

Oregon 2000 Census

Guidelines for Updating Federal Aid Urban Boundaries And Functional Classification

July 2003

Oregon Department of Transportation
Transportation Development Division
Transportation Data Section
Road Inventory and Classification Services Unit
http://www.odot.state.or.us/rics/FC_StatewideReview.htm

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Introduction

After each decennial census, the Federal Highway Administration (FHWA) requires state DOTs to use census data to review and update all Federal Aid Urban Boundaries (FAUB) and the corresponding Federal Functional Classification (FC) of public roads (Title 23, Section 103, USC).

The FAUB is the dividing line between urban and rural Federal Functional Classification. This booklet presents the concepts and criteria for the FAUBs and FC of roads. Local agencies should use this booklet in conjunction with their local Transportation System Plan (TSP) to identify needed updates of their Federal Aid Urban Area boundary and Federal Functional Classification.

While there is a major emphasis on updating FC immediately after the census, adjustments to FC should be made any time there are major changes in the road system or the local TSP.

Copies of this document, FC maps, boundary files and links to Federal web sites are available online at: http://www.odot.state.or.us/rics/FC_StatewideReview.htm

ODOT Contacts for 2000 Statewide Functional Classification Review

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Overview of Process to Update FAUB and Functional Classification

Who	Responsibility
Local Government Officials	Recommend updated FAUB and FC in Small Urban (population over 5,000) and Rural Areas.
MPO	Recommend updated FAUB and FC in Urbanized Areas
ODOT Staff	Review recommended changes for consistency and compliance with Federal Guidelines
FHWA	Final Approval of updated FAUB and FC

- RICS Unit delivers map packets and instructions to ODOT region offices for distribution to local agencies.
- ODOT region planners deliver map packets along with instructions to local agencies.
 - RICS staff will be available to assist planners and help guide local agencies with questions and concerns.
- Local agencies review the census-defined boundary to determine if the boundary needs to be adjusted.
 - The census boundary is a minimum and cannot be reduced in size.
 - FHWA recommends smoothing FAUB to match current UGB.
 - When possible, boundaries should be adjusted to follow physical features such as rivers, streams, railroads, streets, or highways.
 - When a street or highway is used as a boundary, it shall be clearly identified which side of the road the boundary runs along. Boundaries may not run down the center of a road.
- Local Agency reviews and updates Functional Classification
 - Functional Classification should be in accordance with the local Transportation System Plan and Federal Highway Functional Classification Concepts, Criteria and Procedures
 - Very few FC changes may be needed in areas that already have a good FC system. New urban areas (population over 5,000) and areas that have seen major growth over the past ten years will require the most attention.
- Local Agency notes on maps the roads that are more than two lanes.
- After the boundary has been adjusted and FC updated, the local agency returns the packets to the ODOT Region office.
- The Region reviews the boundaries and FC for consistency, then forwards the revised maps to the RICS Unit in Salem for review.
- The RICS Unit reviews the maps and data and forwards to FHWA for final approval.
- Upon final FHWA approval, new updated maps will be distributed to local agencies.

Urban and Urbanized Areas

(Population over 5,000)

Checklist for Urban and Urbanized Areas

Since each agency may have different computer tools available to them, this process is described for those using paper maps to conduct their review. ODOT encourages local governments to do as much of this work as possible in a GIS or other computer environment. If you plan to submit your changes electronically, please contact Bruce Winchcomb at (503) 986-4386 or Ryan Johnson at (503) 986-4203 before you begin to ensure data formats are compatible.

- Review boundaries on the printed maps provided by your ODOT Region representative, or download your boundary files from the FC Review web site at: http://www.odot.state.or.us/rics/FC_StatewideReview.htm
- The 2000 Census boundary is the minimum boundary for the updated Federal Aid Urban Boundary (FAUB).
- Use the guidelines on the following pages to determine your new FAUB.
- Use a highlighter to draw your requested FAUB on the paper map.
- Review the Federal Functional Classification.
 - Check the FC against the local TSP.
- Describe requested FC changes on the FC Change Request Form. Note an associated change number on the map.
- Coordinate with other road authorities when FC changes are needed on roads that are not under your jurisdiction. For example, a road may be city jurisdiction inside the city limits, then change to county jurisdiction.
- Mark the locations of roads that are other than two lanes, and write the number of lanes on the maps.
- Return the maps and completed change request forms to your ODOT Region representative.

Three Types of Federal Aid Urban Boundaries

The establishment of urban areas is required by Title 23, Section 103, USC in those places designated by the U.S. Bureau of Census as an Urban Place.

There are three types of urban areas; Small Urban, Urbanized, and Urbanized greater than 200,000.

- Small Urban Area: Population of 5,000 to 49,999 and is not within an Urbanized Area. More than one incorporated city could comprise a Small Urban Area.
- Urbanized Area: Includes a city or multiple cities that have a combined population of 50,000 to 199,999.
- Urbanized Area: Includes a city or multiple cities that have a combined population greater than 200,000

Oregon Federal Aid Urban Areas designated by the 2000 Census are listed on the next page. Boundary files are available for downloading from the web at: http://www.odot.state.or.us/rics/FC_StatewideReview.htm

List of Transportation Federal Aid Urban Areas Designated by 2000 Census

Urbanized Areas (Population 50,000+)
(Based upon Census Urban Cluster Boundary)

Portland	Bend*
Salem	Corvallis*
Eugene	Rainier/Longview
Medford	

Small Urban Areas (Population 5,000 – 49,999)
(Based upon Census Urban Place Boundary)

Place Name	Place Population	Place Name	Place Population
Albany	40,852	McMinnville	26,499
Astoria	9,813	Milton-Freewater	6,470
Baker City	9,860	Molalla**	5,647
Brookings**	5,447	Monmouth/ Independence	7,741 6,035
Canby	12,790	Newberg	18,064
The Dalles	12,156	Newport	9,532
Coos Bay/ North Bend	15,374 9,544	Ontario	10,985
Cottage Grove	8,445	Pendleton	16,354
Dallas	12,459	Prineville	7,356
Florence	7,263	Redmond	13,481
Grants Pass	23,003	Roseburg	20,017
Green**	6,174	Sandy**	5,385
Hermiston	13,154	Seaside	5,900
Hood River**	5,831	Silverton	7,414
Klamath Falls	19,462	St. Helens	10,019
La Grande	12,327	Stayton	6,816
Lebanon	12,950	Sutherlin	6,669
Lincoln City	7,437	Sweet Home	8,016
Madras**	5,078	Woodburn	20,100

* = New Urbanized Areas

** = New Small Urban Areas

Federal Aid Urban Boundary Criteria

1. The Federal Aid Urban Boundary will at a minimum encompass the entire urbanized area or urban area as designated by the Bureau of Census. Urbanized Areas will start with the Census Urban Cluster boundaries as a minimum boundary. Small Urban area boundaries will use the Census Urban Place boundaries as minimum boundaries.
2. The boundary will be a continuous line encompassing the urban area designated by the Bureau of Census. The boundary could include the areas of nearby municipalities and/or other areas containing urban characteristics. There will be no detached portions of any urban area.
3. The boundary should include the entire city limits and Urban Growth Boundary (UGB).
4. The boundary will encompass all large traffic generators that are within a reasonable distance from the urban area (e.g., fringe area public parks, large places of assembly and large industrial plants).
5. The boundary will include areas of rapidly developing urbanization that lie within a reasonable distance from the urban area.
6. The boundary will include transportation terminals and their access roads, if the terminals lie within a reasonable distance of the urban area (e.g., airports, seaports).
7. Consideration will be given to the selection of boundary location to include transit lines such as rail transit and bus lines.
8. All boundary roads, streets and highways will be totally included or excluded by the boundary lines (Lines shall be one side of the road or the other, not on the road itself).
9. Boundaries should be selected so that the physical location is easy to discern from data shown on the map. Whenever possible, the boundary should follow physical features (e.g., rivers, streams, irrigation canals, transmission lines, railroads, streets or highways). In instances where physical features are lacking, the boundary will cross roads, streets and highways at intersections which are readily identifiable in the field.

**Urban and Urbanized (population over 5,000)
Federal Functional Classification**

Federal Functional Classification groups streets and roadways by similar characteristics of mobility and/or land access. This classification technique recognizes that individual roads and streets are dependent on each other. Roads that are within an urban or urbanized area with a census population over 5,000 are considered “urban”. There are six FC categories of urban roads:

- Interstate (11)
- Other Freeways or Expressways (12)
- Other Principal Arterials (14)
- Minor Arterials(16)
- Collectors (17)
- Local Streets (19)

Urban and Urbanized Functional Classification Based on Type of Travel

Functional Classification	Principal Arterial	Minor Arterial	Collector
Type of Travel	Through trips (rural to rural) and long distance internal trips between travel generators of like value	Internal trips between travel generators of like value in relatively close proximity	Intraurban and local trips to a higher classification facility

Urban Principal Arterials

In every urban environment there exists a system of streets and highways that can be identified as unusually significant. In small urban areas (under 50,000) these facilities are limited in number and extent. Their primary importance is derived from the service provided to travel passing through the area. In larger urban areas (urbanized areas) their importance also derives from service to rural oriented traffic. Service for major movements within these urbanized areas is of equal if not greater importance.

The urban principal arterial system should serve the major centers of activity of a metropolitan area. They should also serve the highest traffic volume corridors, and satisfy the longest trip desires. The system should carry a high proportion of the total urban area travel on a minimum of mileage. Another important element is the integration of this system both internally and between major rural connections.

The principal arterial system should carry the major portion of trips entering and leaving the urban area. The principal arterial system should accommodate the majority of through movements desiring to bypass the central city. In addition, this class of facility will serve travel between central business communities, or between major suburban centers. Frequently the principal arterial system will carry important intraurban as well as intercity bus routes. Finally, this system in urbanized areas should provide continuity for all rural arterials that intercept the urban boundary.

Almost all fully and partially controlled access facilities will be part of this functional class. Nevertheless, controlled access routes are not a requirement. In order to preserve the identification of controlled access facilities, the principal arterial system should be stratified as follows:

1. Interstate (11)
2. Other Freeways and Expressways (12)
3. Other Principal Arterials (14)

The spacing of urban principal arterials will be closely related to the trip-end density characteristics of particular portions of the urban areas. The spacing of principal arterials (in larger urban areas) may vary from less than one (1) mile in the highly developed central business areas, to five (5) miles or more in the sparsely developed urban fringes.

For principal arterials, the concept of service to abutting land should be subordinate to the provision of travel service to major traffic movements. It should be noted that only facilities within the "other principal arterial" subclass are capable of providing any direct access to land. Such service should be purely incidental to the primary functional responsibility of this class of roads.

Urban Minor Arterials

The minor arterial street system should interconnect with and augment the principal arterial system. This system provides service to trips of moderate length at a somewhat lower level of travel mobility than principal arterials. This system also distributes traffic to geographic areas smaller than those identified with the higher system.

Minor arterials may carry local bus routes and provide intra-community continuity. Ideally the system should not penetrate identifiable neighborhoods. This system should include urban connections to rural collector roads where such connections have not been classified.

The spacing of minor arterial streets may vary from one eighth (1/8) to one half (1/2) mile in the central business district (CBD) and two (2) to three (3) miles in the suburban fringes. Normally, the spacing should not exceed one (1) mile in fully developed areas.

Urban Collectors

The collector street system provides land access service and traffic circulation within residential neighborhoods, commercial and industrial areas. It differs from the arterial system in that facilities on the collector system may penetrate residential neighborhoods. The collector could distribute trips from the arterials through the area to the ultimate destination. Conversely, the collector street also collects traffic from local streets in residential neighborhoods and channels it into the arterial system. In the central business district, the collector system may include the street grid that forms a logical entity for traffic circulation.

Urban Local Streets

The local street system comprises all facilities not on one of the higher systems. It serves primarily to provide direct access to abutting land and access to the higher order systems. It offers the lowest level of mobility and usually contains no bus routes. Service to through traffic movement usually is deliberately discouraged.

Matrix of Urban Functional Classification Criteria

Characteristic	Urban Functional Classification (Pop. Over 5,000)			
	<i>Principal Arterial</i>	<i>Minor Arterial</i>	<i>Collector</i>	<i>Local</i>
Mileage (% total urban miles)	5 - 10	15-25 *	5 - 10	65 - 80
Daily Vehicle Miles (DVM) (% accumulative)	40 – 65	65 – 80 *	5 - 10	10 - 30
Spacing (miles)	1 in CBD; 1 - 5 in Suburban & Urban fringes	1/8 - 1/2 in CBD; 1 - 3 in Suburban & Urban fringes	As required to provide service to higher classifications	As required for land access
System Connectivity (Closed Network)	Required	Required	Desirable	Not Required
Connection to other transportation modes	Surface type mass transit systems & Intermodal Connections	Limited transit services	Not Applicable	Not Applicable
Relationship to Transportation Systems Plan	To be Considered	To be Considered	To be Considered	To be Considered

*Minor Arterial and Principal Arterial together.

Rural Areas

Checklist for Rural Areas

Since each agency may have different computer tools available to them, this process is described for those using paper maps to conduct their review. ODOT encourages local governments to do as much of this work as possible in a GIS or other computer environment. If you plan to submit your changes electronically, please contact Bruce Winchcomb at (503) 986-4386 or Ryan Johnson at (503) 986-4203 before you begin to ensure data formats are compatible.

- Review the Federal Functional Classification (FC)
- Check the FC against the local TSP
- Describe requested FC changes on the FC Change Request Form. Note an associated change number on the map.
- Coordinate with other road authorities when FC changes are needed on roads that are not under your jurisdiction, such as BLM or Forest Service roads, or roads that crosses a county or state line.
- Mark the locations of roads that are other than two lanes, and write the number of lanes on the maps.
- Return the maps and completed change request forms to your ODOT Region representative.

Rural Federal Functional Classification

Federal Functional Classification groups streets and roadways by similar characteristics of mobility and/or land access. This classification technique recognizes that individual roads and streets are dependent on each other. Roads that are outside of urban and urbanized areas are considered “Rural”. There are six FC categories of rural roads:

- Interstate (01)
- Other Principle Arterial (02)
- Minor Arterial (06)
- Major Collector (07)
- Minor Collector (08)
- Local (09)

Rural Principal Arterial System

The rural principal arterial system consists of a connected rural network of continuous routes having the following characteristics:

- Facilitate corridor movements having trip length and travel density characteristics indicative of substantial statewide or interstate travel.
- Penetrate the Federal Aid Urban boundaries, or come within ten (10) miles of the center of the area and are within twenty (20) minutes travel time (off-peak periods) of the center of the area via a minor arterial highway
- Provide an integrated network without stub connections. An exception would be where unusual geographic or traffic flow conditions exist (e.g., international boundary connections and connections to coastal cities).

Principal arterials are stratified into two categories:

- The interstate sub-classification consists of all presently designated routes of the interstate system.
- Other principal arterials consist of all non-interstate principal arterials.

Rural Minor Arterial System

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

- Link cities, larger towns and other major traffic generators to form an integrated network providing interregional (including interstate regions) and intercounty services.
- Be spaced at such intervals so that all developed areas of the state are within a reasonable distance of an arterial highway
- Provide service to corridors with trip length and travel density greater than those predominately served by rural collector or local systems.
- Rural minor arterials serve an urban area if they either penetrate or come within two (2) miles of the Federal Aid Urban boundary. Minor arterials, therefore, constitute routes whose design provides for relatively high overall travel speeds with minimum interference to through movement. Spacing should be consistent with population densities.

Rural Collector System

The rural collector routes serve travel of primarily intercounty rather than statewide importance. Travel distances on these routes are predominantly shorter than on arterial routes and more moderate average speeds may be typical. The system contains both major and minor collectors.

Major Collector

- Provides service to any county seat not on an arterial route, and to the larger towns not directly served by the higher systems. Other traffic generators of equivalent intercounty importance, such as consolidated schools, shipping points, county parks, important mining and agricultural areas, are also served by this classification.
- Link these places with nearby larger towns or cities, or with routes of higher classification
- Serves the more important intercounty travel corridors.

Minor Collector

- Are spaced at intervals to collect traffic from local roads and provide for developed areas to be within a reasonable distance of a collector road
- Provides service to the remaining smaller communities
- Links the locally important traffic generators with their rural destinations.

Rural Local System

Rural local roads will constitute the rural mileage not classified as principal arterial, minor arterial, major collector or minor collector. Rural local roads have the following characteristics:

- Serve primarily to provide access to adjacent lands
- Provide service to travel over relatively short distances as compared to collectors or arterials.

Matrix of Rural Functional Classification Criteria

Characteristic	Rural Functional Classification				
	Principal Arterial	Minor Arterial	Collector		Local
			Major	Minor	
Mileage (% total rural miles)	2 - 4	6-12 *	20 - 25		65-70
Daily Vehicle Miles (DVM) (% accumulative)	30-55	45-75 *	20-35		5-20
Trip Length	Interstate & Statewide	Interregional	Interregional & Intercounty	Intracounty	Intracounty
System Connectivity	Required	Required	Desirable		Not Required
Relationship to Transportation System Plan	To be Considered	To be Considered	To be Considered		To be Considered

*Principal Arterials and Minor Arterials combined.

How Does State Highway Classification Compare to FC?

The Oregon Highway Plan (OHP) contains a roadway classification system called the State Highway Classification (SCS) system. The four (4) levels of SCS are:

- Interstate
- Statewide
- Regional
- District

A general description of the current relationship between FC and SCS is shown below. While SCS and FC are similar in many respects, SCS is a long-range planning tool and FC describes how a road is being used today. Because of this difference, there is no solid rule for determining FC based on SCS or vice versa.

State Classification System (SCS)	Description	Corresponding Functional Classifications
Interstate Highways	Connections to major cities or regions, or other states. Regional trips within metro areas.	<ul style="list-style-type: none"> • Urban or Rural Interstate
Statewide Highways	Provide connection to larger urban areas, ports and recreational areas that are not directly served by interstate highways.	<ul style="list-style-type: none"> • Urban Principal Arterial-Other Freeway Expressway • Urban or Rural Other Principal Arterial
Regional Highways	Provide links to regional centers, statewide or interstate highways, or economic or activity centers of regional significance.	<ul style="list-style-type: none"> • Urban or Rural Minor Arterial
District Highways	Facilities of county-wide significance function largely as county and city arterials or collectors.	<ul style="list-style-type: none"> • Urban or Rural Minor Arterial • Urban or Rural Major Collector • Rural Minor Collector

Relationship of Urban and Rural Functional Classifications

The functional classification of urban routes will change when roads cross the urban area boundary into a rural area. This change is due to the decreasing population density and an increasing importance of land accessibility.

Urban (Pop. Over 5,000)	Rural
Urban Principal Arterial	Rural Principal Arterial or Rural Minor Arterial
Urban Minor Arterial	Rural Major Collector
Urban Collector	Rural Minor Collector
Urban Local Access	Rural Local Access

Reporting Number of Lanes

The Federal Highway Administration (FHWA) requires states to annually report the number of lanes on public roads. As part of the Functional Classification review process, ODOT is asking local agencies to let us know which of their roads are other than two lanes.

A lane is described as carrying through traffic in the off-peak period. Excluded are turn lanes, left turn lanes, merge lanes and temporary lanes (lanes that are used for parking part of the day.)

Please mark the FC maps to clearly show the number of lanes on roads that are other than two lanes. If your agency would like to provide this lane data in a dataset or GIS file, please contact Bruce Winchcomb at (503) 986-4386 or Ryan Johnson at (503) 986-4203 to make arrangements.