creating and sustaining public spaces that build communities. PPS provides technical assistance, training, research and other services to communities around the world. For more information, refer to the PPS website at [www.pps.org](http://www.pps.org).

### **Realtor Magazine Online**

Forging Livable Communities by Mariwyn Evans, featured on Realtor Magazine Online, June 1, 2004; retrieved from [www.realtor.org](http://www.realtor.org), January 17, 2006, was referenced in the development of this chapter.

### **State of New Hampshire's Governor's Commission on Disability**

The Governor's Commission on Disability's goal is to remove the barriers, architectural or attitudinal, which bar persons with disabilities from participating in mainstream society. For more information, refer to the commission's webpage, [www.nh.gov/disability](http://www.nh.gov/disability).

### **Urban Land Institute**

The Urban Land Institute (ULI) is a membership-based nonprofit research and education organization representing a broad spectrum of land use and real estate development disciplines, working in private enterprise and public service, to facilitate the open exchange of ideas, information and experience among local, national and international industry leaders and policy makers dedicated to creating better places. *Valuing the New Urbanism: The Impact of the New Urbanism on Prices of Single-Family Homes*, Mark J. Eppli and Charles C. Tu, 1999, was a ULI publication referenced in the development of this chapter. For more information, refer to the ULI website at [www.uli.org](http://www.uli.org).

### **U.S. DOT Federal Highway Administration**

The Federal Highway Administration has numerous publications available to support the design of good transportation systems. For example, FHWA addresses ADA considerations for sidewalk and crosswalk design and construction in "Accessible Sidewalks and Street Crossings – An Informational Guide" (document number FHWA-SA-03-01). The FHWA's publication "Highway Statistics" (Summary to 1995, and annual editions, 1996 and 1997), Washington, DC, was also referenced in the development of this chapter. "How to Develop a Pedestrian Safety Action Plan" (February 2006, FHWA-SA-05-12) was developed as a resource to assist communities with improving pedestrian safety. These and other FHWA publications can be found at [www.fhwa.dot.gov](http://www.fhwa.dot.gov).

## EPA

A recent EPA publication titled “Parking Spaces/Community Places: Finding the Balance Through Smart Growth Solution” may assist communities seeking to balance parking needs with livable/walkable goals. The publication includes a discussion of the traditional needs and requirements for parking, environmental and economic impacts of parking, and a variety of innovative parking strategies communities have implemented to create a balanced parking supply. For more information or to access this and other EPA Smart Growth publications, refer to the EPA webpage at [www.epa.gov/smartgrowth](http://www.epa.gov/smartgrowth).