Designing Walkable Urban Thoroughfares

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Foundation

Purpose

This course has been developed in response to wide-spread interest for improving both mobility choices and community character through a commitment to creating and enhancing walkable communities. Many agencies will work toward these goals using the concepts and principles in this course to ensure the users, community and other key factors are considered in the planning and design processes used to develop walkable urban thoroughfares.

Traditionally, through thousands of years of human settlement, urban streets have performed multiple functions. Mobility was one of the functions, but economic and social functions were important as well. Retail and social transactions have occurred along most urban thoroughfares throughout history. It is only in the 20th century that streets were designed to separate the mobility function from the economic and social functions. This course is intended to facilitate the restoration of the complex multiple functions of urban streets. It provides guidance for the design of walkable urban thoroughfares in places that currently support the mode of walking and in places where the community desires to provide a more walkable thoroughfare, and the context to support them in the future.

While the concepts and principles of context sensitive solutions (CSS) are applicable to all types of transportation facilities, this course focuses on applying the concepts and principles in the planning and design of urban thoroughfares—facilities commonly designated by the conventional functional classifications of arterials and collectors. Freeways, expressways and local streets are not covered in this course. The following chapters emphasize thoroughfares in "walkable communities"—compact, pedestrian-scaled villages, neighborhoods, town centers, urban centers, urban cores and other areas where walking, bicycling and transit are encouraged. Practitioners working on places and thoroughfares that do not completely fit within this report's definition of walkable urban thoroughfares may also find this guidance useful in gaining an understanding of the flexibility that is inherent in the "Green Book"—the American Association of State Highway and Transportation Officials' (AASHTO's) *Policy on Geometric Design of High- ways and Streets* (AASHTO, 2004a).

Throughout this course, for brevity, the terms "principles of CSS" and "CSS" are used interchangeably.

CSS and This course

The principles of CSS promote a collaborative, multidisciplinary process that involves all stakeholders in planning and designing transportation facilities that:

- Meet the needs of users and stakeholders;

- Are compatible with their setting and preserve scenic, aesthetic, historic and environmental resources;

- Respect design objectives for safety, efficiency, multimodal mobility, capacity and maintenance; and

- Integrate community objectives and values relating to compatibility, livability, sense of place, urban design, cost and environmental impacts. (FHWA and Atlanta Regional Commission)

Applying the principles of CSS enhances the planning and design process by addressing objectives and considerations not only for the transportation facility but also for the surrounding area and its land uses, developments, economic and other activities and environmental conditions. With a thorough understanding of the CSS principles and design process, the practitioner planning or designing a thoroughfare seeks to integrate community objectives, accommodate all users and make decisions based on an understanding of the trade-offs

that frequently accompany multiple or conflicting needs.

Applying the principles of CSS in the transportation planning or project development process identifies objectives, issues and trade-offs based on stakeholder and community input starting at the regional planning process and continuing through each level of planning and project development (for example, network, corridor and project). This course provides guidance in how CSS principles may be considered and applied in the processes involved with planning and developing roadway improvements for walkable urban thoroughfares.

As documented in *Context-Sensitive Design Around the Country* (TRB 2004), *A Guide to Best Practic- es for Achieving Context Sensitive Solutions* (TRB 2002) and other sources, the principles of CSS are successfully used in towns and cities as well as in rural areas. Agencies are transforming the current project development process to meet the expecta- tions of all users and stakeholders. Integrating CSS principles into the project development process re- sults in the consideration of a broad range of ob- jectives and an attempt to balance these objectives based on the needs and conditions specific to each project and its context. The use of CSS principles in the project development process is resulting in community interests, user needs and environmen- tal issues being considered early in the development of roadway improvement projects—specifically in defining the project's purpose and need and, as ap- propriate, in other decisions in each phase of the project.

Objectives of this course

The objectives of this course are to
1. Identify how CSS principles can be applied in the processes (for example, network, corri- dor, project development) involved with plan- ning and developing roadway improvement projects on urban thoroughfares for walkable communities;
2. Describe the relationship, compatibility and trade-offs that may be appropriate when balanc- ing the needs of all users, adjoining land uses,

environment and community interests when making decisions in the project development process;
3. Describe the principles of CSS and the benefits and importance of these principles in transpor- tation projects;
4. Present guidance on how to identify and select appropriate thoroughfare types and correspond- ing design parameters to best meet the walkabil- ity needs in a particular context; and
5. Provide criteria for specific thoroughfare ele- ments, along with guidance on balancing stake- holder, community and environmental needs and constraints in planning and designing walk- able urban thoroughfare projects.

Walkable Communities

Walkable communities are urban places that sup- port walking as an important part of people's daily travel through a complementary relationship between transportation, land use and the urban design char- acter of the place. In walkable communities, walking is a desirable and efficient mode of transportation. Although nearly every human environment can ac- commodate some degree of walking, walkable com- munities give additional value and support to make walking an enjoyable experience (see sidebar regard- ing the "continuum of walkability").

Principles for walkable communities include the following:
1. Accommodating pedestrians, bicycles, transit, freight and motor vehicles within a fine-grained urban circulation network where the allocation of right of way on individual thoroughfares is based on urban context, often determined through the process in this course;
2. Providing a compact and mixed-use environ- ment of urban buildings, public spaces and land- scapes that support walking directly through the built environment and indirectly by supporting human and economic activities associated with adjacent and surrounding land uses;
3. Achieving system-wide transportation capac- ity by using a high level of multimodal net- work connectivity, serving walkable commu-

nities with appropriately spaced and properly sized pedestrian, bicycle, transit and vehicular components rather than by increasing the vehicular capacity of individual thoroughfares; and

4. Creating a supportive relationship between thoroughfare and context by designing thoroughfares that will change as the surroundings vary in urban character.

Walkable communities have the following characteristics:

1. A mix of land uses in close proximity to one another;

2. A mix of density including relatively compact developments (both residential and commercial);

3. Building entries that front directly onto the sidewalk without parking between entries and the public right of way;

4. Building, landscape and thoroughfare design that is pedestrian-scale—in other words, that provides architectural and urban design features scaled and detailed to be appreciated by persons who are traveling slowly and observing from the sidewalk at street level;

5. Thoroughfares designed to serve the activities generated by the adjacent context in terms of the mobility, safety, access and place-making functions of the public right of way; and

6. A highly connected, multimodal circulation network, usually with a fine "grain" created by relatively small blocks providing safe, continuous and balanced multimodal facilities that capitalize on compact urban development patterns and densities.

The above principles and characteristics are the qualities found in urban places where development pattern, intensity and design combine to facilitate frequent walking and transit use. In these places, the nonauto modes are attractive and efficient choices for many people, in concert with automobiles and their convenient and accessible parking. An increasing number of communities are recognizing the value of these features and are embracing them in land use, urban design and transportation

Continuum of Walkability

At some level nearly every place in the built environment is walkable. Some places, such as freeways or highways do not allow for pedestrians. At the other extreme, public spaces such as plazas, parks and pedestrian malls are primarily for pedestrians and generally exclude vehicles. Thoroughfares that are in between these two extremes require trade-offs between pedestrian and vehicle priority. The focus of this course is on the thoroughfares that are "pedestrian supportive" as shown in the spectrum of pedestrian and vehicle supportiveness below. Some of the concepts in this course can be used in pedestrian-tolerant areas as well.
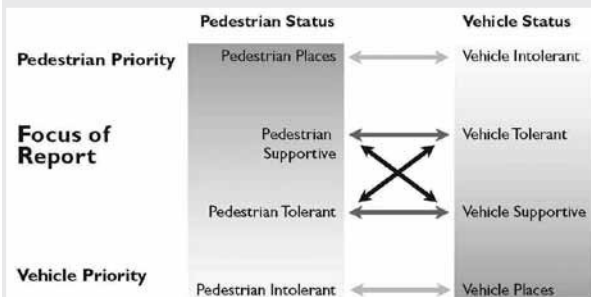
Pedestrian priority on urban thoroughfares falls into the following ranges:

- Pedestrian places—mixed-use areas with a significant pedestrian presence, not dominated by, and sometimes prohibiting, vehicles;

- Pedestrian supportive—mixed-use areas with moderate to significant pedestrian presence;

- Pedestrian tolerant—areas that minimally accommodate pedestrians but do not support a high level of pedestrian activity and are usually vehicle dominant; and

- Pedestrian intolerant—areas with little support for walking or that prohibit pedestrians and are vehicle dominant.

Thoroughfares that are pedestrian supportive range from being tolerant to supportive of vehicular access and mobility. The specifics of the community's objectives, transportation needs and priorities are resolved through the CSS process to arrive at the proper thoroughfare design solutions.

Source: Adapted from a system for describing "degrees of walkability" for street environments, Charlier Associates.

plans, often using techniques drawn from planning and design movements such as smart growth and new urbanism.

As the successful design of walkable communities is complex and is not the primary focus of this report, the following references are provided as some of the many sources for useful guidance regarding the overall design of walkable communities:

1. *Promoting Sustainable Transportation Through Site Design: An ITE Recommended Practice,* 2010. This document provides specific guid- ance regarding the design of sites to create a context that supports walkable urban thor- oughfares.

2. *SmartCode v9.2,* (Andres Duany, Sandy Sor- lien, and William Wright, 2008). This docu- ment is a model development code for walk- able communities that is based upon the Transect.

Applicability of this Recommended Practice

This recommended practice provides guidance for designing urban thoroughfares—facilities designated as arterials or collectors—to support walkable com- munities. Most applications of the design guidance included in this course will often apply in one of the following two circumstances:

1. A thoroughfare project in an existing walkable community where its multimodal character is to be preserved and enhanced; or

2. A thoroughfare project in an area where com- munity goals call for a walkable context, in which case applying this design guidance will shape public investment to advance those goals.

Both circumstances can apply to either new con- struction or retrofit projects.

Commitment to walkable communities as a goal means that throughout the design process, location will serve as a design control (see Chapter 7). As a result, design decisions will consistently favor those elements and dimensions that are most supportive

of walkable community characteristics. Examples of the design-decision processes favoring walkable community outcomes are provided in Chapter 5.

Other development contexts will also benefit from applying the guidance presented in this course. These include places characterized by business parks, resi- dential subdivisions and strip commercial develop- ment. In areas such as these, outside of existing and evolving walkable communities, this course can help designers provide benefits including

- Safe and comfortable facilities for pedestrians;

- Attractive streetside areas;

- Appropriate sizing of facilities with respect to pavement width, with associated potential for cost savings in right-of-way acquisition, con- struction and maintenance;

- Successful integration of transit facilities and operations; and

- Speed management.

In cases where the design guidance is being used in development contexts other than walkable commu- nities (existing or planned), design controls other than location may dominate trade-off decisions.

Relationship to Other Guidance

This course supplements and expands on policies, guides and standards commonly used by state and local transportation, engineering and public works engineers and planners. Those publications include *A Policy on Geometric Design of Highways and Streets* (AASHTO 2004a); *Guide for the Planning, Design and Operation of Pedestrian Facilities* (AASHTO 2004b); *Guide for the Development of Bicycle Facilities* (AASHTO 1999); *Highway Safety Design and Opera- tions Guide* (AASHTO 1997); *Roadside Design Guide* (AASHTO 2002); as well as state department of transportation design policies and manuals, local mu- nicipal street design standards, urban design guides and guidances published by other standard-setting organizations. This publication expands on informa- tion published by the Federal Highway Administra- tion (FHWA) in *Flexibility in Highway Design* (1997) and the *Manual on Uniform Traffic Control Devices* (2009) and builds upon the considerations in devel-