

HIGHWAY FUNCTIONAL CLASSIFICATION

Within the State of Oklahoma

A Guide for County Commissioners & City Officials

**Oklahoma Department of Transportation
Planning & Research Division**

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**HIGHWAY FUNCTIONAL CLASSIFICATION
WITHIN THE STATE OF OKLAHOMA**

A Guide for County Commissioners & City Officials

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Oklahoma Department of Transportation
Planning & Research Division
GIS Management, Systems Section

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HISTORY OF THE FUNCTIONAL CLASSIFICATION SYSTEM

The concept of a functional classification system has been helpful for many years as a management tool in a variety of areas pertaining to highways. Federal, State and local governments use this tool to assign jurisdictional responsibility, allocate funds, and establish appropriate design standards. A functional classification for highways has been an important part of Federal-aid highway programs for many decades.

The National Highway Functional Classification study was mandated by the Congress in the 1968 Federal-Aid Highway Act. Study procedures were developed to functionally classify all existing public roads and streets on the basis of their most logical use in serving current travel demands and land use. The study revealed that Federal-aid highway systems classification had become inconsistent with the function of roads and streets and adjustments in these systems were necessary.

The Federal-Aid Highway Act of 1973 required the use of an updated functional highway classification to modify Federal-aid highway systems by July 1, 1976. The functional classification study and Federal-aid highway systems realignment were completed by the State highway/transportation agencies in cooperation with local officials, and the results were approved by the FHWA.

After the 1976 federally mandated functional classification of highways was completed, States had routinely updated this functional classification to meet Federal-aid highway programs classification requirements. However, these adjustments resulted in the national functional classification of highways being no longer consistent among the States.

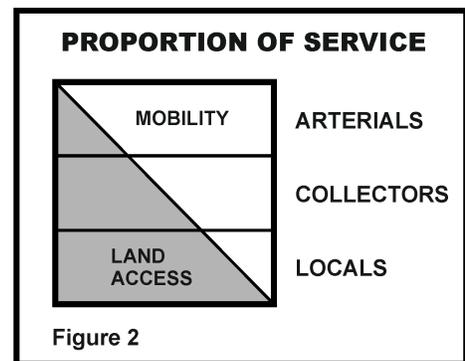
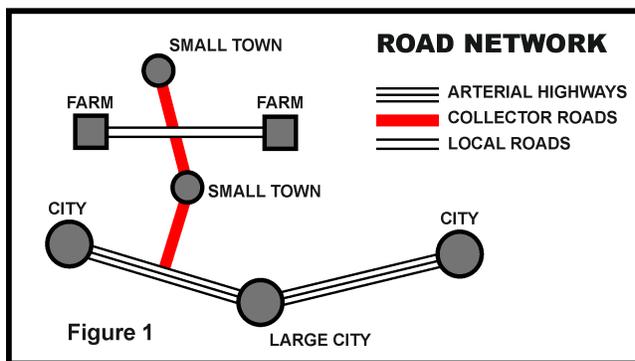
Through legislation of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, the U. S. Department of Transportation recommended that a reclassification study be completed prior to designation of the National Highway System to provide an interconnected system of principal arterial routes that serve major population centers, intermodal transportation facilities, and major travel destinations.

In 1993, the functional reclassification was completed, and the National Highway System was established in November, 1995. The functional classification of 1993 has been routinely updated and is still of benefit today as an useful management tool.

THE CONCEPT OF FUNCTIONAL CLASSIFICATION

Functional classification is the process by which streets and highways are grouped into classes according to the character of service they are intended to provide. Cities, towns, businesses, farms, homes, schools, recreation areas and other places generate or attract trips. These trips involve movement of vehicles through a network of roads. It becomes necessary to determine how travel movement can be channelized within a limited road network in a logical and efficient manner. Functional classification defines the nature of this channelization process by defining the role that any particular road or street should play in serving the flow of trips through a road network. The heavy travel movements are directly served by major channels, and the lesser trips are channeled into somewhat indirect paths.

The hierarchy of a functional classification system for a rural area is illustrated in figure 1. The arterial highways provide direct service for cities and larger towns which generate and attract a large proportion of trips. The collectors serve small towns directly and connect them to the arterial network. Collectors also collect traffic from local roads, the bottom level of the classification system, which serve individual farms and other rural land usage.



A similar hierarchy of a classification system can be defined for urban areas as well. However, because of the high intensity of land use and travel throughout an urban area, specific travel generation centers are more difficult to identify. Additional considerations, such as spacing, become more important in defining a logical and efficient network.

Traffic channelization provides access to property and various levels of travel mobility. Access is a fixed necessary requirement at both ends of any trip. Level of travel mobility refers to riding comfort, freedom from speed changes, and trip travel time.

The proportion of service provided by each functionally classified category is illustrated in figure 2. Arterial networks emphasize a high level of mobility for through traffic movements. Local facilities emphasize more on the land access function. Collectors offer a compromise between both functions of land access and mobility.

ORGANIZATION OF THE FUNCTIONAL CLASSIFICATION SYSTEM

The Functional Classification System is divided into the rural and urban areas. The characteristics of these two areas are different in the types of land use, street and highway networks, and the nature of travel patterns. The rural areas are known as the County Collector System. The urban areas are further divided into the small urban and urbanized areas.

Cities and towns are designated urban areas by the Bureau of the Census according to the population densities. An urban area with population between 5,000 and 49,999 becomes a small urban area. Any city or town with population less than 5,000 will fall into the County Collector System. The urbanized areas are urban places with a population of 50,000 or more. An urbanized area might encompass several nearby small urban areas. For example, Oklahoma City urbanized area includes Edmond, Bethany, Moore, and many other smaller towns near or surrounded by Oklahoma City. There are five urbanized areas in Oklahoma. These areas are Oklahoma City, Tulsa, Lawton, Norman, and the area around Arkoma, Oklahoma, which is included with the City of Fort Smith, Arkansas to form an urbanized area. When the Bureau of Census designates an urban or an urbanized area that falls across the boundary of two states, each State claims the part of the urban or urbanized area within its boundaries as a separate urban or urbanized area regardless the size of the population within that portion. The urbanized areas of Arkoma, as well as the urban areas of South Coffeyville and West Siloam Springs, Oklahoma are examples of this.

FUNCTIONAL CLASSIFICATION

RURAL AREAS (County Collectors System)	URBAN AREAS	
	SMALL URBAN AREAS	URBANIZED AREAS
Includes urban places less than 5,000 population	Population of 5,000 to 49,999	Population of 50,000 or more
		Includes nearby urban places

FUNCTIONAL CLASSIFICATION SYSTEM FOR RURAL AREAS

Rural roads consist of those facilities that are outside of small urban and urbanized areas. They are classified into the following four major systems:

Classification Hierarchy For Rural Areas

Principal Arterials

- Interstates
- Other Principal Arterials

Minor Arterial Roads

Collector Roads

- Major Collector Roads
- Minor Collector Roads

Local Roads

Rural Principal Arterial System

The Rural Principal Arterial System consists of a connected rural network of continuous routes having the following characteristics:

- (1) Highways having high density of intrastate and interstate travel.
- (2) Highways that serve urbanized areas and a large majority of small urban areas. The rural principal arterial system may serve an urban area if the system either penetrates the urban boundary or comes within 10 miles.
- (3) Provide an integrated network without stub connections except where unusual geographic or traffic flow conditions dictate otherwise.

The Rural Principal Arterial System is classified into the following two subsystems:

Interstate System: Consists of all designated routes of the Interstate System.

Other Principal Arterial: Consists of all non-Interstate principal arterial highways.

Rural Minor Arterial System

The Rural Minor Arterial System should, in conjunction with the Rural Principal Arterial System, form a rural network having the following characteristics:

- (1) Link cities and larger towns and other traffic generators, such as major resort areas, that are capable of attracting travel over similarly long distances and form an integrated network providing interstate and intercounty service. A rural minor arterial system serves an urban area if the system either penetrates or comes within 2 miles of the urban boundary.
- (2) Be spaced at such intervals, consistent with population density, so that all developed areas of the State are within a reasonable distance of an arterial highway.
- (3) Provide service to roads with trip length and travel density greater than those predominantly served by rural collectors or local systems. Minor arterial routes have relatively high overall travel speeds and minimum interference to through traffic.

Rural Collector Road System

The Rural Collector Road System generally serves travel of primarily intracounty rather than statewide importance and constitute those routes on which (regardless of traffic volume) predominant travel distances are shorter than on arterial routes. More moderate speeds will be typical.

The characteristics of a rural collector system is subclassified according to the following criteria:

Major Collector Highways and Roads:

- (1) Provide service to any county seat not on an arterial route, to the larger towns not directly served by the higher systems, and to other traffic generators of equivalent intracounty importance, such as consolidated schools, shipping points, county parks, important mining and agricultural areas, etc.
- (2) Link these places with nearby larger towns or cities, or with routes of higher classification.
- (3) Serves the more important intracounty travel.

Minor Collector Roads:

- (1) Be spaced at intervals, consistent with population density, to collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road.
- (2) Provides service to the remaining smaller communities.

Rural Local Roads System

The Rural Local Road System should have the following characteristics:

- (1) Serves primarily to provide access to adjacent land.
- (2) Provides service to travel over relatively short distances as compared to collectors or other higher systems. Local roads will constitute the rural mileage not classified as part of the principal arterial, minor arterial, or collector systems.

REVISIONS TO COUNTY COLLECTOR SYSTEM

The last National Functional Classification System was officially approved by the Federal Highway Administration (FHWA) in 1993. A few necessary revisions to this system have occurred since this date, and some revisions could be needed in the future. Any part of the Functional Classification System that needs to be revised must be approved by the FHWA.

If any changes need to be made within the County Collector System, the Board of County Commissioners must make the request in writing to:

Oklahoma Department of Transportation
Planning & Research Division
GIS Management, Systems Section
Room 3A-7
200 N. E. 21st Street
Oklahoma City, OK 73105-3204

Oklahoma Department of Transportation (ODOT) prefers counties to make revisions by using ODOT form FM-FORM 121, which is provided with instruction in this booklet for copying. Please use a separate FM-FORM 121 for each revision, even though two or more revisions may be requested at the same time.

To request a collector route addition, a county must remove an equal or greater portion of an existing collector route which is of the same or higher class of the collector route to be added. For example, a county wants to add four miles of new Major Collector, then the County must remove four miles of existing Major Collector somewhere in the County. The full four miles of removal doesn't need to be together. The removal could be one mile in one location and three more miles in another part of the County. An addition to the system will require at least two FM-FORM 121 forms. One form indicating the addition and another form indicating the removal.

Classified routes must begin and end at a higher or equal classified route. A stub route is permissible if it terminates at a major traffic generator. This could be a public park, lake, river or other recreational facility providing there is a direct public access. An Industrial area or commercial complex generating heavy volume of traffic may qualify for a stub route. Classified routes leading to another county must connect to an equal or higher classification of the adjoining county.

The Oklahoma Department of Transportation, Planning & Research Division will review the County's request for a revision. For any revision requesting a proposed addition to the system, the ODOT Field Division Engineer will conduct an on-site review of the proposed road and make a report. The Planning & Research Division will send the requested revision and the Field Division Engineer's report with a recommendation to the Federal Highway Administration (FHWA) for approval or disapproval. The County will be notified by the Planning & Research Division of the FHWA action. This procedure may take 6 to 10 weeks to complete.

LOCATION OF PROPOSED REVISION

Use county grid coordinates to describe location of proposed revision.

TYPE OF ACTION REQUESTED

Check One

- Change in alignment of an existing major collector route.
- New route requiring reclassification of a local road to major collector status.
- Reclassifying a local road as a minor collector route.
- Reclassifying a major collector route as a local road.
- Reclassifying a major collector route as a minor collector route.
- Reclassifying a minor collector route as a major collector route.
- Reclassifying a minor collector route as a local road.

JUSTIFICATION

List below changes in the use of land or property, traffic growth and/or changes in travel pattern and desires that will justify the reclassification of the road in question. ***Please be explicit. Federal approval or disapproval of your request will depend upon your response to this item.***

Estimated Average Daily Traffic (ADT) _____

Submitted by:

Chairman, Board of Commissioners

County: _____

Date: _____

FHWA Action	
Request for revision:	
Approved _____ Date	Denied _____ Date
Federal Highway Administration, Division Administrator	

Instructions for FM-FORM 121

(1) *Location of Proposed Revision*

Describe the location of the proposed revision road by using county grid coordinates.
For example:

Beginning at EW194 and extending south 2.5 miles on NS317.0 to EW196.5, thence east 2 miles on EW 196.5 ending at SH 84 (NS 318). Total of 4.5 miles.

(2) *Type of Action Requested*

Please select the appropriate explanation that will best explain the proposed revision.

(3) *Justification*

- (a) If a proposed revision is for a new collector route, please provide an estimated average daily traffic count.
- (b) For any proposed revisions, give an explicit reason for the action. The Federal approval or disapproval of your request will depend upon your response to this item.

For example of proposed addition:

New residential construction, a school and some new businesses had increased the ADT on this road.

For example of proposed removal:

This route no longer serves as a major collector. Traffic patterns has changed in this area.

(4) *Location Map*

A 8 ½ x 11 map showing each proposed revision must accompany the completed form.

(5) *Submitted by*

The Chairman of the Board of County Commissioners must sign this form. Please print or type clearly the name of your county.

FUNCTIONAL SYSTEM FOR URBAN AREAS

The four functional classifications for urban areas are principal arterials, minor arterial streets, collector streets, and local streets. The characteristics differences in rural and urban systems are the nature and intensity of development within the areas. The systems and their characteristics listed for urbanized areas are generally applicable to small urban areas. The basic difference is that, by nature of their size, many small urban areas will not generate internal travel warranting urban principal arterial service.

A principal arterial system for small urban areas will largely consist of extensions of rural arterial into and through the areas. The larger urban areas may have major activity centers which warrant principal arterial service in addition to that provided by extensions of rural arterials. The characteristics for the minor arterial street systems, collector street systems, and local street systems are similar for both urbanized areas and small urban areas.

Classification Hierarchy For Urban Areas

Principal Arterials

Interstates

Other Freeways & Expressways

(Full or partial control of access)

Other Principal Arterials

(No control of access)

Minor Arterial Streets

Collector Streets

Local Streets

Urban Principal Arterial System

In every urban environment there exists a system of streets and highways which can be identified as unusually significant to its surrounding area in terms of the nature and composition of travel it serves. These facilities in smaller urban areas (under 50,000) may be limited in number and extent. The importance could be primarily derived from the service provided to travel passing through the area. Principal arterials in larger urban areas could have the importance of service derived from traffic passing through the area, but equally or more important of service derived from major travel within these urbanized areas. The following are the main characteristics for streets and highways of the Urban Principal Arterial System.

- (1) Serves the major traffic movements within urbanized areas connecting central business districts, outlying residential areas, major intercity communities, and major suburban centers.
- (2) Serves a major portion of the trips entering and leaving the urban area, as well as the majority of the through traffic desiring to bypass the central city.
- (3) Provides continuity for all rural arterials which intercept the urban area.

The Urban Principal Arterial System is classified into the following subsystems:

- (1) Interstate
- (2) Freeways and Expressways
(Full or partial control of access)
- (3) Other Principal Arterials
(No controlled access)

The spacing of urban principal arterials will be closely related to the trip-end density characteristics of particular portions of the urban areas. No firm spacing rule can be established that will apply in all, or even most circumstances. The spacing of principal arterials in larger urban areas may vary from less than one mile in the highly developed central business areas to five miles or more in the sparsely developed locations.

The concept of service to abutting land for principal arterials should be subordinate to the provision of travel service with major traffic movements. Only facilities within the other principal arterial system are capable of providing any direct access to adjacent land, and such service should be purely incidental to the primary functional responsibility of this system.

Urban Minor Arterial Street System

The Minor Arterial Street System includes all arterials not classified as a principal and contains facilities that place more emphasis on land access than the higher system. This system should have the following characteristics:

- (1) Serves trips of moderate length at a somewhat lower level of travel mobility than principal arterials.
- (2) Provides access to geographic areas smaller than those served by the higher system.
- (3) Provides intracommunity continuity but does not penetrate identifiable neighborhoods.

The spacing of minor arterial streets may vary from 0.125 to 0.5 mile in the central business district to 2 - 3 miles in the suburban locations, but normally should not be more than 1 mile in fully developed areas.

Urban Collector Street System

The Urban Collector Street System differs from the arterial system in that facilities on the collector system may penetrate residential neighborhoods. The characteristics of the collector street system are as follow:

- (1) Collects traffic from local streets in residential neighborhoods and channels it into the arterial system.
- (2) Provides both land access service and traffic circulation within commercial areas, industrial areas, and residential neighborhoods.

Urban Local Street System

The Urban Local Street System offers the lowest level of mobility and the highest level of land access service. The characteristics for local street system are the following:

- (1) Comprises all facilities not on any of the higher systems.
- (2) Provides direct access to land and to higher road systems.
- (3) Through traffic usage is discouraged.

REVISIONS TO FUNCTIONAL CLASSIFICATION URBAN AREAS SYSTEM

The Urban Functional Classification System is updated every ten years. It is based off the Bureau of the Census data. A city or town may request changes anytime during these ten years, but it must be an urgent reason for the change. One reason could be a realignment of a street.

Any proposed revisions to an urbanized or small urban area must be approved by the Federal Highway Administration (FHWA). All proposed changes within an urban area, except for the State Highway System, must be requested in writing to:

Oklahoma Department of Transportation
Planning & Research Division
GIS Management, Systems Section
Room 3A-7
200 N. E. 21st Street
Oklahoma City, OK 73105-3204

Oklahoma Department of Transportation (ODOT) prefers all request for revisions to be made using ODOT form FM-FORM 121U, which is provided in this booklet for copying. A separate form must be used for each revision being requested. Planning & Research Division will review each requested revision. The FM-Form 121U and map along with Planning & Research recommendation will be sent to the Federal Highway Administration (FHWA) for their approval or disapproval. The City will be notified by the Planning & Research Division of the FHWA action.

In the *Location of Proposed Revision* area on FM-FORM 121U, please use precise description in explaining the location of proposed revision. The Federal approval or disapproval of your proposed revision will depend upon your response given in the *justification* area, therefore, it is significant to give an explicit reason for the revision. A map showing each proposed revision must accompany the completed form.

LOCATION OF PROPOSED REVISION

TYPE OF ACTION REQUESTED

Check One

- Change in alignment of an existing classified highway or street.
 - Principal Arterial
 - Minor Arterial
 - Collector Street
- Reclassifying a local street to a collector street.
- Reclassifying a collector street as a local street.
- Reclassifying a collector street as a minor arterial.
- Reclassifying a minor arterial as a local street.
- Reclassifying a minor arterial as a collector street.
- Reclassifying a minor arterial as a principal arterial.

JUSTIFICATION

List below the reason for this revision request, such as, population or traffic growth, changes in travel patterns, and any expected results that will justify the reclassification of the street in question. *Please be explicit. Federal approval or disapproval of your request will depend upon your response to this item.*

Estimated Average Daily Traffic (ADT) _____

Submitted by:

Mayor _____

City of _____, Oklahoma

Date: _____

FHWA Action	
Request for revision:	
Approved _____ <small>Date</small>	Denied _____ <small>Date</small>
Federal Highway Administration, Division Administrator	

Instructions for FM-FORM 121U

(1) *Location of Proposed Revision*

Describe the location of the proposed revision road.

For example:

Beginning at Walnut Street and extending south 2.5 miles on 45th Avenue to Elm Street, thence east 2 miles on Elm Street ending at Villa Blvd. Total of 4.5 miles.

(2) *Type of Action Requested*

Select the appropriate explanation that will best explain the proposed revision.

(3) *Justification*

(a) Please provide an estimated average daily traffic count for the new proposed revision route.

(b) For any proposed revisions, give an explicit reason for the action. The Federal approval or disapproval of your request will depend upon your response to this item.

For example of proposed addition:

New residential construction, a school and some new businesses had increased the ADT on this road.

For example of proposed removal:

Traffic patterns has changed in this area.

(4) *Location Map*

A 8 ½ x 11 map showing each proposed revision must accompany the completed form.

(5) *Submitted by*

The Mayor of the City or Town must sign this form. Please print or type clearly the name of your city or town.

BIBLIOGRAPHY

Highway Functional Classification - Concepts, Criteria and Procedures. U.S. Department of Transportation, Federal Highway Administration, Publication Number FHWA-ED-90-006, Revised March, 1989, 53 pp.

Highway Functional Classification - A Management Tool. U.S. Department of Transportation, Federal Highway Administration, Program Management Division, November, 1982, 46 pp.

Completed by the State Highway/Transportation Agencies, *A Report to the Congress on the Results of the Highway Functional Reclassification.* Washington, D.C.: U.S. Department of Transportation, Federal Highway Administration, December, 1993, 14 pp.

Title 23 - Code of Federal Regulations, Part 470 - Highway Systems, Subpart A - Federal-Aid Highway Systems.

Title 69 of the Oklahoma State Statues, Subsection 654 - County Primary Road System.

Title 730 of the Oklahoma Administrative Code, Chapter 15 - Highway Planning, Section 1-4 - Highway Functional Classification.