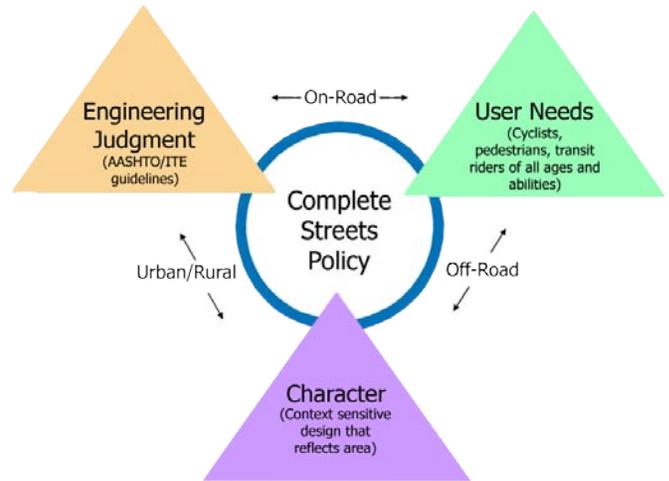


CHAPTER 2: DESIGN FRAMEWORK

ROADWAY AND ROADSIDE

A “complete street” is made up of two distinct areas—the roadway and the roadside. The Roadway is measured from the face of curb or pavement edge to the opposite curb or pavement edge. The Roadside includes the land area from the face of curb or pavement edge to the face of the adjacent building or structure (see figure below). The roadside typically includes a portion of the legal boundary of the road (in the form of Right-of-Way or access easement) and a portion of private property that adjoins the roadway. This Manual provides design guidelines relating to all activities occurring within a complete street.

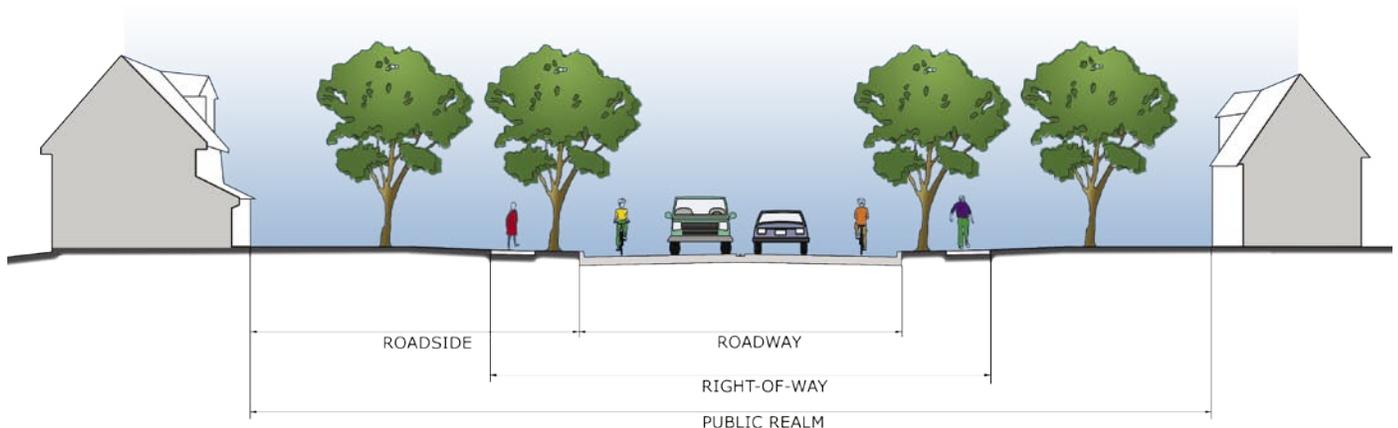


RELATIONSHIP OF ENGINEERING, CHARACTER AND USERS

RELATIONAL ELEMENTS

Complete street design is both an art and a science. As such, good design standards balance sound engineering judgment and user needs within the context or character of the environment (see figure right). These three influences and the ways in which they relate serve as the design framework for the guidelines contained in this Manual.

Roadway design must clearly rely on the design professionals’ knowledge and understanding of the elements associated with it. Travel speeds, volumes, horizontal/vertical alignments, and sight lines are a part of the complex variables that must be considered in roadway design. Engineering judgment is supported



LOCAL LEVEL COMPLETE STREET ILLUSTRATION

CHAPTER 2: DESIGN FRAMEWORK

by a significant body of resources including the U.S. Transportation Federal Highway Administration’s (FHWA) standards and guidelines, American Association of State Highway and Transportation Officials (AASHTO) guidelines, and documents by the Institute of Transportation Engineers (ITE). The practices followed include the roadway classifications used by the Kentucky Transportation Cabinet (KYTC), Kentuckiana Regional Planning and Development Agency (KIPDA), and Louisville Metro LDC standards. This Manual should only be considered in conjunction with these existing standards and guidelines.

User needs are the second influence to be considered in the design of a “Complete Street.” Many of the facilities contained within the right-of-way are uniquely associated with motorists, pedestrians, transit riders, and cyclists of varying ages and abilities. Chapter 3 describes in greater detail the characteristics of each user group and the facilities associated with each.

Character, the physical context in which the street resides, is the third influence to consider in good Complete Street design. Character influences the form and function of the roadway and its associated streetscape. In Louisville Metro, character is defined by Cornerstone 2020 and the designation of Form Districts — 11 distinct patterns of development that are applied county-wide. For the purpose of this Manual, these 11 Form Districts have been grouped into four general categories or Character Classes: Downtown, Traditional, Suburban, and Rural (see figure below).

A comprehensive design approach is necessary when developing a functional and aesthetically pleasing



A FULLY DEVELOPED DOWNTOWN CHARACTER CLASS ROADSIDE

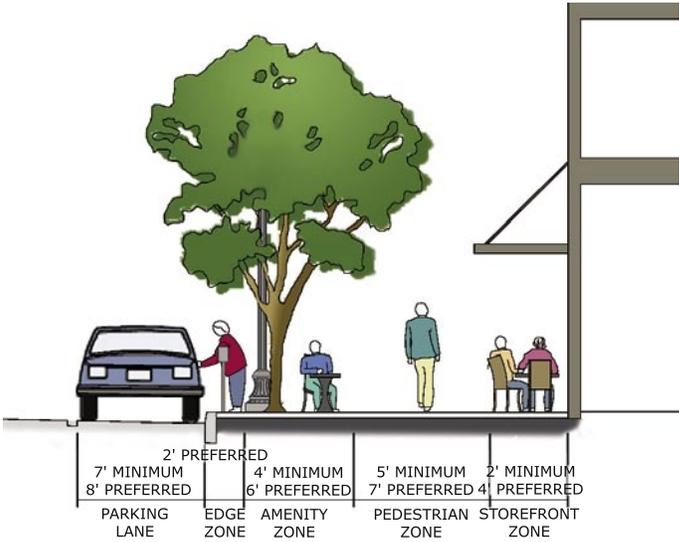
roadway and roadside. To design a complete street, there must be an understanding of the three relational elements and how they influence a transportation corridor. For instance, the inner-relationship between engineering judgment and user needs is most prevalent when considering on-road facility design guidelines. Off-road facility guidelines, however, tend to be based more on user needs and roadway character. Engineering judgment, user needs, and character overlap and intersect in varying ways with on-road facilities (such as a bike lane), off-road facilities in the right-of-way (such as a sidewalk), and the nature of the roadway (urban or rural cross-sections).

Character Classes (Form District Groupings)			
Downtown	Traditional	Suburban	Rural
<ul style="list-style-type: none"> Downtown Form District 	<ul style="list-style-type: none"> Traditional Neighborhood Traditional Marketplace Corridor Traditional Workplace Village Center Town Center 	<ul style="list-style-type: none"> Neighborhood Suburban Marketplace Corridor Suburban Workplace Regional Marketplace Center Village Outlying Campus 	<ul style="list-style-type: none"> Village Outlying

ROADSIDE COMPONENTS BY CHARACTER CLASS

In addition to the relational elements, the roadside can be described by the activities that fall within it. These activities can be broken into four basic zones: the Edge Zone, the Amenity Zone, the Pedestrian Zone, and the Storefront Zone (see example on the right).

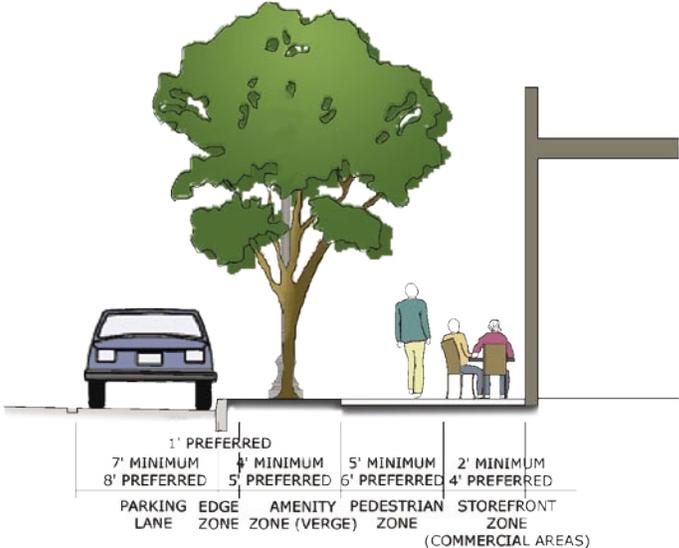
The Edge Zone is located adjacent to the road pavement and includes the curb but not the verge (the landscape area that separates the sidewalk from the street). The Amenity Zone is located between the Edge Zone and the Pedestrian Zone. It includes the verge, if applicable, and the portion of the sidewalk used for street furnishings. The Pedestrian Zone is located between the Amenity Zone and Storefront Zone and allows for the unobstructed passage of pedestrians with a preferred width of seven feet and a minimum width of five feet. The Storefront Zone, located between the Pedestrian Zone and the building façade, has a preferred width of four feet and a minimum width of two feet to accommodate window viewing, outdoor displays, and permits door swing movements. It also allows for restaurant seating or other uses with outdoor spaces.



DOWNTOWN CHARACTER CLASS

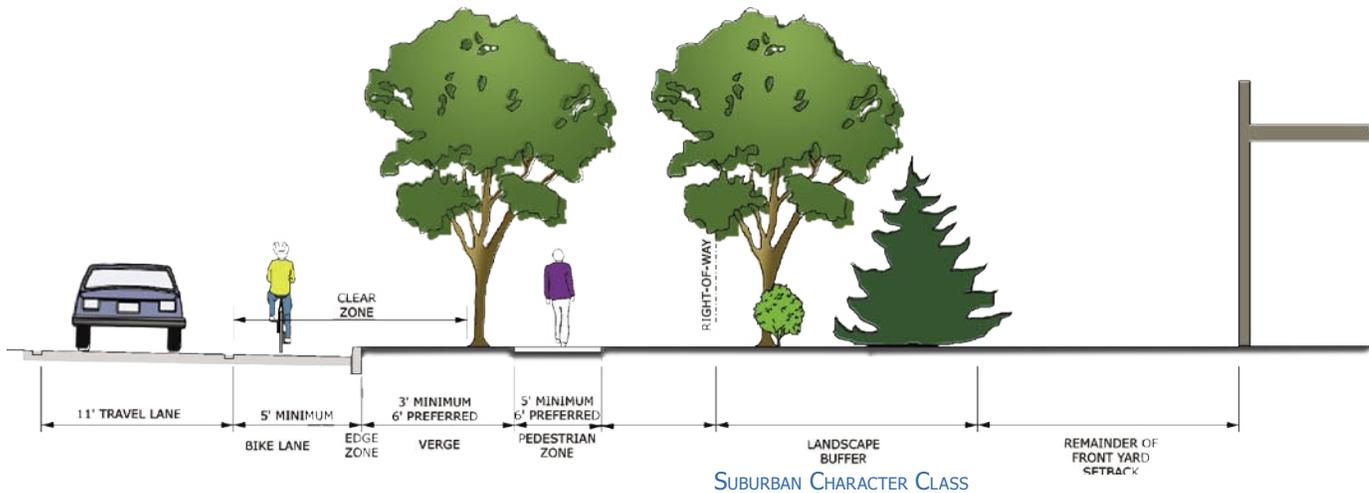
The Downtown Character Class roadside has all four activity zones clearly defined. The Edge Zone contains parking meters where there is on-street parking and may include a concrete strip for pedestrians exiting vehicles. The Amenity Zone contains many of the streetscape elements that help define the downtown including street trees, seating areas, and light poles. This is also the appropriate area to locate trash receptacles, mail boxes, newspaper corrals, bicycle racks, and other furnishings. The Pedestrian Zone is the travel area of the sidewalk.

The nature of the Traditional Character Class roadside utilizes a smaller Edge Zone primarily for curbs. The Amenity Zone accommodates tree planting, lighting, and overhead utilities. The Amenity Zone may be paved, but typically becomes a verge as the corridor extends beyond the downtown. The Pedestrian Zone may include a slightly narrower sidewalk than in the downtown, but shall maintain a 5 foot width clear of obstructions. Non-residential areas within the Traditional roadside may continue to have a paved Storefront Zone; in residential areas this becomes a vegetated front yard.



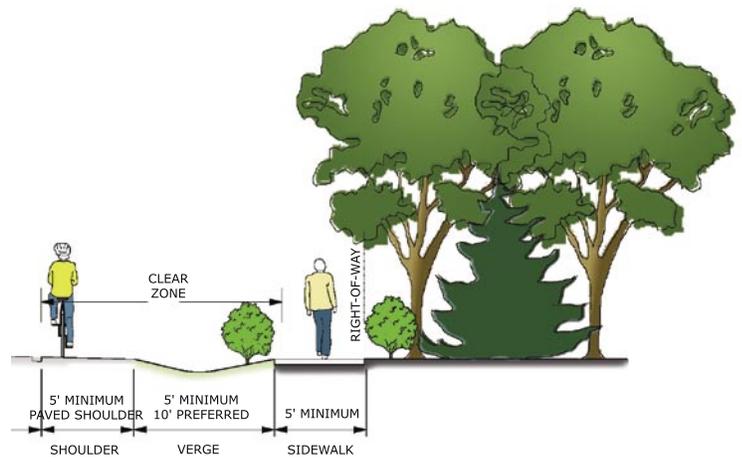
TRADITIONAL CHARACTER CLASS

CHAPTER 2: DESIGN FRAMEWORK



SUBURBAN CHARACTER CLASS

The Suburban Character Class roadside Edge Zone is primarily a curbed area and may include mail boxes. The Amenity Zone is a verge that may contain occasional street furnishings, including benches and TARC shelters. The Pedestrian Zone contains a five foot sidewalk. The Storefront Zone no longer applies because setbacks from the street dictate a greater separation between the street and the buildings.



RURAL CHARACTER CLASS

The Rural Character Class roadside has an Edge Zone that contains a shoulder rather than a curb and may include mailboxes. The Amenity Zone is a verge. On occasion, there may be a Pedestrian Zone with a sidewalk or a multi-use path, though these facilities may or may not be located in conjunction with the street.

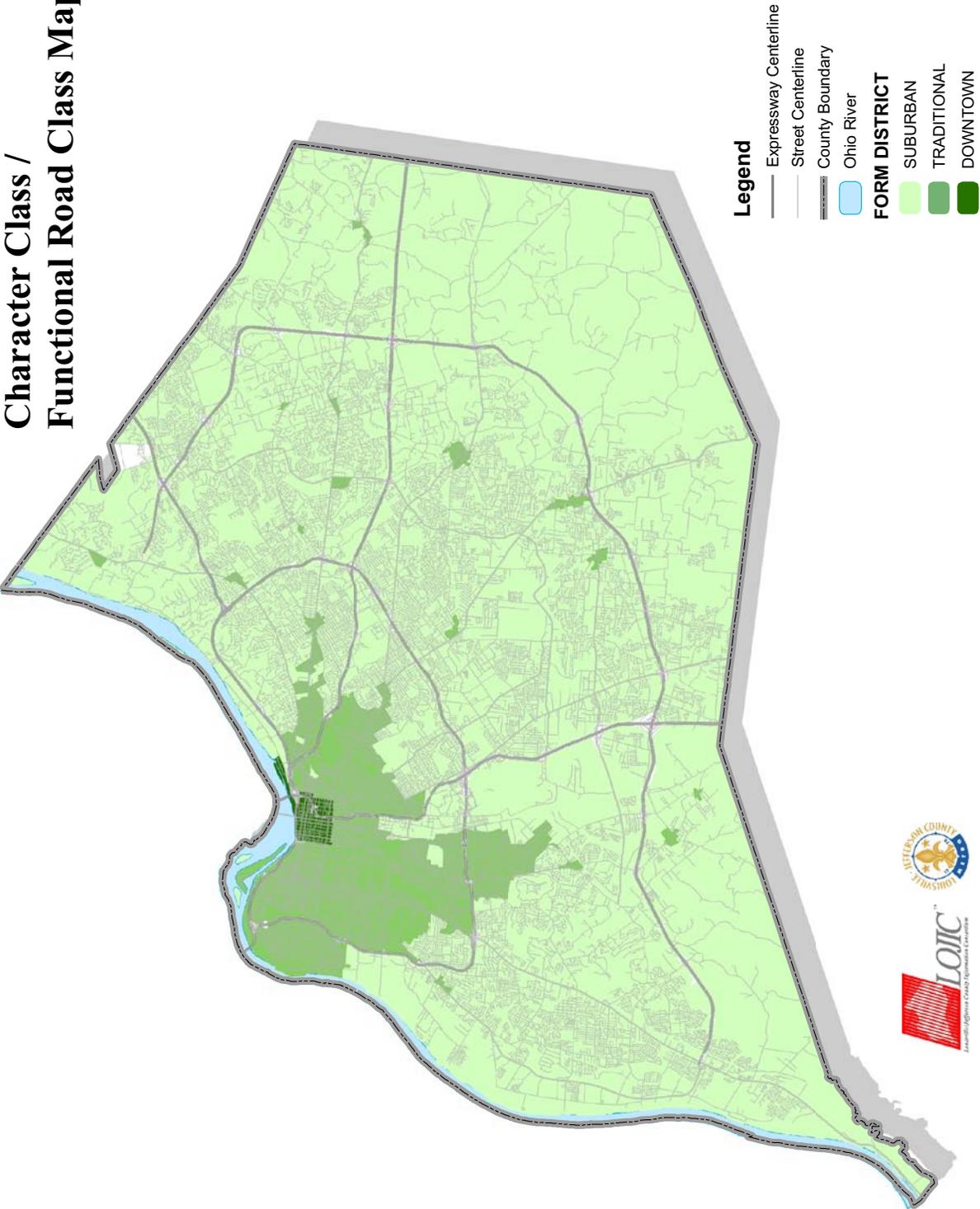
The Character Classes and Functional Roadway Classes for Louisville Metro are illustrated by the map on page 9. The Rural Character Class can not be mapped, however, because there are no areas “officially” designated as such nor have there been any Form Districts classified as rural.

Rural character areas have been partially identified in the context of various neighborhood, corridor, and small area plans such as the Wolf Pen Branch, Eastwood, Fairdale, and Tyler Rural Settlement District Neighborhood Plans; The Master Plan of Jefferson Memorial Forest; and Site Development Plan for Riverside, The Farnsley-Moreman Landing. In order to plan for appropriate facilities such as multi-use paths, there must be a comprehensive effort undertaken to identify areas within Louisville Metro that are intended to be part of a Rural Character Class.



EXAMPLE OF RURAL CHARACTER CLASS

**Character Class /
Functional Road Class Map**



Functional System	Services Provided
Arterial	Provides the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control.
Collector	Provides a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials.
Local	Consists of all roads not defined as arterials or collectors; primarily provides access to land with little or no through movement.

THOROUGHFARE TYPOLOGY

Streets and highways are grouped using a classification system established by the Federal Highway Administration based on the function of the road. There are three highway functional classifications: arterial, collector, and local. There is a basic relationship between traffic mobility and land access that differentiates the functional roadway classes (see figure above).

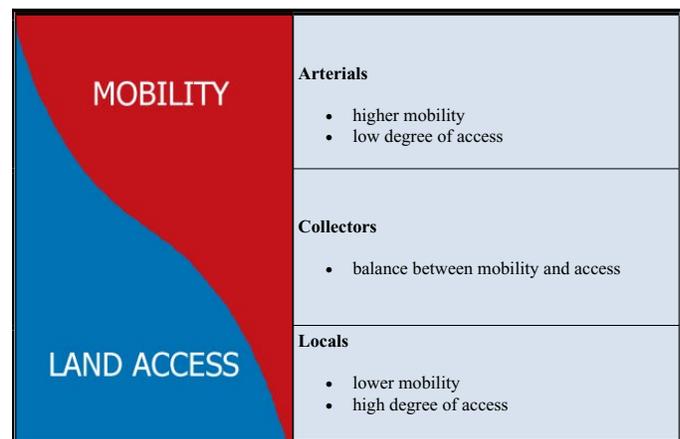
There is an established relationship between the functional classification of a roadway and the design process. The AASHTO Green Book, a nationally recognized resource for roadway design, relates functional class to a range of design criteria based on anticipated volumes and the composition of traffic associated with a given roadway class. These criteria include design speed, horizontal/vertical alignment, and basic roadway cross section information such as lane width, shoulder width, and type and width of the median area (*Flexibility in Highway Design*, FHWA).

The roadway classifications within Jefferson County are broken into additional sub-classes such as major arterials, minor arterials, primary collectors, secondary collectors, local roads, alleys and lanes and specially-classified roadways.

The guidelines contained in this manual have been developed based on a relationship between the Functional Class of the roadway and the Character Class of the roadway.

The design criteria in the following chapters will guide the appropriate facility to match user needs for a specific Functional Class while responding the Character Class for that area.

This context is also added to the roadway’s cross-section which may be urban or rural. Urban sections are typically curbed with an underground stormwater drainage system. Rural sections are typically without a curb while having an above-ground roadside stormwater drainage system. These conditions all add to the character of the street and streetscape.



SOURCE: SAFETY EFFECTIVENESS OF HIGHWAY DESIGN FEATURES, VOLUME I, ACCESS CONTROL, FHWA, 1992.