

## HIERARCHY OF STREETS AND ROADS

### FUNCTIONAL CLASSIFICATION SYSTEM FOR URBAN STREETS

The functional classification system developed by the Federal Highway Administration (FHWA) in 1962 is widely used to define the traffic-carrying function of streets. For urban streets, there are four classifications: principal arterials, minor arterials, collector streets, and local streets.

#### Principal Arterials

Principal arterials provide long-distance “trunk-line” continuous routes within and between urban areas. Typically, but with some important exceptions, they carry high volumes of traffic at high speeds. Freeways, including interstates, are principal arterials.

#### Minor Arterials

The backbone of the urban street network, minor arterials are continuous routes through urban areas. They are frequently designated as touring (i.e., U.S. or state-numbered) routes. Accounting for only 10 percent of street mileage, they carry more than half of all vehicle miles of travel. They may be state, county, or city streets.

Most trips include arterial streets. They contain most of a city’s commercial and institutional uses. The traffic function of minor arterial streets is challenged because of their attractiveness as business addresses, an attractiveness fostered by the traffic function of the street itself.

#### Collector Streets

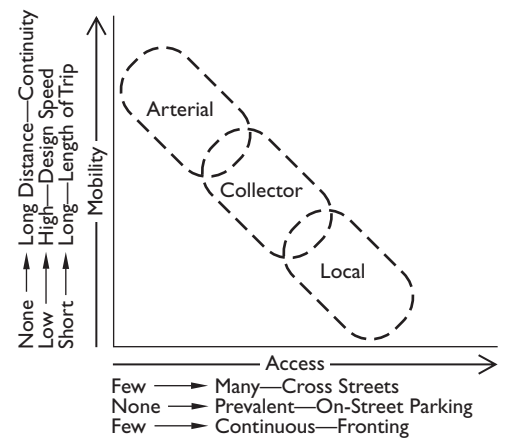
With continuity over short segments (one-fourth to one-half mile; 0.4 to 0.8 kilometers), collector streets are minor tributaries, gathering traffic from numerous smaller (local) streets and delivering it to and from minor arterials. Seldom designated as numbered touring routes, collectors are usually city or county streets. Most collectors are bordered by properties (both business and residential) with driveways to the street.

#### Local Streets

Local streets include all streets not on a “higher” system. They comprise 90 percent of street mileage but carry less than 10 percent of the total vehicle miles of travel. These streets may be short in length or frequently interrupted by traffic control devices (stop signs or signals). Travel distance on local streets is short, typically to the nearest collector street. Speeds are low (20 to 30 mph; 32.2 to 48.3 kilometers/hour). Usually, local streets are city streets, and seldom are part of a numbered touring route. Local streets often have numerous driveways, as they are the addresses for most homes, as well as many nonresidential land uses (professional office, small industrial, churches) not requiring visibility to large numbers of passing motorists.

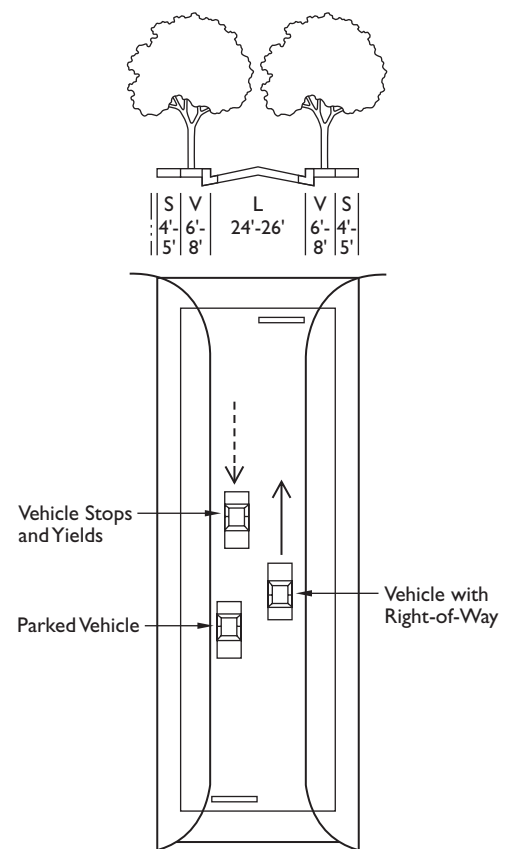
### ACCESS AND MOBILITY

All urban streets provide some mixture of mobility and access. Mobility is the movement of through traffic with neither origin nor destination in the



### ACCESS, MOBILITY, AND RELATIONSHIP TO FUNCTIONAL CLASS

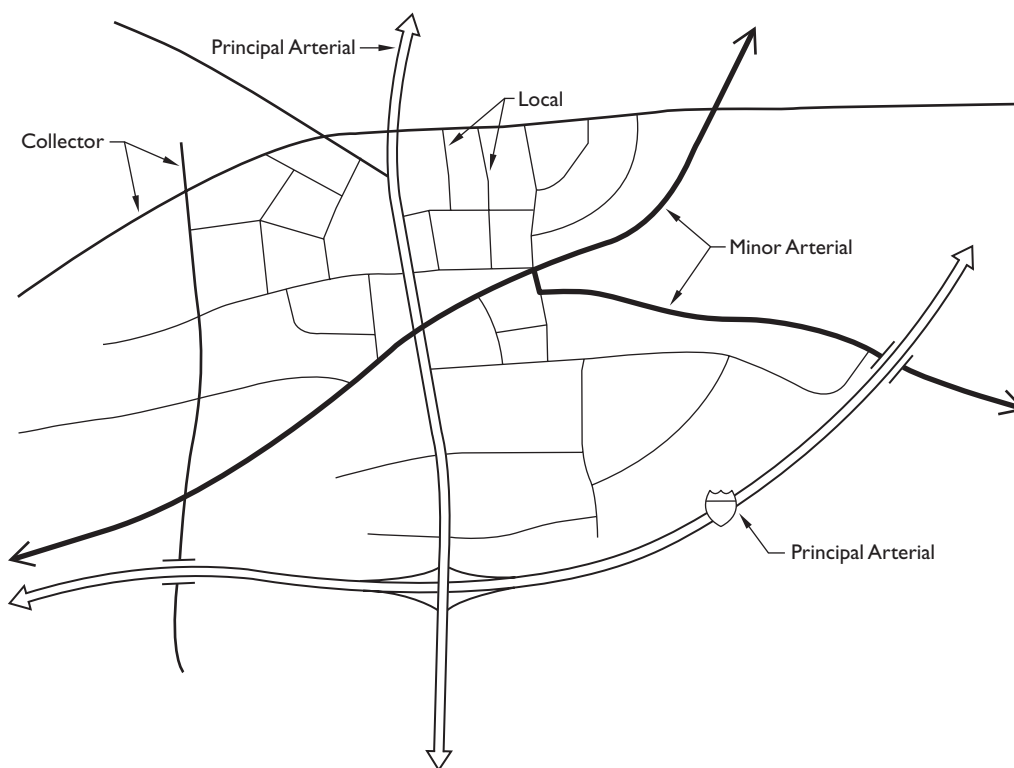
Source: Walter Kulash.



The single-lane yield street, the preferred design for residential streets (new and existing) in neighborhoods throughout the United States, allows for parking on both sides of the street and a single lane of moving traffic, in both directions, in the center of the street. At parked cars, motorists in opposite directions are not able to pass, and one driver yields right-of-way (usually by stopping at vacant curb space). When the intensity of parking prevents this yield flow, parking can be prohibited on one side, assuring an open lane for traffic in each direction.

### SINGLE-LANE YIELD STREET

Source: Walter Kulash.

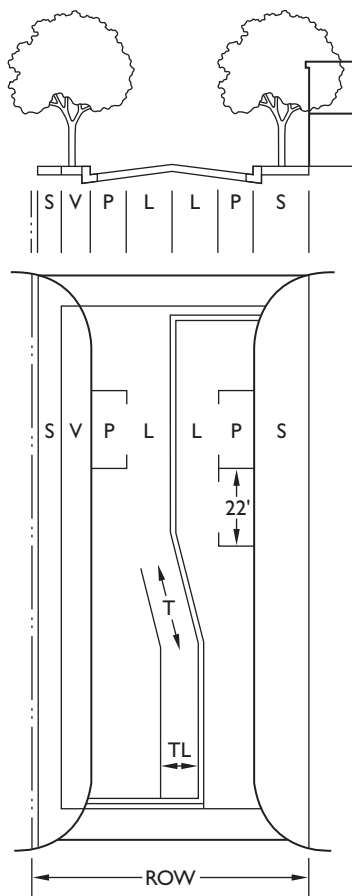


### FUNCTIONAL CLASSIFICATIONS AND THEIR RELATIONSHIPS

Source: Walter Kulash.

Walter Kulash, P.E., Glotting Jackson Kercher Anglin Lopez Rinehart, Inc., Orlando, Florida

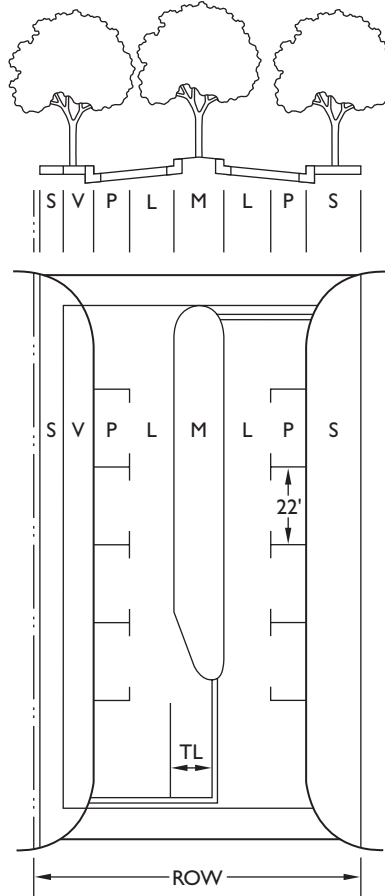
## PART 3 STRUCTURES



Important options for the two-lane street are on-street parking and left-turn lanes at major intersections. The left-turn lane is provided, without widening the street, by restricting parking as necessary.

**TWO-LANE STREET, UNDIVIDED**

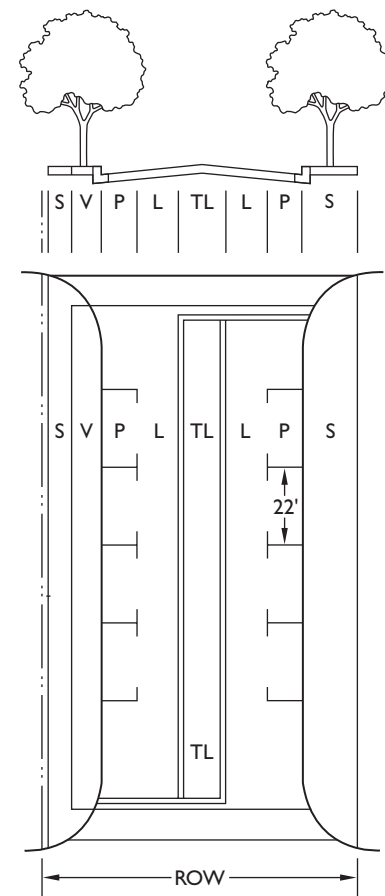
Source: Walter Kulash.



Important options for the two-lane divided street are on-street parking and left-turn lanes at major intersections. The left-turn lane occupies the space otherwise used for the median.

**TWO-LANE STREET, DIVIDED**

Source: Walter Kulash.



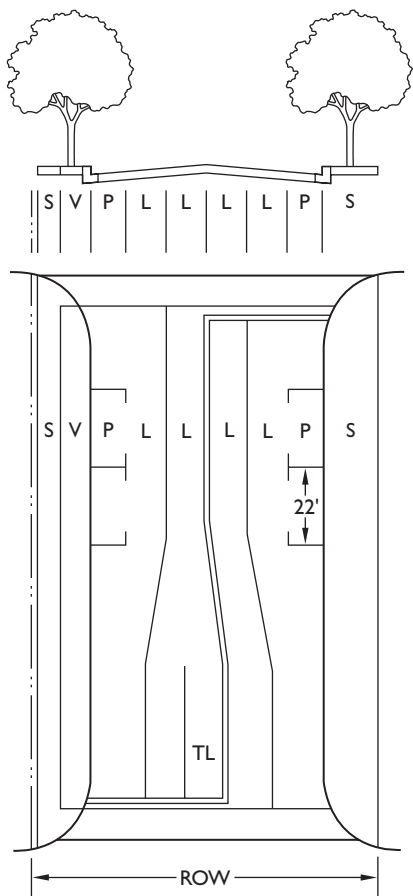
The three-lane street, appropriate where large numbers of driveways and cross streets are present, accommodates left turns in a center two-way left-turn lane.

**THREE-LANE STREET**

Source: Walter Kulash.

**STREET DIMENSIONS AND CROSS-SECTION ELEMENTS**

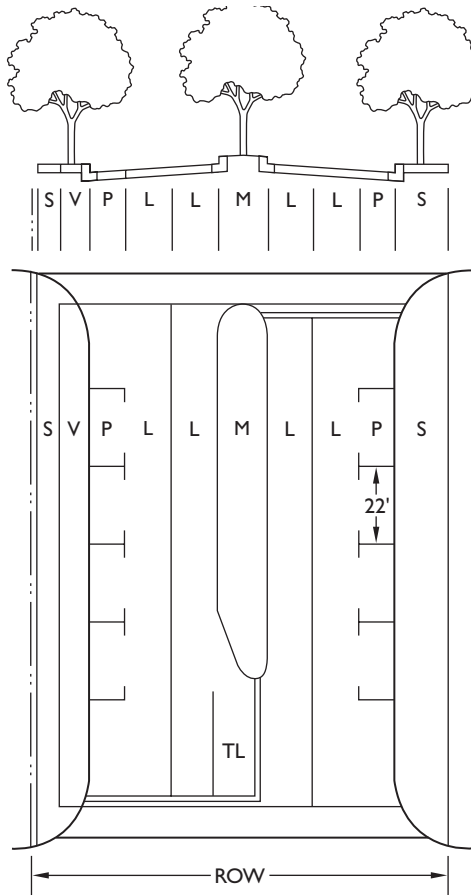
DESIGN ELEMENT	FUNCTIONAL CLASS (IN FEET)		
	Arterial	Collector	Local
L Traffic Lane	12	11	10
TL Turning Lane	12	11	10
P Parking Lane	8 to 10	8	7
M Median	12 to 16	10 to 16	10 to 16
V Verge (Planting Strip)	8 to 12	8 to 12	6 to 8
S Sidewalk (Business)	12 to 18	12 to 18	12 to 18
S Sidewalk (Residential)	5 to 6	4 to 5	4 to 5
T Taper Length	60	40	30
R Curb Radius	25	20	15 to 20



Multilane (four lanes or more) streets can accommodate left turns, at major intersections, by restricting parking at the intersection approach.

**MULTILANE STREET, UNDIVIDED**

Source: Walter Kulash.



On multilane (four lanes or more) divided streets, the left turn occupies space otherwise used by the median.

**MULTILANE STREET, DIVIDED**

Source: Walter Kulash.

immediate area. Access is the connection to immediately fronting properties. Arterial streets, located at the mobility end of the mobility/access spectrum, provide large amounts of service to through traffic, but little or no access to surrounding land. Local streets, located at the access end of the spectrum, provide unlimited access to adjacent properties, but little service to through travel. Collector streets are in the midrange of the spectrum. They provide property access with mobility appropriate for connecting local streets to the higher-speed arterials.

**EMERGING ISSUES**

There are several ongoing initiatives to combine the traffic functional classification of streets with their adjacent land uses to yield a more comprehensive array of streets. The *Lexicon of the New Urbanism* proposes a structure for accomplishing this. The context-sensitive design initiative, sponsored by the Federal Highway Administration, urges state departments of transportation to make the road context an important part of road design.

**REFERENCES**

- Duany Plater-Zyberk & Company. 1998. *Lexicon of the New Urbanism*. Miami, FL: Duany, Plater-Zyberk & Co.
- U.S. Department of Transportation, Federal Highway Administration. 1998. *Flexibility in Highway Design*. Washington, DC: USDOT/FHWA.

**See also:**

- Pedestrian-Friendly Streets*
- Sidewalks*
- Street Networks and Street Connectivity*