Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities

Successful urban thoroughfare design requires an understanding of both context and thoroughfare design. The book explains the features of the built environment that create and shape the urban context, then presents a new framework for context-sensitive solutions (CSS) in walkable communities. The framework:

- Introduces and defines four context zones that describe places varying in intensity from walkable suburbs to the most urban downtowns;
- Introduces a new classification system that uses both functional class (such as arterial, collector and local designations) and thoroughfare type (such as boulevard, avenue and street) to describe the role of a thoroughfare in the circulation network and its design character; and
- Describes features of thoroughfare types and context zones that result in compatibility.

The Concept of Context Zones

Information contained in the report uses urban context to describe adjacent surroundings, then uses context to help select compatible thoroughfare types and design criteria. Context zones are used to categorize urban development density and intensity (see examples in **Figures 1–3**). The four context zones referenced in the report are a sub-set of the seven zones describing a full "transect," or continuum, of environments from natural to highly urbanized, as shown in **Figure 4**.

Figure 1. An avenue in a suburban context. Source: Kimley-Horn and Associates Inc.

Figure 2. A street in an urban center context. Source: Meyer, Mohaddes Associates Inc.

Figure 3. A boulevard in an urban core context. Source: The Congress for the New Urbanism.

Context zones offer a shorthand for describing different parts of cities and towns, emphasizing the characteristics that create walkable communities. In some communities that will benefit from this report, these characteristics already are in place. In others, the creation of these characteristics is a community goal. Successful thoroughfare design in urban places is not merely sensitive to these different contexts—the thoroughfare is part of the context and its design helps define the place. This report describes important non-transportation features that define context in urban areas, to assist the practitioner in identifying different context zones and working successfully in them. These features include:

- **Land use** – Characterizes the type or mix of urban activity and is a major factor in selection of design criteria, assembly of the cross-section components and allocation of right-of-way width.
- **Site design** – Defines the way buildings, circulation, parking and landscape are arranged on a site, creating a vehicle- or a pedestrian-oriented location. The defining elements of site design include building placement and orientation, landscape and topography and parking layout and placement.
- **Building design** – Building height and massing can help shape the "feel" of the urban context by creating a sense of street enclosure. Other aspects of building design that can help create an attractive, walkable urban setting include placement of entries and windows and pedestrian-scale detailing.

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.

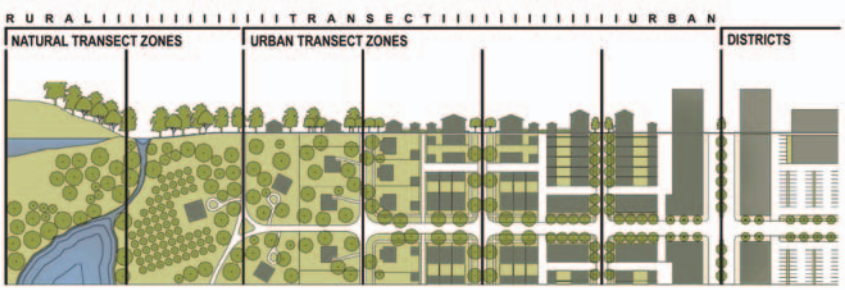

Figure 4. A continuum of contexts from natural to most urban as illustrated in the transect by Duany Plater-Zyberk and Company.

Context Zone	Summary Character	Building Setback and Frontage	Building Height	Land Use Mix
SUBURBAN (CZ-3)	Landscaped, few pedestrians, detached buildings widely separated	Deep yard setbacks dominant landscaped character (fence/hedge, yard, & porch)	1 to 2 story with some 3 story	Restricted residential with "at-home" businesses and limited commercial, institutional/civic, and open space
GENERAL URBAN (CZ-4)	Urban, pedestrians present, balanced landscape and predominantly detached buildings	Medium yard setbacks balanced landscape and building character (fence/hedge, yard, & porch)	2 to 3 story with some 1 story and some above 3 story; and few taller work buildings	Limited medium-density residential with limited mix of other uses typically ground level - institutional/civic, commercial, and open space
URBAN CENTER (CZ-5)	Urban, substantial pedestrian activity, predominantly built with attached buildings with most landscape within the thoroughfare right-of-way	Small or no setback, build to lines common, building character defining street wall (storefront, stoop, & forecourt)	3 to 5 story with some lower and few taller buildings	Open higher-density commercial, employment, and residential use with support institutional/civic and open space
URBAN CORE (CZ-6)	Urban, most pedestrian activity predominantly , built with attached buildings providing a strong sense of enclosure with some landscape within the thoroughfare right-of-way	Small or no setback, build to line at sidewalk/RW, building character defining street wall (storefront, stoop, & forecourt)	4+ story with few lower buildings	Open highest-density commercial, employment, and residential use with support institutional/civic and open space

Figure 5. General characteristics of context zones.

These and other components of the urban context influence many thoroughfare design decisions, such as roadside width, need for on-street parking, target speed, frequency and length of pedestrian crossings, access to parking and landscaping. While context is defined by multiple parameters, the characteristics shown in **Figure 5** describe the overall relationship between sites, buildings and landscape that contribute to each context zone.

Thoroughfare Types

The publication focuses on the design of thoroughfares in pedestrian-oriented areas that serve compact, walkable, mixed-use environments. Portions of the report separately address the design of vehicle mobility priority thoroughfares that serve areas where movement of vehicular traffic is a high priority. The report's framework calls for the design of thoroughfares in pedestrian-oriented areas to be governed by both functional class and thoroughfare type.

Functional classification defines a thoroughfare's function and operational role in the network and governs selection of design controls such as speed and sight distance. Specifically, it reflects:

- Continuity of the thoroughfare through a region;
- Purpose and lengths of trips;
- Level of land access;
- Type of freight service; and
- Suitability of different types of public transit service.

Thoroughfare type governs the selection of the thoroughfare's design criteria and, along with the surrounding context, is used to determine the physical configuration of the thoroughfare, addressing which elements are included in the design and the selection of dimensions. Thoroughfare types, along with context zones, are used to develop designs for:

- The roadside (sidewalks, planting strips);
- The traveled way (moving lanes, medians, on-street parking); and
- Intersections.

Three types of major thoroughfares can meet the needs of urban contexts in walkable communities. These are:

- **Boulevards** – Moderate speed (35 mph or less), divided arterial thoroughfares that serve multimodal movement. They serve a mix of regional and local traffic and important transit routes, including bus rapid transit. They may be long corridors, typically four lanes but sometimes wider, serve longer trips and provide limited access to land through the use of access management. Curb parking can be an important element of boulevard design because it offers convenience as well as creating a buffer for activity on the sidewalk and adjoining properties.
- **Avenues** – Moderate speed (30 to 35 mph), urban arterial or collector thoroughfares, generally shorter in length than boulevards. They are primary pedestrian and bicycle routes and may serve local transit. Avenues do not exceed four lanes. Some avenues feature a raised landscaped median. Avenues may serve commercial or mixed-use areas and usually provide curb parking.
- **Streets** – Low speed (25 mph), thoroughfares, generally two lanes and serve predominantly local traffic and access to abutting property. Streets may serve as the main street of commercial or mixed-use areas and emphasize curb parking.

Changes in Thoroughfare Design as Context Changes

Supporting the activities of adjacent land uses in addition to providing multimodal safety and mobility means that thoroughfare design often will change as the thoroughfare passes through areas of different character.

The change in context and the expression of community values will determine the need for transitions and change in thoroughfare design parameters over the length of a thoroughfare. The result might be a sequence of changes in the cross-section reflecting and supporting changes in context, such as transitioning a highway to a main street when the highway enters a downtown, with reduced speed, controlled intersections and urban design features (such as on-street parking, sidewalks, pedestrian-scaled lighting, street trees and landscaping). On re-entering a rural environment, speed increases, shoulders replace on-street parking, sidewalks may be eliminated and landscaping is set back farther from the pavement. The report's framework helps practitioners identify how these changes and transitions in thoroughfare design can be accomplished and provides design guidance for the appropriate elements comprising the thoroughfare.

Figure 6. An urban boulevard in Glendale, CA. Source: Kimley-Horn and Associates Inc.

Figure 7. An urban street in West Palm Beach, FL. Source: Kimley-Horn and Associates Inc.

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