

Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities

The design of a thoroughfare helps define context as much as adjacent land uses and buildings. The conventional thoroughfare design process emphasizes vehicular capacity and automobile access using functional classification, traffic volume and speed as the determinants for design parameters, but often does not consider the surrounding context.

CSS has expanded the process to integrate thoroughfares into their surroundings—a new emphasis on urban thoroughfares designed to support the activities of the adjacent land uses, whether existing or as a goal for the future. Fact Sheet 2, “A Framework for CSS in Urban Thoroughfare Design,” introduces the concept of context zones and thoroughfare types.

Context Zones

Every thoroughfare has an immediate physical context created by buildings and activities on adjacent properties and is also part of a broader context created by the surrounding neighborhood or district. While the elements of context can combine in almost infinite varieties, this report uses four context zones to define and categorize urban areas: suburban (C-3), general urban (C-4), urban center (C-5) and urban core (C-6). See **Figure 1** for a general description of context zones. **Figures 2 and 3** illustrate how context varies from suburban to urban core.

Context Zone	Distinguishing Characteristics	General Character
C-1 Natural	Natural landscape	Natural features
C-2 Rural	Agricultural with scattered development	Agricultural activity and natural features
C-3 Suburban	Primarily single family residential with walkable development pattern and pedestrian facilities, dominant landscape character	Detached buildings with landscaped yards
C-4 General Urban	Mix of housing types including attached units, with a range of commercial and civic activity at the neighborhood and community scale	Predominantly detached buildings, balance between landscape and buildings, presence of pedestrians
C-5 Urban Center	Attached housing types such as townhouses and apartments mixed with retail, workplace and civic activities at the community or sub-regional scale.	Predominantly attached buildings landscaping within the public right of way substantial pedestrian activity
C-6 Urban Core	Highest-intensity areas in sub-region or region, with high-density residential and workplace uses, entertainment, civic and cultural uses	Attached buildings forming sense of enclosure and continuous street wall landscaping within the public right of way, highest pedestrian and transit activity
Districts	To be designated and described locally, districts are areas that are single-use or multi-use with low-density development pattern. These may be large facilities such as airports, business parks and industrial areas.	

Figure 1. General descriptions and characteristics of the full range of context zones. This report focuses on urban zones (C-3 through C-6).

Thoroughfare Types

Thoroughfare type is a classifying system that governs the thoroughfare's design criteria and, along with the surrounding context, is used to determine the physical configuration including the roadside, the traveled way and intersections. This report focuses on thoroughfare classifications of boulevards, avenues and streets. Boulevards are divided thoroughfares that serve a mix of

Overview

The CSS publication was developed to provide planners and designers with guidance and information for using flexibility in existing American Association of State Highway and Transportation Officials (AASHTO) policy and information for context sensitive solutions (CSS) in design of major urban thoroughfares (arterials and collectors). The report was a joint effort between the Institute of Transportation Engineers and the Congress for the New Urbanism, sponsored by the Federal Highway Administration and the Environmental Protection Agency.

The publication describes:

- The importance of integrating the principles of CSS in urban roadway improvement projects,
- How CSS principles can be used in the transportation planning and project development processes, and
- Specific guidance on thoroughfare cross-section and intersection design.

The publication, published as an ITE Proposed Recommended Practice to supplement existing AASHTO policies and information, provides the user community an opportunity to use the new guidance and information, then to provide suggestions for improvements to be incorporated into the final ITE recommended practice.



Figure 2. An aerial view of suburban (C-3) and general urban (C-4) contexts.



Figure 3. An aerial view of urban center (C-5) and urban core (C-6) contexts. Source: Kimley-Horn and Associates, Inc.

regional and local traffic and carry the most important transit routes. Avenues can be up to four lanes with a median and serve a mix of regional and local traffic. Streets are generally two lanes and serve predominantly local traffic.

Why Use Context Zones and Thoroughfare Types?

Thoroughfares governed by functional classification and design standards result in a pre-determined configuration ensuring the thoroughfare is designed consistently regardless of its context. This can be a source of conflict with the community because the design may not be compatible with its surroundings or fail to address community concerns and interests. The concept of context zones and thoroughfare types gives the designer guidance that supplements conventional design guidance. These concepts inform the designer of the needs of a specific context and encourage working with stakeholders and the community to create compatible designs.

Why Is This Different from Current Practice?

Conventional thoroughfare design is driven by traffic demand and level of service objectives. The design process usually starts with functional classification and number of lanes. These fundamental criteria are independent of the surrounding context except whether the thoroughfare is located in a rural or urban setting. This mobility-focused process influences the rest of the design process.

As context changes, thoroughfare design also changes to support the activity generated by the context. As the intensity of adjacent land uses increases, the roadside accommodates greater diversity of functions. Similarly, the traveled way emphasizes support for context activities such as on-street parking, bike travel, land access and pedestrian-friendly intersections, often requiring trade-offs between automobile capacity and multimodal design elements.

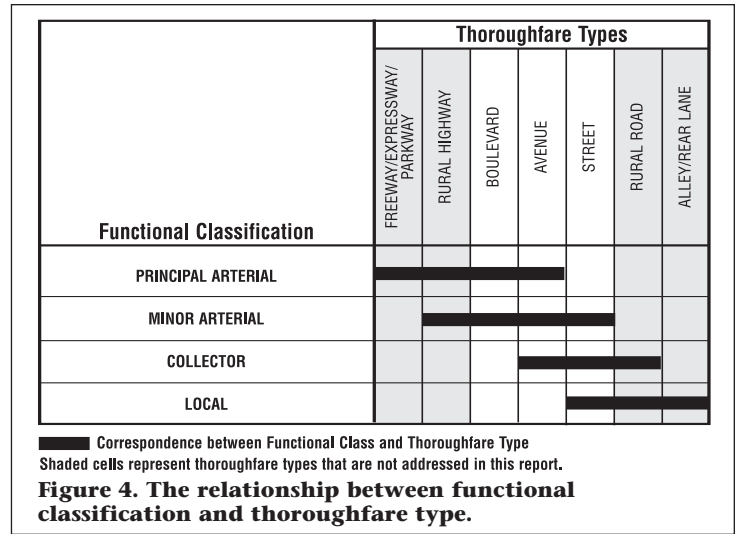
Selecting a Context Zone

Much like the “rural” and “urban” classifications used in selecting design criteria in AASHTO’s *A Policy on Geometric Design of Highways and Streets*, context zones are an important determinant of basic design criteria. In addition to the tables and definitions in the report that define and describe context zones, guidelines for identifying and selecting a context zone include:

- Consider both existing conditions and plans for the future, recognizing that thoroughfares often last longer than adjacent buildings.
- Assess area plans and review general, comprehensive and specific plans, zoning codes and community goals and objectives. These provide the vision for the context.
- Compare predominant land use patterns, building types and land uses to the characteristics presented in the report.
- If an area or corridor has a diversity of characteristics that could fall under multiple context zones, divide the area into two or more context zones.
- Use pedestrian and transit activity based on the type, mix and proximity of land uses as indicators of urban context.
- Consider context characteristics beyond the thoroughfare under design, possibly extending consideration to include entire neighborhoods or districts.

Selecting a Thoroughfare Type

This report emphasizes thoroughfares in areas with traditional urban qualities – compact, walkable, mixed-use environments – the design of which is governed by both functional class and thoroughfare type. Functional classification defines a thoroughfare’s function and role in the network as well as governs the selection of certain design controls. Use functional class to determine:



- Continuity of the thoroughfare and the types of places it connects
- Purpose and lengths of trips
- Level of land access
- Type of freight service
- Types of public transit served

Thoroughfare type governs the selection of design criteria and the configuration of the thoroughfare. Thoroughfare types help identify priority design elements when designing in constrained rights-of-way. Use thoroughfare types, along with context zones, to establish design parameters and dimensions for:

- The roadside (e.g., sidewalks, planting strips)
- The traveled way (e.g., lanes, medians, on-street parking, bike lanes)
- Intersections

Selecting a thoroughfare type requires an understanding of the existing and future context and the types of activities the thoroughfare needs to support. Beginning with this understanding, the following guidelines can help the designer select an appropriate and compatible thoroughfare type:

- Review the area transportation plan to establish guiding principles and policies for the broader community; understand the community vision for the context and the thoroughfare.
- Evaluate the network to ensure the transportation system, as a whole, accommodates projected growth.
- Use functional classifications to identify the range of compatible thoroughfare types (see **Figure 4**).
- Identify modal requirements (e.g. transit, bicycle, emergency access, pedestrian and freight needs).
- Use **Figure 5** to match the community vision, modal requirements and desired characteristics to a thoroughfare type.

Urban Thoroughfare Type	Number of Through Lanes	Design Speed (mph)	Operating Speed (mph)	Intersection Spacing	Transit Service Emphasis	Median	Curb Parking	Bicycle Facilities	Freight Mvmt.
BOULEVARD	4 to 6	35-40	30-35	660 to 1,320 feet	Express and Local	Required	Optional		Regional Truck Route
MULTIWAY BOULEVARD	4 to 6	30-40 (20 in access roadway)	25-35	660 to 1,320 feet (400 to 600 feet for access lanes)	Express and Local	Required	Yes on access roadway	Bike Lanes or Parallel Route	Regional Route/Local deliveries only on access roadway
AVENUE	2 to 4	30-35	25-30	300 to 660 feet	Local	Optional	Yes		Local Truck Route
STREET	2	30	25	300 to 600 feet	Local	Optional	Yes		Local Deliveries Only

Figure 5. General design characteristics of boulevards, avenues and streets.

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Additional fact sheets are available.