

The Reference Series: Transportation in Connecticut is comprised of short articles on transportation topics pertinent to Connecticut.

The series is provided as a first step in understanding the transportation planning, development, design and implementation process.

Many article topics focus on elements particularly relevant to locally administered transportation projects.

These simple guides are the product of coordination between the Federal Highway Administration, the University of Connecticut's CTI-Technology Transfer Center and the State of Connecticut Department of Transportation.

The full detail of transportation programs and processes, particularly rules of eligibility, special provisions, requirements, or constraints is not within the purview of these reference documents.

It is imperative that municipal staff contact their RPO early in the process for guidance.

In addition to the CT DOT website, www.ct.gov/dot, the Local Project Administration website, www.t2center.uconn.edu, of the University of Connecticut's CTI-Technology Transfer Center provides many resources for municipal staff and managers of local projects.

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Website: www.ct.gov/dot/pamphlets

Find more articles on transportation topics specific to Connecticut at www.ct.gov/dot/pamphlets.

REFERENCE SERIES: Transportation in Connecticut

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FHWA FUNCTIONAL CLASSIFICATION OF HIGHWAYS

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Introduction

This simple guide provides an overview of Functional Classification of Highways by the U.S. Department of Transportation's Federal Highway Administration (FHWA). This fact sheet presents highlights from the federal guidance. It also relates the application of the functional classification to the administration of local transportation projects when Federal-aid funding is involved.

This article is intended to provide an overview of functional classification for local project administrators and does not set guidance or policy. All applicable federal regulations and guidelines remain overarching. To the extent practical, the complex nature of functional classification is summarized. Much of the information in this article is taken directly from the FHWA website and materials, either fully or in part.



Connecticut... *On The Move!*

There are two major sources for this article, in addition to Federal Highway Administration (FHWA) division and Connecticut's Department of Transportation staff.

- The first is the Highway Functional Classification: Concepts, Criteria and Procedures; this document was revised in 2013 and is available online at www.fhwa.dot.gov/planning/processes/statewide/related/highway_functional_classifications.
- The second is the Federal Highway Administration (FHWA) Flexibility in Highway Design, Chapter 3: Functional Classification which is available online at www.fhwa.dot.gov/environment/publications/flexibility.

Practical Definition

Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide.

Basic to this process is the recognition that individual roads and streets do not serve travel independently in any major way. Rather, most travel involves movement through a network of roads.

It becomes necessary then to determine how this travel can be channelized within the network in a logical and efficient manner.

The phased schematic illustrations to the right illustrate channelization of trips.

They show the difference between the preferred, or desired, lanes of travel from the road users perspective in comparison to the actual road network provided.

The relative widths of the lines and sizes of the circles represent the number of users and level of trip generation.

Since it is impractical to provide direct-line connections for every desire line, trips must be channelized on a limited road network in a logical and efficient manner. Functional classification defines the nature of this channelization process.

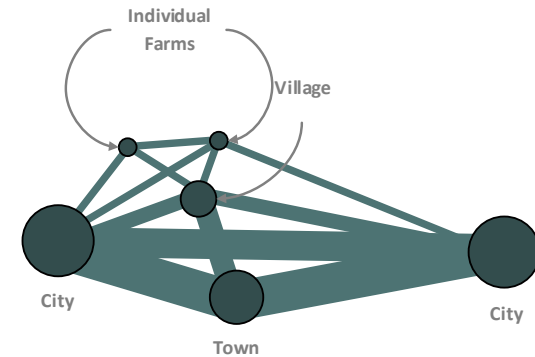
Higher intensity land use and travel makes it more difficult to identify specific travel generation centers internal to urban developments.

As such, additional considerations, such as spacing, become more important in defining a logical and efficient network in congested areas.

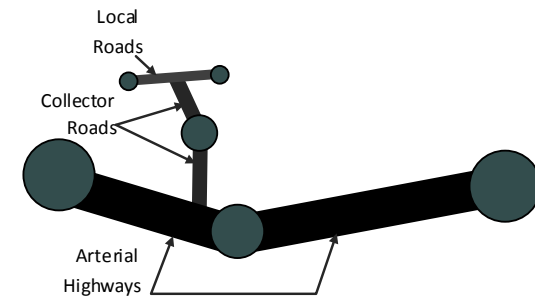
A Role of the Highway Network

A highway network plays a dual role in providing:

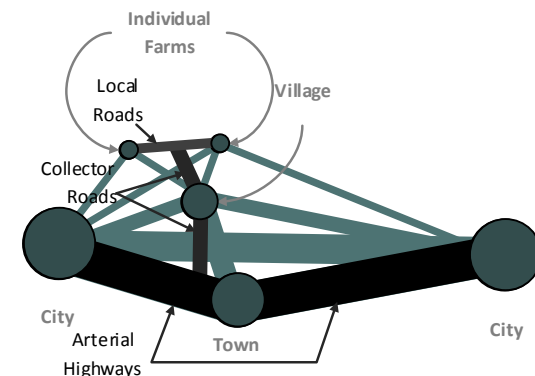
- access to property —access is a fixed requirement, necessary at both ends of any trip; and
- travel mobility —mobility, along the path of such trips, can be provided at varying levels, usually referred to as “level of service,” and can incorporate a wide range of elements (e.g., riding comfort and freedom from speed changes) but the most basic is operating speed or trip travel time.



Road Users Desired Lanes of Travel



Road Network Provided



Overlay of Road Network versus Desired Lanes

Factors Considered and Hierarchy

Population within an area is one factor considered in classifying a roadway's function as it is reflective a location's ability to attract and generate travel as well as its association with other economic generators such as employment and retail.

However, recreational areas, including seasonal use, national parks, and state fairgrounds, as well as military installations may also be major travel generators with no significant resident population.

Future developments are also a consideration if deemed to be imminent and significant potential travel generators.



Within rural areas, urbanized areas and small urban areas, there is a need to classify systems differently to accommodate the differences in the characteristics and magnitude of services provided within these area types. This is due, in part, to varying density, land uses, travel patterns, and the interaction of these factors.

As such, a hierarchy is established for designating functional classifications to roadway systems that first begins at identifying the area type: rural area, urbanized area or small urban area.

Within the functional classification system, there are subclasses such as principal arterial, minor arterial, major collector, minor collector and local roadway.

The subclassification applied will depend upon the area type within which the roadway is located and the roadway's role in the community with respect to vehicle miles traveled, land use and access, etc.



Consolidation of Classes

Moving forward with functional classification of roadways, there has been a consolidation of rural and urban designations.

The consolidation of rural and urban designations means that some functional classifications that previously existed in only one area-type are now recognized as valid in all area-types.

Recent guidance from the federal government suggests that the functional classification should not change automatically at the rural/urban boundary as it has been designated in the past.

In doing so, the new classification considers the actual functional criteria primary to existence within or outside of an urban/rural boundary.



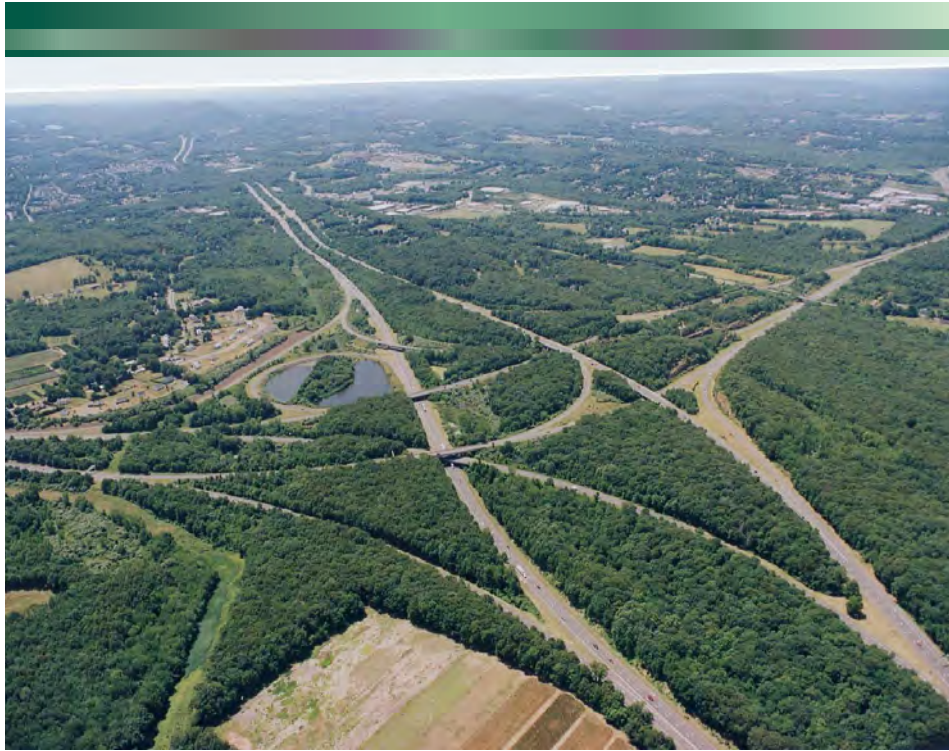
Available Mapping

Several maps, including the functional classification of roadways by municipality in the State of Connecticut, are available at the Department's website (www.ct.gov/dot/maps).

The Department updates these maps periodically based on changes to classifications of the roadways and new federal guidance on methodology for classification.

The Department also offers maps to delineate Connecticut's RPOs, distinguishing between rural and MPO, and also the UZA and TMA boundaries.

Additionally, a map of the Connecticut planning regions and their contact information is available at the Local Project Administration website of the University of Connecticut's CTI-Technology Transfer Center: www.t2center.uconn.edu.



Application of Principles

Functional classification can be applied in planning and developing highway systems.

Functional classification can also be considered when determining the jurisdictional responsibility for particular systems and in fiscal planning.

Local project administrators will find that many Federal-aid programs have eligibility criteria based on functional classification.

The Highway Performance Monitoring System (HPMS) program relies on functional classification of roadways.

Federal transportation funding apportionments, such as those outlined in the recent Moving Ahead for Progress in the 21st Century (MAP-21) legislation, are typically only available to certain classes of roadways and federal funding is often based on roadway miles in particular classes.

It is, therefore, important for municipal staff to understand the concepts of functional classification. Such an understanding can help local governments achieve more with less municipal funding by maximizing available Federal-aid match.