Getting Streetscape

A selection from a new book offers advice on basic tools and techniques.
Street design in the broadest sense refers to the design of a street, including the roadbed, sidewalks, landscape planting, and character of the adjacent building facade or planted setback. Each of these individual parts of a street is important in successful streetscape design. Memorable sidewalks and streets that are oriented toward the pedestrian experience characterize excellence in streetscape design.

Several individual elements can be used to shape the character of sidewalks and overall street elements, including street furniture, landscape planting, lighting, and other amenities. Successful streetscape design balances the desire for pedestrian amenities, such as benches and street trees, with an understanding of the functional aspects of streets and sidewalks.

Streetscapes can be designed and implemented at a variety of scales, ranging from the sidewalk in front of an individual property to larger street networks in neighborhoods, districts, and even entire communities and municipalities.

One of the most important characteristics of sidewalks is the pedestrian "path of travel." A typical sidewalk has three zones: the building zone, the path of travel, and the curb zone. Successful streetscape designs accommodate a clear path of travel, typically in the center of the sidewalk. The curb zone, on the outer edge of the sidewalk, is typically the location of streetscape amenities, while the building zone is adjacent to the property line.

To comply with the Americans with Disabilities Act requirements, sidewalks should accommodate at least a six-foot-wide clear path. Provide additional sidewalk width when including streetscape amenities such as street furniture or landscape planting. Sidewalks with street trees typically require a 10-foot-wide sidewalk to accommodate the pedestrian path and the four-foot-wide tree bed, for example.

**Pedestrian levels of service**

Like traffic levels of service on roads and freeways, there are pedestrian levels of service for sidewalks. These levels of service...
range from A (high: completely unimpeded movement) to F (low: complete congestion). The level of service calculation is based on average sidewalk width and the total volume of pedestrians in a given period of time.

Wide sidewalks in conjunction with a high pedestrian level of service can seem empty and uninviting; narrow sidewalks with several streetscape elements can result in both physical and visual clutter and a low pedestrian level of service.

Identify the current pedestrian level of service and the level the community would like as a basis for determining the amount of pedestrian amenities that can be accommodated comfortably on any given sidewalk.

**Standards and regulations**

Streetscape design and implementation are regulated at the local level, and specific requirements and regulations will likely vary for each community. Typically, multiple agencies govern specific aspects of streetscape design and implementation within each community. These agencies often include planning departments for planning and design; public works departments for utilities, road maintenance, and dimensions requirements; park and recreation departments, or forestry departments for recommended street trees and plantings; and economic development agencies for working with private property owners to control the location of private street furniture and displays.

On the federal level, ADA requirements for streetscapes focus on the width of a clear path of travel on sidewalks to allow two wheelchairs to pass each other unimpeded.

**Streetscape elements**

Streetscape elements can be organized into a few major categories, including paving, landscape planting, street lighting, and street furniture. Here we briefly introduce the different categories of elements, their typical placement on sidewalks, and the types of design and construction that are available. Specific street furniture design and vendors can be found in trade publications and on the Internet.

**Paving.** Paving material is the most visually prominent streetscape element. Choice of paving material often depends on the scale of the sidewalk, the overall character and design intent of the street, and local climate conditions.

For cities in colder climates, use more durable materials that allow for expansion and contraction in extreme temperatures and will stand up to the use of salt and other melting agents. For locations that receive higher levels of rainfall throughout the year, use materials with more surface texture to provide greater traction. In some more extreme cold climates, communities have added electric heating coils embedded beneath the paving to melt snow and ice.

The most common and economical choice of material is scored concrete. Dyes can be added to concrete (often a reddish hue) to add color and character to the pavement and retain the cost and maintenance benefits of concrete. Stone or brick pavers are a more expensive paving material, often reserved for more ceremonial or special streets, such as a main street.

Harder stones that hold up under the pressures of everyday sidewalk use, such as granite, can be used as curbs. Since special paving materials are often more expensive, economical solutions can be derived by combining concrete and special pavers in a variety of interesting patterns.

Special paving can also be used in crosswalks or an entire intersection as a design element or traffic-calming measure. Colored concrete or pavers in a crosswalk provide visual clue to changes in the character of the street while raised crosswalks make drivers more cognizant of driving through a pedestrian zone.

**Landscape planting.** Street trees and other plant material add four-season color, visual interest, and an ever-changing texture to a streetscape, softening the hard surfaces of sidewalks and

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**Tree Planting Clearance at Typical Intersection(s)**

Cross Street Intersection Clearance

Alley or Commercial Driveway Clearance

Residential Driveway Clearance

improving air quality. Unlike most streetscape elements, street trees and plantings change over time, require continual maintenance, and can cause problems such as roots cracking sidewalks or leaves clogging sewer grates.

Even with the potential problems, street landscape planting is often a first choice for many communities trying to improve the character of their streets. Here we describe a variety of street planting types, general planting and location guidelines, and a few rules of thumb to consider when selecting and installing landscape planting along streets.

The most visually prominent of all street planting is the street tree. Street tree selection should include consideration of the community’s recommended tree list and overall aesthetic desire, climatic concerns, maintenance requirements, the space available for root growth, and the size of a mature tree crown and canopy.

Street trees on residential streets are typically located in a planted strip between the sidewalk and the curb. When selecting a tree species, consider the size of the individual mature tree canopy and root system, so trees won’t compete for light and nutrients. On many commercial streets, especially in recent developments, street trees are often planted in containers or linear planting strips and, as such, may have to compete with underground utilities for space.

The tree species chosen may depend on the desires of adjacent business and property owners, who are often concerned about trees blocking their storefront windows. Smaller, more ornamental trees or trees with higher or lighter canopies are often a logical choice for commercial streets. These constraints can ultimately limit the number and location of trees on commercial streets.

When selecting the tree species to plant on streets with buildings located adjacent to the property line, regardless of the type of land use, consider the mature shape of the tree crown to prevent the canopy from growing into the building wall and potentially requiring severe pruning over time.

When trees are located within the sidewalk, the base of the tree is typically covered by some form of water-permeable material, ranging from metal tree grates to stone or brick pavers, decomposed granite, or other crushed stones that allow for continual growth of the tree trunk. In some cases, metal tree grates can be acceptable for use within the ADA accessible paths of travel.

Other landscape elements of the streetscape include planted beds in the ground or raised planters, hanging planters attached to light fixtures or buildings, and plantings in medians. Any landscape planting within the sidewalk must allow a clear path of pedestrian travel, and thus is typically found in the curb zone or in private planters within the building zone if the width of the sidewalk permits.

Street lighting. Exterior street lighting provides general illumination for safety and wayfinding purposes for both pedestrians and motorists. Lighting is used to illuminate buildings, landscapes, roadways, parking areas, signs, and other outdoor areas, and in certain instances for advertising. In addition to being a practical consideration, light fixtures, the type of lighting source, and illumination patterns are also design choices.

Most communities have requirements for minimum levels of street illumination. Lighting should be designed to attain the recommended light level, distribution, and glare control, and should address the aesthetic impact of the illumination. Illumination levels are measured in footcandles (lumens per square feet) and lux (lumens per square meter). A footcandle is the unit of illumination lighting a surface, all points of which are one foot from a uniform light source, equivalent to one candle in brightness or illumination. Recommended illumination levels may be found in the Illumination Engineering
Most street lighting manufacturers can provide photometric studies to determine the resulting illumination levels for specific designs and applications. Computerized point-by-point calculations are recommended for more accurate results.

Luminaires or lamps for street and parking lot lighting are categorized according to the lighting patterns they create on the ground, ranging from Type I to V. While many communities have requirements for roadway illumination levels, fewer communities have requirements for sidewalks and other pedestrian areas. A general rule of thumb for sidewalks and bikeways is 0.2 footcandles in residential areas, 1.0 footcandles in commercial areas, and 5.0 footcandles near building entrances.

There are three broad classes of lights on streets: those that illuminate the roadway; those that light the sidewalk and the pedestrian realm and other ancillary light fixtures such as bollards and fixtures mounted on the facades of buildings; and security lighting. Standard roadway lights, often called cobrahead, are typically mounted to a mast arm and suspended over the roadway at heights of 25 to 40 feet. Cobrahead lights are designed for simple aluminum poles and are frequently used on highways and other major traffic thoroughfares.

On more important or intimate streets, many communities opt for more ornamental street poles and lighting fixtures, often with a particular theme or design. These light fixtures are usually mounted on ornate poles less than 25 feet high. Many of these types of light fixtures also include the option of a pedestrian-scale light fixture, usually mounted around 12 to 15 feet above the sidewalk. Note that with light fixtures mounted at this level, it is difficult to control glare and achieve proper illumination levels. Light fixtures often include an option for brackets (either single or double-sided) to attach banners and other temporary graphic elements between the pedestrian fixture and the street level fixture.

Private street lighting comes in a variety of shapes and sizes and is typically mounted to the facade of the building or located on smaller scale poles in private landscape planted buffers.

Streetlights are typically located in the curb zone of the sidewalk. The spacing of streetlights should be uniform, with the distance depending on the minimum illumination levels required. Regular spacing is often broken by curb cuts along the street, so the placement of light fixtures requires some level of flexibility. If the sidewalk includes street trees, locate streetlights between the trees so the tree canopy doesn’t interfere with illumination coverage. The average distance of shade trees from streetlights is 40 feet on center, or 15 feet on center from smaller ornamental trees.

The color of the light cast is often an important consideration in streetscape design. Light sources that have poor color rendition, such as high-pressure sodium, can create a yellowish glow on the street and should be avoided. White light sources such as metal halide, fluorescent, and compact fluorescent luminaries are recommended for sidewalks and other pedestrian areas, and in situations requiring color discrimination.

Street furniture. Street furniture includes the smaller amenities located on sidewalks that add scale, functionality, and a human element to the streetscape. Types of street furniture include benches, tables, and chairs, trash receptacles, bicycle racks, and drinking fountains. Street furniture is typically fixed in place, with removable elements such as trash receptacle liners. Durability and ease of maintenance are important factors in the selection of permanent street furniture.

The placement of street furniture is based on function and need and may be included as part of community-wide streetscape requirements. The most common location for street furniture is within the curb zone of the sidewalk, often clustered near intersections where pedestrians wait while crossing the street. An area of at least 10 feet adjacent to the intersection should be kept clear.

When selecting street furniture, create a palette of materials and pieces that work together in terms of colors, styles, and character. Some communities have developed and implemented a palette of appropriate streetscape elements, including street furniture, which provides an easy first step in selecting the right pieces for a project.

Review local codes and ordinances for any street furniture location requirements or restrictions; city services must be coordinated, especially for items such as fountains and features requiring electrical power. The most common elements of street furniture include benches, trash receptacles, newspaper racks, bike racks, bollards, kiosks, and transit shelters, as well as signage, public utilities, and private amenities.

Bench are essential for making a sidewalk pedestrian-friendly. Benches are available in a wide array of shapes, materials, and styles, including those with arms and backs and those that are simply a seat bottom. Benches can include a center or intermediate arm that can discourage loitering or sleeping on the bench. Benches are often located in high-use or high-pedestrian traffic areas and are typically fastened to the pavement for security purposes. If located in the curb zone, they face either a building or the street; if placed in the building zone, they face the street.

Trash receptacles are among the most common elements of a streetscape. Many include an attached receptacle, often on the top of the
container, for recyclable materials, although some communities are starting to include separate receptacles for recyclables.

Provide trash receptacles at frequent enough intervals so they are convenient to use. Public trash receptacles are often located in the curb zone; they should be well-maintained at all times. Privately maintained receptacles are located in the building zone, usually adjacent to building entrances.

As more communities work to make their streets bicycle-friendly, it is critical to provide adequate bike racks throughout major activity centers. The majority of these racks are modern in styling, ranging from vertical metal slats on a flat base to continuous sinuous curving pieces of metal. Many bicycle riders often lock their bikes to street sign poles when there is no formal bike rack available.

While newspaper racks serve an important function in the community, improperly placed or too many different racks crammed onto small sidewalks can be both an eyesore and a safety hazard. Many communities are installing large-scale single newspaper racks with multiple containers to control their aesthetic. Some communities are exploring the possibility of using a single structure that includes both multiple newspaper racks and a space for utility boxes, further streamlining the sidewalk character.

Bollards are concrete or steel streetscape elements that prevent traffic from encroaching in pedestrian areas. Besides being a necessary functional element, bollards can be an attractive, well-designed component of the overall streetscape. They are usually located along the curb edge of a sidewalk to protect pedestrians, or used as a security element around sensitive buildings and important sites. They come in a multitude of styles, from fixtures reminiscent of hitching posts to sleek steel posts.

Kiosks provide a central location for information about community events and other announcements. Well-designed and located sidewalk kiosks help establish the design tone for an individual street or even a larger community.

Kiosks can be designed to include amenities such as newspaper racks, maps, public phones, and signage. When deciding whether kiosks may be appropriate, consider sidewalk width, pedestrian volume, the proposed design, and long-term maintenance to ensure that the kiosk provides a benefit to the community. Sidewalk bulb-outs at intersections are prime locations for kiosks.

Transit stops can range from a sign identifying the stop and route number or name, to benches, to partially enclosed transit shelters that protect waiting passengers from the elements. Transit shelters may include benches or individual seats that need to be flipped down to sit on to prevent people from sleeping there. Transit stops are typically located adjacent to intersections, either before or after the stoplight.

Buses have flexibility in changing lanes, so stops can be accommodated on sidewalks by having the bus pull into the parking or curb lane. Consider the location of street trees and other street furniture when locating transit stops to ensure there are no obstructions to the buses' front and back doors.

While the shape, color, and graphic design of most traffic and directional signs are controlled nationally, community-oriented signs can be designed as an integral part of the streetscape plan. Street signs can be designed as simple flat metal panel faces attached to aluminum or other metal poles, or more elaborate signs with two legs and multiple spots for removable signs. These can include gateway features, monument signs, directional signage to public parking locations, and other community-focused signs. Almost all street signs are located in the curb zone of the sidewalk.

Secondary types
There are two main types of secondary streetscape elements that a community has slightly less control over than street furniture: utility and city-related structures, as well as private streetscape amenities.

The most visually prominent elements on many streets are the electrical and telecommunication wires strung overhead. Utility cabinets, a necessary element in most city streets, house equipment to operate traffic signals, light-rail systems, and telecommunications or utility company systems.

For existing streets, there is little that can be done to move the existing cabinets unless major utility work is being done. For newly planned streets, the challenge is to locate these components in order to meet operational requirements while making the sidewalk more inviting and safe for pedestrians. This typically means placing utility cabinets in the curb zone.

On many commercial streets, private business owners want to use the space outside their stores to place tables and chairs, display wares, or place temporary signs. While individual property owners cover the cost and maintenance for these private amenities, the community has a stake in controlling their type and location to ensure a clear and safe path of travel. Communities control the placement of private amenities through zoning permits, specifying the height of elements and how far they can extend into the sidewalk, which depends on the overall sidewalk width.

Pedestrians can now find their way around downtown Los Angeles using the 300 maps and color-coordinated signs provided by the LA Walks project. The project designers are Hunt Design Associates of Pasadena and Corbin Design of Traverse City, Michigan.

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