This fact sheet introduces planning, engineering, and design practitioners to the Institute of Transportation Engineers’ recommended practice (RP) Designing Walkable Urban Thoroughfares: A Context Sensitive Approach as a tool for designing urban streets that are compatible with and supportive of the surrounding context and community. This fact sheet focuses on the unique aspects of designing thoroughfares in urban residential areas. Readers will recognize the range of residential neighborhoods that can be found in all contexts and understand the characteristics that guide residential thoroughfare design.

Residential neighborhoods exist in every context, from rural to the highest-intensity urban core. Residential uses can be found on all types of thoroughfares as well as on local streets. This fact sheet focuses on the design of thoroughfares in predominantly residential environments in urban contexts (C-3 through C-6). Because people reside in these contexts, the design of residential streets should be approached from a contextual perspective that emphasizes livability and the quality of the environment.

Avenues and Streets in Urban Residential Areas

Avenues and streets are similar to each other in form, but avenues can be up to a maximum of four lanes while streets are never more than two lanes. Some avenues feature a raised landscaped median. Avenues in predominantly residential neighborhoods have lower target speeds (see Fact Sheet 3), usually 25 mph and up to a maximum of 30 mph. Residential streets are always restricted to 25 mph. Both avenues and streets are the primary pedestrian and bicycle routes for residents commuting, performing everyday errands, and for recreation. Avenues may serve local transit routes that residents use regularly and therefore should be attractive and comfortable to promote the use of public transportation. Both avenues and streets serving residential neighborhoods need to provide curb parking for residents and their guests and for ground-floor commercial in mixed-use areas. Figure 1 shows an avenue in a typical C-5 residential context.

Definition of Residential Contexts

Every thoroughfare has an immediate physical context created by buildings, landscape, and activities on adjacent properties and is also part of a broader context created by the surrounding neighborhood or district. This RP presents four urban context zones for use in the application of CSS principles: suburban, general urban, urban center, and urban core (see Fact Sheet 2). Below are the general characteristics of land uses, buildings, site design, and public spaces that contribute to residential environments in each context zone.

- **Suburban (C-3):** Primarily single-family residential, with walkable development patterns that include scattered commercial uses that support the residential neighborhood. Predominantly detached buildings with landscaped yards. Suburban C-3 residential context zones are normally adjacent to a general urban C-4 context zone. Residences are set back from the thoroughfare with lawns, porches, fences, and landscaping. Open space is in the form of parks and greenbelts.

- **General urban (C-4):** Contains a mix of housing types, including detached single-family and attached units, with a range of commercial and civic activity at the neighborhood or community scale. There is a balance between landscape, buildings, and pleasant pedestrian facilities. Setbacks are relatively shallow, with porches and front yard fences. Open space is in the form of parks and greenbelts.

- **Urban center (C-5):** Predominantly attached housing types, such as townhouses and apartments, often mixed with retail, workplace, and civic uses at the community and subregional scale. Neighborhoods have highly walkable patterns of small scale blocks with little to no setbacks between buildings and the thoroughfare. Landscaping is typically within the public right of way. Buildings are oriented to the street with placement and character defining a street wall (see Figures 1 and 2). Open space is in the form of parks, plazas, squares, and the streetside (the area between the curb and property line).

- **Urban core (C-6):** High density, medium- to high-rise residential mixed with high intensity commercial, workplace, entertainment, civic, and cultural uses. Attached buildings including townhouses, rowhouses, and apartments form a streetwall and create a sense of enclosure. There are little to no setbacks, with buildings oriented to the street, placed adjacent to the front property line. Open space is in the form of parks, plazas, and squares; thoroughfare median landscaping; and the streetside.

Characteristics of Thoroughfare Design in Urban Residential Areas

Several aspects of avenue and street design contribute to the creation of livable residential thoroughfares, with an emphasis on the quality of the pedestrian environment. These are:

- Walkable patterns of short blocks;
- Low traffic speeds;

Figure 1 An example of a boulevard in an urban center (C-5) residential context. Source: Arup.
• Pedestrian space buffered from traffic;
• Pleasant and attractive pedestrian environment and public spaces;
• On-street parking; and
• Sense of security (well lit, high pedestrian activity, etc.).

Urban landscaping is an important design element of residential thoroughfares, especially in highly urban contexts where the open space available to residents is within the public right of way, plazas, or in small parks. Residents value the mature canopy street trees that have historically challenged the thoroughfare designer with accommodating large trees within constrained rights of way and in utility-rich urban environments.

Public space is another important design element of urban residential thoroughfare that adds to livability. Public space can be in the form of parks, plazas, squares, or wide streetsides that accommodate seating, public art, or street cafes.

### Residential Thoroughfare Design Parameters

#### Speed:
Residential thoroughfares should be designed with target speeds of 25 to 30 mph in all contexts. Design elements that help achieve these speeds include:
- Smaller lane widths (10–11 feet);
- Minimal between median curb and travel lane;
- No superelevation or shoulders;
- On-street parking;
- Small curb return radii with slow-speed right turns;
- Signalized intersection spacing allowing synchronization to desired operating speed;
- Paving materials that identify pedestrian areas and provide tactile feedback to drivers; and
- Gateway features informing drivers they are entering a residential neighborhood.

#### Streetside:
The width of the streetside in urban residential areas is generally narrower than in commercial areas. The streetside width (including any planting strip) is used to buffer pedestrians from traffic. Therefore, higher-speed avenues (30 mph) have a wider area between the curb and pedestrian thoroughway (furnishing zone) to achieve this buffer. In C-3 and C-4 residential contexts, the furnishing zone is often composed of a planting strip. This strip should be wider on avenues without on-street parking to make up for the reduced distance and protection afforded by parked vehicles. In contexts C-5 and C-6, the furnishing zone contains treewells and other urban appurtenances such as bus stop shelters, seating, and so forth. In mixed-use districts with ground floor commercial uses, the design parameters for commercial streets should be used. On entirely residential streets, the width of the pedestrian thoroughway can be relatively narrow, as long as it meets ADA requirements, except in C-5/C-6 contexts where wider thoroughways are warranted. Figure 3 summarizes general streetside design parameters for residential avenues.

#### Traveled Way:
In designing residential avenues, use the lower end of travel lane width ranges to reduce speed and crossing distances. Avenues should not exceed four lanes and should not provide a continuous center turn lane. Optionally, an avenue can include a raised median with left-turn bays, and pedestrian refuges at crossings. On-street parking is highly desirable in residential neighborhoods and should be provided on both sides of the thoroughfare. The lower turnover of parking spaces in residential neighborhoods warrants a narrower parking lane than in higher-turnover commercial areas (7 feet instead of 8 feet). Parking can be ended prior to intersections to allow width for left-turn bays. Figure 4 summarizes general traveled way design parameters for residential avenues.

### Intersections:
The following principles should be considered in designing intersections on residential avenues:
- Design intersections as compact as practical;
- Avoid exceeding midblock right-of-way widths at the intersection;
- Minimize pedestrian exposure to traffic using a variety of design features;
- Minimize crossing widths and provide crossings on all approaches except under cases of severe and unavoidable conflicts;
- Avoid high-speed channelized right turns;
- Ensure good driver and nondriver visibility; and
- Provide for flexibility in accommodating nonmotorized modes of travel and those with individual mobility challenges (i.e., ADA compliance).

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**Figure 3** General parameters for the design of the streetside on residential avenues.

**Figure 4** General parameters for the design of the traveled way on residential avenues.

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**Fact Sheet 6 – Designing Avenues and Streets in Residential Areas**

Institute of Transportation Engineers, 1627 Eye Street, NW, Suite 600, Washington, DC 20006 USA; Phone: 202-785-0060; www.ite.org.

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Download the recommended practice and additional fact sheets at: www.ite.org/css/ or www.contextsensitivesolutions.org.