

CHAPTER 2

LANDSCAPE CLASSIFICATIONS AND TYPES

LANDSCAPE CLASSIFICATIONS

Four classifications have been developed to define the general character of roadway corridors and the surrounding landscape. The classifications are urban, suburban, rural and community. These classifications were developed because each one has different design solutions based on how heavily a roadway is traveled, the available roadside in which to do an enhancement project, the resources available to install and maintain a project, the appropriateness of a design based on the character of the place and the expectations of the community. Each classification has inherent characteristics and qualities that will influence the design of a roadside enhancement project. The design must respond to a classification's qualities in order to be successful and manageable.

Determining Landscape Classification

Eight factors that contribute to the determining the classifications have been identified as:

1. Population Density
2. Location
3. Development Patterns
4. Land Use
5. Natural Features
6. Transportation Options
7. Utilities and Signage
8. Unique Characteristics

These factors are interconnected with one another and cannot be examined individually to determine a site's classification. For example, a downtown streetscape in rural Tennessee likely has urban characteristics, even though the population density is low. Conversely, a site within the city limits and only a five-minute drive from a downtown area may be primarily characterized by open space and sparse development, lending itself to a more suburban or rural character. The site should be examined holistically to determine the overall character before determining its classification.

The following pages describe each of these factors along with a side-by-side comparison of urban, suburban and rural characteristics. The community classification is explained later, as its characteristics vary. These descriptions will aid in determining the overall character of a roadside enhancement project area.

Population Density

Population density is a measurement of the number of people per unit area. This manual defines its own population densities as people per square mile, using the Census Bureau’s definition of urban areas as a basis. Higher population densities mean less open space that must be shared by larger amounts of people. The places listed below qualify as urban, suburban and rural based on their population density alone, but other factors may sway that determination. For a roadside enhancement project, this can mean the number of people who may benefit from a project on a daily basis.

URBAN

- at least 1,000 people per square mile

Examples:

Chattanooga
 Clarksville
 Cleveland
 Collierville
 Cookeville
 Johnson City
 Knoxville
 Memphis
 Nashville

SUBURBAN

- 500 to 1,000 people per square mile

Examples:

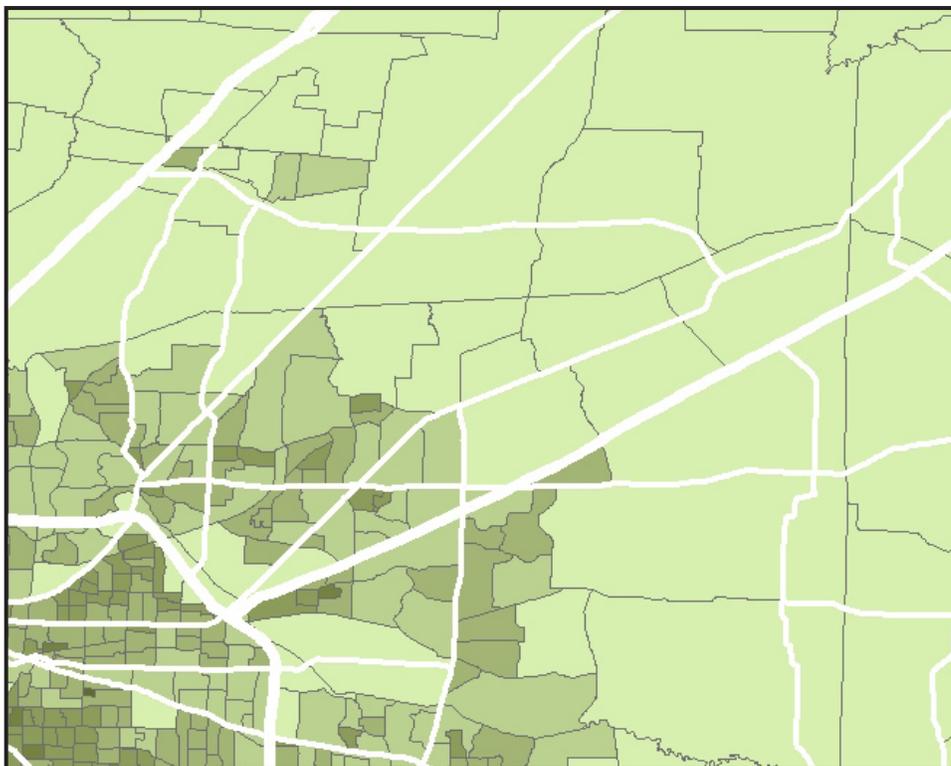
Alcoa
 Belle Meade
 Brentwood
 Bristol
 Carthage
 Clinton
 Manchester
 Sevierville

RURAL

- less than 500 people per square mile

Examples:

Ashland City
 Dandridge
 Gatlinburg
 Monteagle
 Townsend
 Waverly



This population density map illustrates the change in density from high (dark green) in the urban center to low (light green) in the rural outskirts.

Location

Location refers to a site’s proximity to or within a municipal boundary, which defines the local governing body. Within these boundaries, there is often an expectation for certain levels of service or maintenance. For a roadside enhancement project, this may impact design regulations and available resources (i.e., funding and manpower).

URBAN

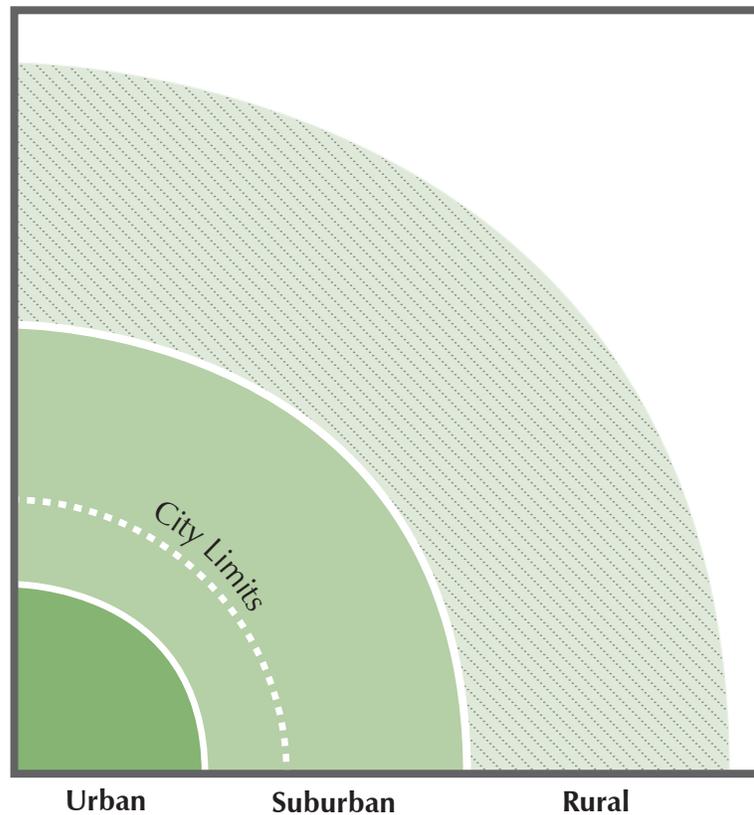
- typically defined by city limits or metropolitan areas

SUBURBAN

- can be found within or outside of city limits around urban areas

RURAL

- outside of city limits



Development Patterns

The pattern of human development varies greatly in each of the classifications as demonstrated in these diagrams. Development patterns influence roadway congestion, roadway design and the natural environment. This manual also defines development pattern by the amount of developed land in a given area.

URBAN

- more than 50% developed
- clustered development with very little open space
- significant open space is typically limited to parks and other recreation areas or in areas where environmental conditions prohibit development
- characterized by dense development on smaller lots

SUBURBAN

- 25 - 50% developed
- clusters of development surrounded by open space
- characterized by single family homes arranged on smaller, subdivided lots

RURAL

- less than 25% developed
- mostly open space with scattered development
- characterized by single-family homes on large parcels



Land Use

Land use is closely related to development patterns in that it is determined by the types of human development in the landscape. Many communities define land use through zoning laws, which determine the approved uses that can operate within any given zone. The typical land use categories are residential, commercial, industrial, institutional/public and open space/recreation. These categories can be further divided or mixed. Here, the intent is to examine the *existing* land uses surrounding a roadside enhancement project that may factor into the design. For example, a goal of a roadside enhancement project may be to screen the view to an industrial plant. Conversely, a community may want show passers-by what it has to offer by making itself visible to the roadways.

URBAN

- consists of a variety of land uses, including single family and multi-family residential, commercial, industrial, institutional and open space
- the non-residential land uses are most visible from major roadways

SUBURBAN

- primarily residential and open space with some commercial areas

RURAL

- primarily open space (agricultural) and residential



This land use map illustrates the diversity of land uses within a city. The primary land use within the city is commercial (red). Residential areas (yellow) fall outside of the city center and recreation areas (green) can be found on the fringe of the city center.

Natural Features

Rivers, wetlands, rock formations, vegetation, wildlife habitats and land forms are only a few examples of natural features. Natural features are often roadside enhancements in and of themselves. They are prevalent in all classifications, but their management and appearance differ. A stream in a rural environment may be left relatively untouched and highly visible, but in an urban environment it may be directed into a concrete channel or hidden in a pipe underground. Likewise, vegetation will be maintained differently in all classifications, from highly manicured to intermittent mowing and pruning. Natural features in the urban environment often appear groomed in some way, while in the rural environment there is very little modification.

URBAN

- green space is rare, with the exception of parks or urban residential lawns
- waterways are typically present but are often channeled underground
- vegetation is often manicured or maintained on a regular basis by a local government’s maintenance crews
- prevalence of hardscape (buildings, pavement, etc.) and lack of vegetative cover contribute to warmer temperatures or “heat islands,” which often makes the establishment of new vegetation more challenging

SUBURBAN

- green space is more common between concentrated developments
- waterways are visible but often channeled under or directed around developed areas by swales and culverts
- maintenance of vegetation varies depending on location, visibility and purpose
- maintenance is the responsibility of a local government’s maintenance crews, contract maintenance, private landowners or TDOT
- the mix of less hardscape materials and more vegetative cover creates an environment that is more suitable to establishing and sustaining vegetation

RURAL

- green space is prevalent and consists of patches of fields and forests
- waterways are visible with minimal alterations (e.g., bridge or culvert for road crossings)
- maintenance is typically the responsibility of landowners or TDOT
- ample green space and lack of hardscape allows for an environment suitable for establishing and sustaining vegetation



Transportation Options

Transportation options are closely related to population density and development patterns because both factor into the level of accessibility. A densely developed and populated area will require more roadways and transportation options for greater accessibility. In urban areas there are often endless options for getting from Point A to Point B, but in rural areas the options are more limited and often require longer driving distances to reach destinations. Transportation is not limited to cars on roads either. Bike lanes, sidewalks and greenways (multi-purpose trails) offer alternative forms of transportation for pedestrians and cyclists. The safety of pedestrians and bicyclists should be considered in roadside enhancement projects.

URBAN

- offers the most diverse roadway system, from interstates to residential streets; people can travel between points very quickly using multiple routes
- roadways are heavily traveled, and congested traffic is more likely
- provide the most opportunity for pedestrian and bicycle transportation
- mass transit options are common
- minimal green space along rights-of-way; primarily turfgrass but some trees; invasive species are common; streetscapes are common in downtown areas

SUBURBAN

- offers a mix of roadways similar to urban areas but less concentrated; people can travel between points quickly, but have fewer route options
- morning and evening traffic congestion from commuters
- provides some opportunity for pedestrian transportation in the form of sidewalks in subdivisions but is primarily vehicle-oriented
- mass transit options are limited
- amount of green space along rights-of-way varies but are typically wider; mix of grasses, shrubs and trees

RURAL

- fewer transportation opportunities; longer driving distances and times and few route options
- no traffic congestion
- no pedestrian transportation opportunities
- no mass transit options
- abundant green space along rights-of-way; mix of grasses, shrubs and trees



Utilities and Signage

The types and quantity of utilities and signage is a good indicator of a site’s classification. The presence of more people and business requires more utilities and infrastructure. In densely developed and populated areas, the roadside environment will often contain more informational and wayfinding signage to direct motorists, as well as advertisements and billboards. These elements have strict design parameters (sight lines, clearances around utilities, etc) and will have a dramatic impact on roadside enhancement design, as discussed and illustrated throughout the manual.

URBAN

- utilities, especially overhead, and signage are especially common and highly visible
- directional, wayfinding and traffic signage is prevalent throughout urban areas
- commercial signage and billboards are typically confined to commercial corridors, but are also found along major roadways to attract passers-by

SUBURBAN

- overhead utilities prevalent and visible
- directional, wayfinding and traffic signage is infrequent and concentrated around developments
- commercial signage and billboards are confined to commercial corridors but are also found along major roadways to attract passers-by

RURAL

- overhead power lines exist along most major roadways; transmission lines are likely to cross roads
- directional, wayfinding and traffic signage is infrequent
- cell towers can be seen from great distances
- commercial signage and billboards common near major interstate interchanges



Unique Characteristics

Unique characteristics are those that make a place distinct from all others. They include historical, cultural, social, architectural or scenic qualities.

URBAN

- diverse populations
- often destination points for social, cultural and recreational activities
- the civic centers for all citizens which affect everyone’s life in some way
- high rates of tourism and greater expectation for aesthetic appeal
- more citizen pressure for environmentally friendly designs and maintenance practices
- prevalence of public art

SUBURBAN

- preference for minimal visual intrusion from roadways in order to preserve visibility to homes, community and child safety

RURAL

- many farms have historical significance to families and communities
- greater emphasis on tradition and preservation of the rural character



Community

A community consists of people who reside or work in an area and who share common characteristics and interests. Communities can be found in any of the classifications. A community can be a neighborhood, downtown district, area of historic importance or office park, to name a few. With respect to roadside enhancement design, a community is a unique area within a larger municipality that has its own distinct characteristics. There is a great sense of pride among community members, who often share a common goal of preserving and promoting the unique qualities of their area.



The Historic Buena Vista Neighborhood in Nashville, Tennessee, used design elements from a local church to inspire a unique identity for their community

LANDSCAPE TYPES

This manual presents several typical roadside landscapes found along interstates, state routes and other roadways. They include interchanges, rights-of-way, intersections, highway facilities (rest areas, maintenance compounds, etc.) and other unique landscape types. A variety of design and maintenance solutions within each of these typical landscapes are presented later in Chapter 6. Due to the vast quantity and diversity of roadside conditions, not every scenario can be included. However, the sample design solutions presented in Chapter 6 provide the basis for a design process that can be applied to a variety of roadside conditions and scenarios.

Interchanges

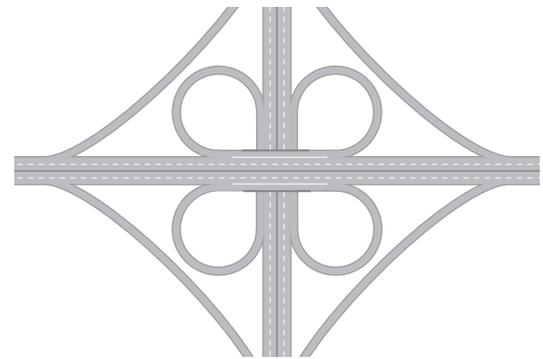
An interchange is a roadway junction that allows the movement of traffic between two or more roadways on different levels by using grade separation, bridges and ramps. In other words, an interchange allows a constant flow of traffic by allowing one road to pass over or under another instead of intersecting. The two interchange designs presented in this manual are the cloverleaf and diamond, but several variations of each exist. For example, the single-point urban interchange (SPUI) is a variation of the diamond interchange that has become quite popular because it helps move large volumes of traffic in a smaller space, hence less right-of-way acquisition. The SPUI interchange is common in urban environments where space is limited.

Rights-of-Way

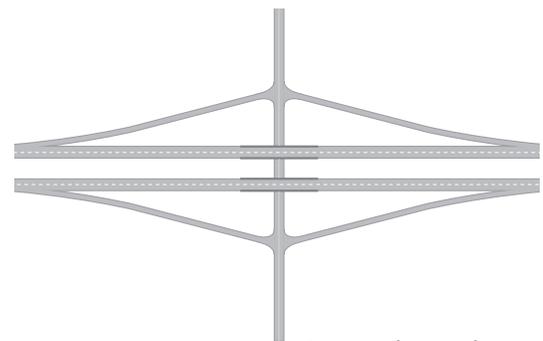
The right-of-way is the land set aside for a roadway corridor. Rights-of-way are acquired prior to new roadway construction. The amount of right-of-way purchased is usually just enough for the roadway and support structures (e.g., walls, bridges); however, additional right-of-way may be acquired and left vacant for future expansion. The right-of-way is typically narrow in urban environments where land is densely developed. In downtown and residential environments, the right-of-way line is often at the back of sidewalks. The right-of-way line along interstates and highways is usually marked by a fence.

Intersections

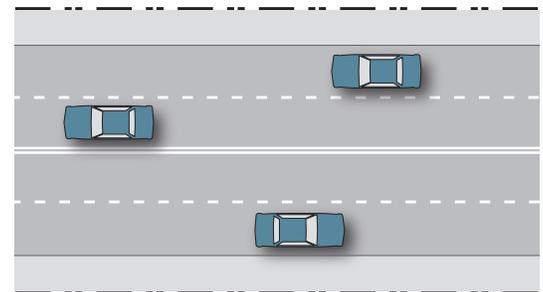
An intersection is a roadway junction where two or more roadways meet, but unlike an interchange these roadways meet at grade and require some form of traffic control (e.g., stop sign, traffic signal). The four-way intersections are a perpendicular, or 90°, junction and an angle junction. The three-way intersections are a T-junction and a Y-junction.



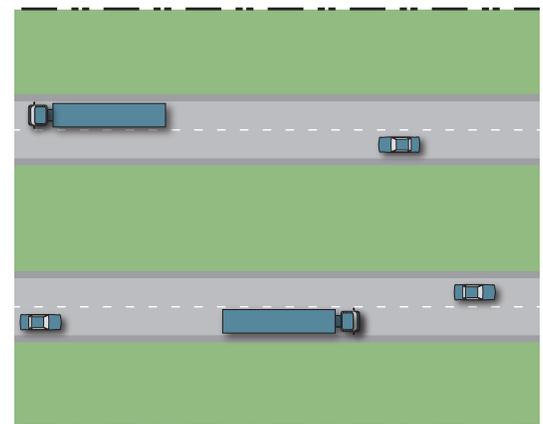
Cloverleaf Interchange



Diamond Interchange



Right-of-Way with Sidewalks



Right-of-Way with Median



I-81 Welcome Center, Bristol, Sullivan County



The Natchez Trace Parkway is part of the National Scenic Byways Program

Highway Facilities

Rest Areas and Welcome Centers

There are 19 interstate rest areas and 13 interstate welcome centers in Tennessee. In addition to the indoor facilities, these centers often offer large expanses of open space with vending, walking paths, dog walking areas, public art, benches and picnic tables. These centers provide an opportunity to show a captive audience, often tourists from out of state, the natural beauty Tennessee has to offer. Other interstate rest areas include overnight truck rest stops. These rest areas are comprised of a parking area, but no indoor facilities or walking paths.

Truck Weigh Stations

There are 9 truck weigh stations throughout the state. These facilities are located along the interstate usually near a state border. When prompted, trucks exit the interstate by a ramp, drive onto a scale to be weighed and then return to the interstate by another ramp. These facilities may also have an area behind the weigh station building that can be used for temporary truck parking.

Maintenance Facilities

TDOT operates several garage compounds for the regional and district maintenance offices and salt storage areas. These facilities can be found along interstates and state routes and are often highly visible from the roadway.

Unique Landscape Types

The following unique landscape types overlap with those already identified (i.e., a streetscape is found along a right-of-way); however, they have their own design solutions that are not specific to any landscape classification. While they must still fit into the context of their surrounding environment, their unique qualities require design recommendations that are not totally dependent on the surrounding landscape character.

Scenic Roadways

Scenic byways are those that are recognized as part of the National Scenic Byways Program administered by FHWA. The designation of these roads is based on a roadway corridor's archeological, cultural, historic, natural, recreational and scenic qualities. Roadways with one of these qualities are designated as a *National Scenic Byway*, while roadways with at least two are designated *All-American Roads*. Once a road is designated, it is provided with the resources necessary to manage and maintain the qualities that make it unique.

In addition to this federal program, Tennessee has its own scenic roadway program, the Tennessee Parkway System and Scenic Highways. This roadway system was established by the Tennessee Legislature to promote the state's scenic assets and recreational resources.

Gateways

A gateway is an entry feature that gives a sense of arrival. Gateways mark the entry point into a distinct area through the use of many landscape features, including signage and vegetation. Gateways can be found in a variety of places such as interstate interchanges, city limits or subdivision entrances, to name a few.



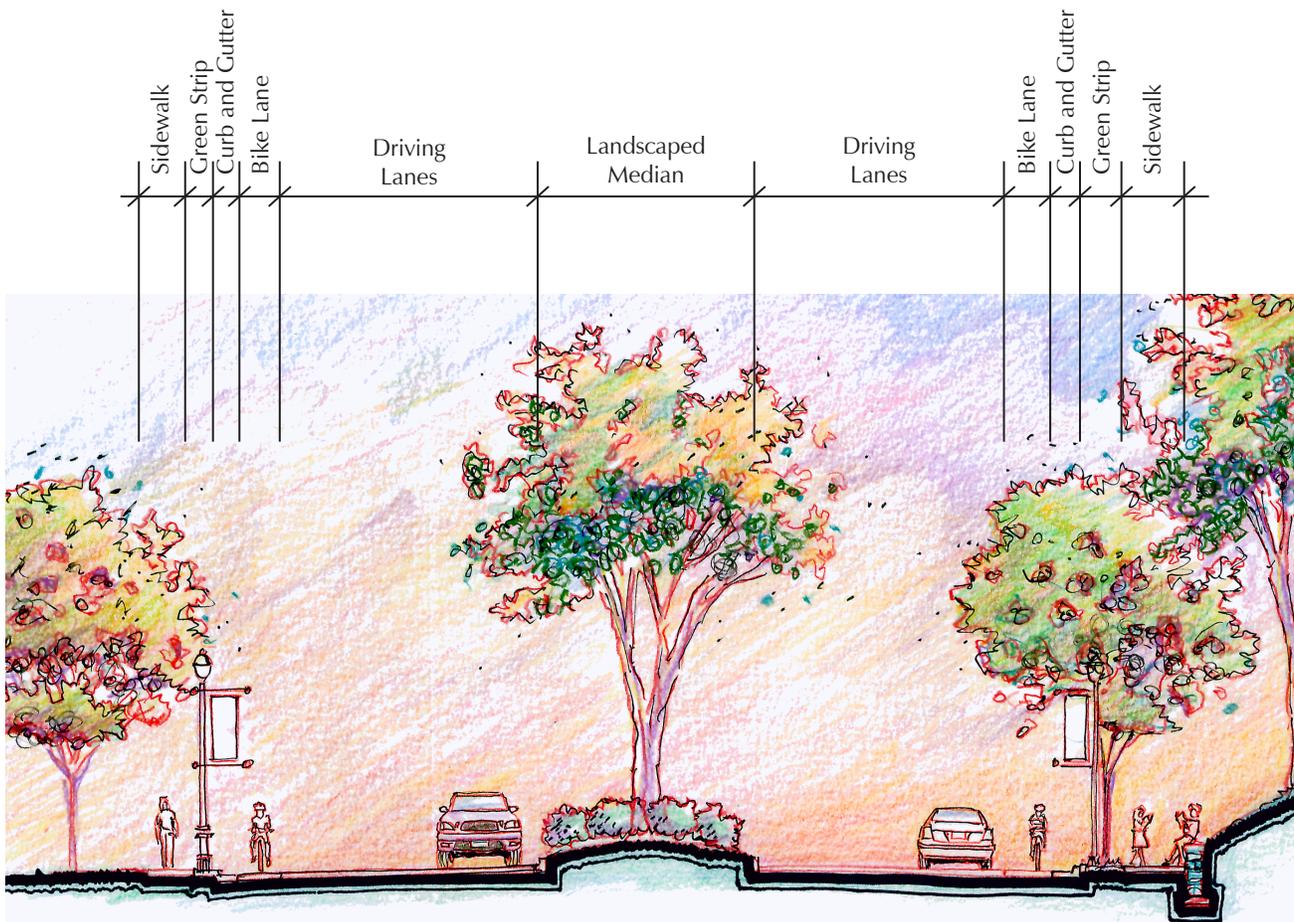
Gateways can be used to mark entry points into areas at a small scale, like neighborhoods (top left and top right) or at a large scale, like cities (bottom left)



Streetscape

A streetscape is the visual appearance of a roadway formed by elements within and along the right-of-way. A streetscape is typically comprised of pedestrian and landscape improvements including sidewalks, crosswalks, lighting, street trees and grates, medians, site furniture and signage. Streetscapes rely on established standards to create uniformity throughout a design. Standards are often developed for construction materials, colors, furnishings, plant material, and dimensions of sidewalks, driving lanes, bike lanes, medians, parking spaces or setbacks. Together, these elements define a roadway’s appearance, identity and function.

Trees, planters, ornamental light fixtures, banners and paving patterns are common in streetscapes



Streetscape section with sidewalks, bike lanes, driving lanes and a landscaped median