

2020



URBAN AREA BOUNDARY AND
FUNCTIONAL CLASSIFICATION
HANDBOOK





Urban Area Boundary and Functional Classification Handbook

The **URBAN AREA BOUNDARY AND FUNCTIONAL CLASSIFICATION HANDBOOK**
is produced by:

Transportation Data and Analytics (TDA) Office
Florida Department of Transportation
AUGUST 2023

Copies are available in PDF format from the Transportation Data and Analytics (TDA) Office
Website:

<https://www.fdot.gov/statistics/tsopubs.shtm>

Please send requests or any general comments to:
CO-TDI@dot.state.fl.us

For additional Designation information, please visit the Transportation System Designations web
page: <https://www.fdot.gov/statistics/designations>



Table of Contents

1. INTRODUCTION 1
1.1 PURPOSE..... 1
1.2 BACKGROUND..... 1
1.3 STATUTORY REFERENCES 2
1.4 APPLICABILITY 3
1.5 HANDBOOK ORGANIZATION..... 3
1.6 FORMS AND TEMPLATES..... 4
2. URBAN AREA BOUNDARIES 4
2.1 MAKING THE CHOICE 4
2.2 DETERMINING AND ADJUSTING URBAN AREA BOUNDARY 4
2.3 INTERIM URBAN AREA BOUNDARY ADJUSTMENTS 6
3. FUNCTIONAL CLASSIFICATION 6
3.1 PROCESS..... 7
3.2 CRITERIA AND METHODS FOR CLASSIFYING ROADS 8
3.2.1 Arterials 9
3.2.2 Collectors 12
3.2.3 Locals..... 14
3.3 FEDERAL-AID PROGRAMS DETERMINED BY FUNCTIONAL CLASSIFICATION..... 15
3.3.1 Programs..... 15
3.3.2 Funding 15
3.3.3 Outdoor Advertising Federal-Aid Maps 16
3.3.4 National Highway System (NHS) 16
3.4 STEPS IN FUNCTIONALLY CLASSIFYING RURAL AND URBAN ROADWAYS 16
3.5 PROBLEMS THAT IMPACT FUNCTIONAL CLASSIFICATION OF ROADWAYS..... 18
4. DISTRICT FINALIZATION RESPONSIBILITIES 19
5. DATA AVAILABILITY AND ACCESS 20



List of Appendices

- APPENDIX A: URBAN AREA BOUNDARY PROCESS FLOW CHART**
- APPENDIX B: FUNCTIONAL CLASSIFICATION PROCESS FLOW CHART**
- APPENDIX C: SAMPLE LETTER TO LOCAL ENTITIES FOR URBAN AREA BOUNDARY PROCESS**
- APPENDIX D: SAMPLE LETTER FROM LOCAL ENTITIES FOR URBAN AREA BOUNDARY PROCESS**
- APPENDIX E: FUNCTIONAL CLASSIFICATION APPLICATION**
- APPENDIX F: FUNCTIONAL CLASSIFICATION LOCATION MAP**
- APPENDIX G: FUNCTIONAL CLASSIFICATION MINIMUM DATA ELEMENTS**
- APPENDIX H: ACRONYMS AND DEFINITIONS**
- APPENDIX I: UAB GIS DATA FORMAT REQUIREMENTS**
- APPENDIX J: BEST PRACTICES FOR URBAN AREA BOUNDARY AND FUNCTIONAL CLASSIFICATION PROCESS**
- APPENDIX K: UABFC MAP PACKAGE REQUIREMENTS**
- APPENDIX L: UABFC SHAPEFILE TEMPLATES**



1. INTRODUCTION

1.1 PURPOSE

The Florida Department of Transportation's (FDOT) Transportation Data and Analytics (TDA) Office has developed this handbook as a way for state and local transportation officials to understand how Urban Area Boundaries and Functional Classifications are adjusted, coordinated, and submitted for Federal Highway Administration (FHWA) approval every 10 years. The handbook is a supporting document to the [Urban Area Boundaries and Functional Classification of Roadways, Topic No. 525-020-311](#) procedure and provides information on how to meet the procedural requirements. In this handbook, users will be able to obtain sample letters/forms and background material to utilize when adjusting Urban Area Boundaries and updating Functional Classification. Users can utilize this handbook to perform ongoing maintenance of the Functional Classification roadway network data when new roads are built, upgraded, or downgraded through an interim update.

1.2 BACKGROUND

Every decennial census, the U.S. Census Bureau develops new criteria for determining urban areas, with the most recent approved criteria implemented in March 2022. For the 2020 Census, an urban area will comprise a densely settled core of census blocks that meet minimum housing unit density and/or population density requirements. This also includes adjacent areas containing non-residential urban land uses. Once the U.S. Census Bureau has designated new urban areas, FHWA gives state DOTs the opportunity to adjust and revise the new urban areas to be more consistent with transportation planning needs. Along with adjusted urban area boundary (UAB) designation, FHWA also recommends that states review the functional classification (FC) designation of their roadway system during this process.

FDOT, in coordination with FHWA and Metropolitan Planning Organizations (MPOs), and local entities in areas outside MPOs, are responsible for updating Urban Area Boundaries and Functional Classifications for the State of Florida. FHWA provides UABFC guidance and reviews and approves the final adjusted UABFCs updates made by FDOT and MPOs or local entities. The TDA Office provides the designated 2020 UABs from the U.S. Census Bureau to FDOT Districts and develops specific guidance on the UABFC adjustment and update process to Districts and local entities.

The Districts coordinate with local agency partners and host regional workshops with Metropolitan/Transportation Planning Organizations (MPO/TPO) to adjust UABs and review existing functional classifications. These adjustments are reviewed by the TDA Office before they are submitted for approval by FHWA. The Districts also work with local entities to inventory roadways and update existing roadways in the Roadway Characteristics Inventory (RCI) system with proposed functional classifications in relation to the UABs for FDOT and Highway Performance Monitoring System (HPMS) data reporting systems. These roadways are reviewed following the UAB and functional classification adjustment process and are submitted to the



TDA Office and FHWA for review and approval. The functional classification of roadways is critical for Federal-Aid eligibility (roadways, bridges, and transit projects) and are assigned according to the character of service they provide in relation to the total roadway network, e.g., principal arterials, minor collectors, etc.

The FHWA Office of Highway Policy Information's, [Highway Functional Classification Concepts, Criteria and Procedures, 2013, Edition](#) discusses suggested procedures for functional classification in rural and urban areas. The use of functional classification to update and modify the Federal-Aid Highway System is a legislative requirement dating back to 1973.

In addition to the above stated federal requirements, FDOT uses transitioning areas to support transportation planning, facilities development, and operations. Transitioning areas exhibit characteristics between rural and urban areas. Transitioning areas are generally defined in the FDOT [Multimodal Quality/Level of Service Handbook](#) as areas outside of urban areas, but within the Metropolitan Planning Area (MPA) Boundaries, and which are expected to become urban within the next 20 to 25 years. In the interest of efficiency, and at the discretion of the District, transitioning areas can be defined and coordinated at the same time as the FHWA boundaries, but must not be included on the final maps for FHWA signature, as **transitioning areas are not required by FHWA**. See "[section 3.2.1.2 Transitioning Areas](#)" of the [Multimodal Quality/Level of Service Handbook](#) for more transitioning area guidance.

1.3 STATUTORY REFERENCES

FDOT's primary statutory responsibility is to coordinate the planning and development of a safe, viable, and balanced state transportation system serving all regions of the state and to assure the compatibility of all components, including multimodal facilities.

In recognition of that goal, the Florida Legislature mandated [Title XXVI, Public Transportation, Chapter 335, State Highway System](#) with the sections that follow:

- [335.02](#) – Authority to designate transportation facilities and rights-of-way and establish lanes; procedure for re-designation and relocation; application of local regulations.
- [335.02\(1\)](#) – The department shall have the authority to locate and designate certain transportation facilities as part of the State Highway System.
- [Records Retention](#) - Transportation Technology, P-16 (1) Functional Classification of Public Roads Records. Retention schedule. This record series consists of maps, tabular listings indicating the existing state highway system, county road system, and city street system. These systems are determined by classifying every road in the state according to the function it performs. Also included in this series is the correspondence generated by the change of jurisdiction resulting from change of function. Retention: Retain until obsolete, superseded, or administrative value is lost. Copy-of-record is retained by Central Office and duplicates by the districts.



In addition, federal planning requirements support this process:

- [23 USC 134](#) – “Metropolitan Transportation Planning,” to encourage and promote the safe and efficient management, operation, and development of surface transportation systems that will serve the mobility needs of people and freight, foster economic growth and development within and between states and urbanized areas, better connect housing and employment, and take into consideration resiliency needs while minimizing transportation-related fuel consumption and air pollution through metropolitan and statewide transportation planning processes identified in this chapter.
- [23 CFR 470.105](#) – Urban area boundaries and highway functional classification. Routes on the Federal-aid highway systems may be designated in both rural and urban areas. The state transportation agency shall have the primary responsibility for developing and updating a statewide highway functional classification in rural and urban areas to determine functional usage of the existing roads and streets. The state shall cooperate with responsible local officials, or appropriate federal agency, in the case of areas under federal jurisdiction, in developing and updating the functional classification. The results of the functional classification shall be mapped and submitted to FHWA for approval and when approved shall serve as the official record for Federal-aid highways and the basis for designation of the National Highway System.

1.4 APPLICABILITY

The handbook supports the core business documentation requirements of the TDA Office as required by Transportation Technology. The principal users of this handbook in the District and Central Office include:

District	Central Office
Design	Transportation Data and Analytics
Environmental	Outdoor Advertising
Maintenance	Surveying and Mapping
Operations	Systems Implementation Office
Planning	General Accounting
Rail	Chief Planner
Right of Way Safety	Policy Planning
Surveying and Mapping	
Title and Utilities	

Table 1 – Handbook Users

1.5 HANDBOOK ORGANIZATION

The handbook is organized to support how FDOT’s adjustment of Urban Area Boundary and Functional Classifications are designated within the TDA Office and other partner offices in the Districts and Central Office. Reference links are provided throughout the handbook to connect the reader with other resources provided by FDOT or Federal partners.



1.6 FORMS AND TEMPLATES

Sample forms and templates are provided in the appendix that cover most of the situations described in this handbook. They are template based and can be modified; care should be taken to ensure that the information given on these forms is correct. Correct limit descriptions and mile points should be obtained from a recent FDOT roadway inventory, not a record maintained by another agency.

There are certain requirements for the Urban Area Boundary and Functional Classification documentation submittals. See [APPENDIX K: UABFC MAP PACKAGE REQUIREMENTS](#) for specific mapping and data requirements for submittals by the District.

2. URBAN AREA BOUNDARIES

2.1 MAKING THE CHOICE

There is no federal requirement for states and local officials to adjust UABs. FDOT, MPOs, and local entities may choose to adopt the original 2020 U.S. Census Bureau Urban Areas as is or propose adjustments that take into account transportation planning considerations ([23 U.S.C. 101\(a\)\(35\)](#)). Any adjustments that are proposed must include the entire area that the U.S. Census Bureau included within the original delineated Urban Area Boundary. The 2020 U.S. Census Urban Area is defined below:

“To qualify as an urban area, the territory identified according to the criteria must encompass at least 2,000 housing units or at least 5,000 persons. The term “rural” encompasses all population, housing, and territory not included within an urban area.”

Source: Federal Register, 3/24/2022, Urban Area Criteria for the 2020 Census-Final Criteria - <https://www.federalregister.gov/documents/2022/03/24/2022-06180/urban-area-criteria-for-the-2020-census-final-criteria>

2.2 DETERMINING AND ADJUSTING URBAN AREA BOUNDARY

The 2020 Urban Area Boundaries are to be cooperatively determined by the appropriate FDOT district, MPOs/TPOs, and local entities and are subject to FHWA approval. FHWA considers a State's DOT, working with the appropriate local government entities, to be the leading authority during this process and relies upon State DOTs to take an active leadership role. The Urban Area Boundary process flowchart, see [APPENDIX A: URBAN AREA BOUNDARY PROCESS FLOW CHART](#), shows the order in which adjusted UAB development is recommended.

The first step in determining how to adjust U.S. Census Bureau Urban Areas is to obtain the applicable supporting data and documentation which includes but is not limited to:

- 2020 U.S. Census Bureau urban area data
- Hydrography
- Land use showing areas of recent growth
- Latest aerial imagery



- Military Installations
- Municipal boundaries
- Other significant traffic generators
- Ports
- Roadway Networks
- Transit Routes

The TDA [Urban Area Boundary and Functional Classification \(UABFC\) Data Hub](#) hosts the resources and references available to support this process. The FHWA Office of Highway Policy Information's, [Highway Functional Classification Concepts, Criteria and Procedures, 2013 Edition](#) also contains relevant guidance for adjusting urban area boundaries.

As stated previously, adjusted urban area boundaries, at a minimum, must encompass the entire U.S. Census Bureau Urban Area delineation. Any adjusted urban area boundaries must be agreed upon by the appropriate local entities (City, County and/or MPO) in cooperation with the appropriate FDOT District Office and the TDA Office. Adjusted urban area boundaries are to be established before, concurrently, or after functional classification review activities within a given local entity. It is up to each FDOT District to determine the sequencing of the urban area boundaries and functional classification review.

U.S. Census Bureau urban areas should be adjusted for transportation planning purposes; specifically, to eliminate irregularities, maintain administrative continuity of peripheral routes, and encompass fringe areas having residential, commercial, industrial, and/or national defense significance. Transportation terminals serving the area such as airports and seaports should also be included within the redefined area if they lie within a reasonable distance of the UAB. Careful consideration should be given to the selection of UAB locations that will include logical control points for transportation linkages such as interchanges, major cross-roads, etc., where the inclusion of such areas will not overly distort the urban area.

Attention should be made to ensure continuity of classifications across district/state lines, see [APPENDIX J: BEST PRACTICES FOR URBAN AREA BOUNDARY AND FUNCTIONAL CLASSIFICATION PROCESS](#) for best practices for Urban Area Boundary and Functional Classification designation. *Draft maps showing the original U.S. Census Bureau urban area as well as the proposed FHWA adjusted urban area boundaries should be prepared in a geographic information system (GIS) format, e.g., geodatabase-feature classes, shapefiles, static PDF-based maps.* The TDA Office will work with the Districts to accomplish this task. The boundaries should be delineated on maps of a scale necessary to show all prominent highways and streets, all fixed transit right-of-way facilities, all major bus routes, municipal limits, etc., as well as the new limits of the adjusted urban area boundary.

The draft maps will be submitted to TDA for review before TDA gives them to FHWA for preliminary approval, see [APPENDIX I: UAB GIS DATA FORMAT REQUIREMENTS](#) for draft map requirements. If FHWA has concerns, the District and the local entities will review and modify the adjusted urban area boundaries for re-submittal to TDA, then TDA to FHWA. Federal Transit Administration (FTA) concurrence is necessary when the designation of Urban Areas has



significant transit implications. In this case, the FHWA Division Administrator should secure such concurrence from FTA before formal approval is given. FHWA approval will be indicated by signature on the maps in the space provided.

After preliminary approval is received from FHWA, the District will prepare a final set of maps and provide any supporting documentation. *The final maps will not include the original U.S. Census Bureau urban area boundary.* Local entities will sign the signature block on the final maps indicating their formal approval. TDA will submit these adjusted UAB maps to FDOT's Assistant Secretary for signature as the delegate for the Governor of Florida. TDA will then submit the adjusted UAB maps to the FHWA Division Office for final approval. After the adjusted UAB is approved by FHWA, the TDA Office will update feature 124 (urban classification) in RCI. TDA will compile all the boundaries into a statewide GIS layer, resolving data conflicts such as topological overlaps, gaps, or polygon slivers between UABs. Additionally, adjusted urban area boundaries will be reviewed to ensure that they follow existing county and district boundaries where relevant.

[APPENDIX C: SAMPLE LETTER TO LOCAL ENTITIES FOR URBAN AREA BOUNDARY PROCESS](#) and [APPENDIX D: SAMPLE LETTER FROM LOCAL ENTITIES FOR URBAN AREA BOUNDARY PROCESS](#) are examples of the correspondence that is used when adjusted UABs require local signatures.

2.3 INTERIM URBAN AREA BOUNDARY ADJUSTMENTS

An interim modification to an approved FHWA-adjusted boundary is handled in the same way as the decennial update. All parties must be involved in the decision-making process and FHWA must approve the final adjusted UAB.

3. FUNCTIONAL CLASSIFICATION

Functional classification is the process when streets and highways are grouped into classes, or systems, according to the character of service they provide. The designation of functional classification is made at least once every 10 years following the decennial census. Functional classification designations can also be requested for creation/modification at any time given a road's change in function.

There are three broad functional classification characteristics categories with five total categories. Additionally, a rural or urban designation is added at the beginning of the functional classification designation (e.g., Urban Minor Arterial). Functional classifications relate to travel desires, with arterial roads representing the most-used routes and local roads representing the least-used routes. An arterial system provides a high level of through-traffic movement, a local system provides predominantly direct property access, and collector system functions lie between the two. **Table 3** and **Table 4** summarize these designations.



Urban	Rural
Principal Arterial	Principal Arterial
Minor Arterial	Minor Arterial
Major Collector	Major Collector
Minor Collector	Minor Collector
Local	Local

Table 2 - Urban and Rural Functional Classifications

Table 4 summarizes the relationship between functional characteristics and the three broad categories of functional classification.

Functional Classification	Distance Served (and Length of Route)	Access Point	Speed Limit	Distance between Routes	Usage (AADT and DVMT)	Significance	Number of Travel Lanes
Arterial	Longest	Few	Highest	Longest	Highest	Statewide	More
Collector	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Local	Shortest	Many	Lowest	Shortest	Lowest	Local	Fewer

Table 3 - Relationship between Functional Classification and Travel Characteristics. Source: [USDOT FHWA Highway Functional Classification Concepts, Criteria and Procedures. 2013 Edition, page 17, table 2-1: Relationship between Functional Classification and Travel Characteristics.](#)

Travel desire relates to functional classification, with arterials representing the heaviest used trip route and locals representing the least used facility. The arterial system provides a high level of through traffic movement, local facilities provide predominantly direct property access, and the collector system lies between the two.

Conceptually, in rural areas, arterial highways provide direct service between cities and larger towns and accommodate longer trip lengths. Collectors serve small towns and connect them to the arterial system. Local roads serve individual farms and other rural property uses, ultimately tying to collectors. The same basic concepts apply in urban areas. The urban roadway network connects residential, commercial, and public areas by this hierarchy of arterial, collector, and local roads.

3.1 PROCESS

FHWA considers a State's DOT, working with the appropriate MPO and local government entities, to be the leading authority during this process and relies upon State DOTs to take an active leadership role. Functional classification is independent of ownership since what matters is the role the facility plays to other facilities and connectivity. FDOT is responsible for the functional classification of all roads in the state, not just State roads.

The District may hold simultaneous urban area boundary and functional classification workshops, but the urban area boundary must be determined and approved by FHWA prior to requesting rural or urban functional classification assignment. All urban area boundary and functional classification designations are to be made mutually by FDOT, local entities, and where applicable, the MPO or TPO. These designations are subject to approval by FHWA following submission by the TDA Office.



All existing roads shall be assigned functional classification according to how the roadway is functioning in the current year only. Future routes should be functionally classified with the existing system if they are included in an approved short range improvement program (i.e., 5-year work program) and there is a good probability that the route will be under construction within four years. Where applicable, the same classification should be given to the future route and to the existing route that it will replace until the future route is constructed.

A road located within an adjusted FHWA urban area boundary shall be classified as urban. Those roads located outside urban areas shall be classified as rural. Functional classification designations usually remain stable over many years, changing only when necessary to recognize evolving travel patterns, relocated urban area boundaries, or other factors.

Interim re-evaluations can occur when FDOT or a local entity observes that the usage/function of a road has changed to indicate a possible change in function. A local entity or an MPO may request re-evaluation by writing to the appropriate District Secretary. If a local entity is requesting a review of a road or roads located within the area influenced by an MPO, then both parties should be involved in the re-evaluation process and concur with the outcome of the review. District staff should complete the Department's portion of the re-evaluation work within six months of the date the request was received.

Interim changes are also presented by the construction of new roads, whether it is a completely new roadway or the extension of an existing roadway. These changes require local coordination and functional classification documentation, i.e., application ([APPENDIX E: FUNCTIONAL CLASSIFICATION APPLICATION](#)) and a location map ([APPENDIX F: FUNCTIONAL CLASSIFICATION LOCATION MAP](#)). These revisions are submitted to the TDA Office's Multimodal Data System Coordinator for review. If approved, the TDA Multimodal Data System Coordinator will submit the functional classification documentation to FHWA for approval.

Changes to urban area boundaries, RCI Feature 124 (HWYLOCAL) must be updated in the RCI database by District staff. TDA's Multimodal Data System Coordinator will update RCI Feature 112 (FAHWYSYS) and batch load the proposed functional classification changes into the current federal functional classification feature 121 (FUNCLASS).

3.2 CRITERIA AND METHODS FOR CLASSIFYING ROADS

FHWA's Office of Highway Policy Information's [Highway Functional Classification, Concepts, Criteria and Procedures, 2013 Edition](#), calls for the grouping of similarly ranked travel generators. This Handbook delineates 12 traffic generators, more precisely referred to in this handbook as trip purposes. When evaluating the function of a road, FDOT should consider the character of service these roads are intended to provide. A road may serve more than one significant trip purpose.

Use of the 12 (numbered 1-12) trip purposes, (described later on page 14 of this handbook) to determine the functional classification should be as follows:



Principal Arterial	2 or more of trip purposes 1-7
Minor Arterial	Only 1 of trip purpose 1-7
Major Collector	1 or more trip purposes 8-10
Minor Collector	Trip purpose 11
Local	Trip purpose 12

Table 4 - Trip Purpose Definitions

It is not necessary for a road to go directly to the main entrance of a traffic generator for it to serve that traffic generator. Several connections may exist between the primary access route and the traffic generator. For example, a state university has many entrances accessed by local roads that connect to the major road network at multiple points. It may be sufficient for a major road to pass along or near a boundary of the university for it to be "served" by that road. In the same way, an interstate highway that passes along the border of an urban area serves that urban area if a direct connection is provided between the Interstate highway and the urban area.

3.2.1 Arterials

The **arterial system** serves the highest degree of through-traffic movement and largest proportion of total travel. As used in the functional classification system, the Interstate Highway System is considered an arterial network. Arterials generally have higher design standards than other roads.

A road serving two or more trip purposes (1 through 7, see trip purposes on page 14 of this handbook) will be classified as a principal arterial road. All limited-access highways and all roads serving the purpose of connecting urban areas to each other are considered to serve several trip purposes and are thus classified as principal arterial roads. A road serving only one of the trip purposes (1 through 7, see trip purposes on page 14 of this handbook) should be classified as a minor arterial road.

The **urban principal arterial system** includes interstate highways, other freeways and expressways, and other principal arterials. The urban principal arterial system serves the major centers of activity of a metropolitan area, has the highest traffic volume corridors, and the longest trip desires; and should carry a high portion of the total urban area travel on a minimum of mileage. It carries most trips entering and leaving urban areas, and it provides continuity for rural principal arterials that intercept urban boundaries.

A **rural principal arterial highway** network provides interstate and inter-county service so that all urban areas are within a reasonable distance of an arterial highway. Rural principal arterials typically link nonadjacent urban areas. Rural principal arterial highways provide an integrated network without stub connections except where needed because of unusual geographic or traffic conditions (for example, connections to coastal cities, water ports, and airports). The rural principal arterial network is divided into three subsystems, interstate highways, other freeways and expressways, and other principal arterials.

Table 6 presents a few key differences between the character of service that urban and rural principal arterials provide:



Urban	Rural
Serve major activity centers, highest traffic volume corridors and longest trip demands	Serve corridor movements having trip length and travel density characteristics indicative of substantial statewide or interstate travel
Carry high proportion of total urban travel on minimum of mileage	Connect all or nearly all Urbanized Areas and a large majority of Urban Clusters with 25,000 and over population
Interconnect and provide continuity for major rural corridors to accommodate trips entering and leaving urban area and movements through the urban area	Provide an integrated network of continuous routes without stub connections (dead ends)
Serve demand for intra-area travel between the central business district and outlying residential areas	

Table 5 - Characteristics of Urban and Rural Arterials. Source: [USDOT FHWA Highway Functional Classification Concepts, Criteria and Procedures, 2013 Edition, page 21, table 2-1: Relationship between Functional Classification and Travel Characteristics.](#)

The **urban minor arterial system** typically provides service for trips of moderate length and at a lower level of through traffic movement than principal arterials. They connect with urban principal arterial roads and rural collector routes.

A **rural minor arterial highway** typically links cities and larger towns and serves an urban area if it penetrates or comes within two miles of the urban area boundary. A road connecting the rural minor arterial highway to the urban area is not necessary.

Table 7 presents a few key differences between the character of service that urban and rural minor arterials provide:

Urban	Rural
Interconnect and augment the higher-level Arterials	Link cities and larger towns (and other major destinations such as resorts capable of attracting travel over long distances) and form an integrated network providing interstate and intercounty services
Serve trips of moderate length at a somewhat lower level of travel mobility than Principal Arterials	Be spaced at intervals, consistent with population density, so that all developed areas within the State are within a reasonable distance of an Arterial roadway
Distribute traffic to smaller geographic areas than those served by higher-level Arterials	Provide service to corridors with trip length and travel density greater than those by Rural Collectors and Local Roads and with relatively high travel speeds and minimum interference to through movement
Provide more land access than Principal Arterials without penetrating identifiable neighborhoods	
Provide urban connections for Rural Collectors	



Table 6 - Characteristics of Urban and Rural Minor Arterials. Source: [USDOT FHWA Highway Functional Classification Concepts, Criteria and Procedures, 2013 Edition, page 22, table 2-1: Relationship between Functional Classification and Travel Characteristics](#).

Trip Purpose 1. Travel to and through urbanized areas

These are primary routes that connect one urbanized area to another. Typically, there will be only one route of Trip Purpose 1 per urban area. In selecting the primary route between two adjacent urbanized areas when more than one direct route exists, the District should first consider the route that extends to the largest number of distant urban areas. If that criterion does not provide a clear selection, the District may then consider which road serves the largest volume of traffic traveling between the two adjacent urban areas. A connected urban area may be in another state. Two routes may be considered when the amount of travel in a given corridor connecting two urban areas is substantially served by trips on more than one highway.

This is also true when an urban area is so geographically large as to result in multiple corridors having been established. This two-route option will be applied in limited cases. The TDA Office will review two-route options as proposed by the District and present them to FHWA for consideration. In general, the use of multiple highways to serve trip needs of a single corridor for this trip purpose should be recognized only when the two facilities are of different access control types (i.e., one is limited-access and the other is not). For example, Interstate 10 (I-10) is a limited access facility; US-90 that parallels I-10 is not a limited access facility.

Trip Purpose 2. Travel to and through small urban areas

These are primary routes that connect one small urban area to an adjacent small urban area, or to the network of roads connecting urban areas to each other. If there is no urban area in the county, connection should be made to the county seat.

Trip Purpose 3. National defense

A national defense route is identified as a primary National Strategic Highway Network (STRAHNET) route. National defense routes also include connector routes identified in the STRAHNET Connector Atlas. See the latest [Florida Atlas](#).

Trip Purpose 4. Interstate and regional commerce

Routes serving this trip purpose are identified by relatively high volumes of freight movements over long distances. A U.S. route may often indicate that the designated route serves the primary purpose of interstate commerce. Those roads that serve the purpose of travel to and through urban areas are considered to serve the needs of regional commerce and thus meet both trip purposes, and vice versa. Identification of this trip purpose may involve evaluating the appropriateness of existing U.S. route designations

Trip Purpose 5. Access to airports, seaports, and major rail terminals or intermodal transfer facilities

These major routes that provide access to regional or international airports, seaports handling ocean-going or river barge traffic, and rail/truck intermodal facilities, are designated by FDOT and approved by FHWA. Access to these facilities are designated as National Highway System connectors to identify the type of facility served by the connector.



Codes	Description
02	Airport
03	Port Facility
04	AMTRAK Station
05	Rail/Truck Terminal
07	Public Transit Terminal

Table 7a – Special Systems – National Highway System Connectors. Source: [RCI Handbook, Feature 112](#).

Trip Purpose 6. Access to major public facilities

A route to the major point of entrance to a major public facility is considered the primary access route. Major public facilities are distinguished from minor public facilities by their frequency of use and customer service. The general guide for selecting facilities meeting this purpose is to identify those for which the generated traffic would substantially impact the performance of connecting roads, i.e., the number and frequency of trips to or from the facility would place a significant demand on the facility. For the purposes of this handbook, major public facilities are: state or private universities; community colleges; regional medical centers; natural attractions, such as beaches, rivers, and state parks, that draw from a regional area and serve an average daily attendance of 1,000 persons in a single area; manmade attractions, such as theme parks, that attract audiences from a regional area; publicly-owned cultural and historic facilities, such as performing arts centers, civic centers, and museums, that attract audiences from a regional area.

Trip Purpose 7. Access to minor public facilities

A route providing access to the main entrance to a minor public facility is considered the primary access route. For the purposes of this handbook, minor public facilities are those not meeting the requirements listed in Trip Purpose 6, access to major public facilities, and include manmade attractions and publicly owned cultural and historical facilities that attract local audiences.

3.2.2 Collectors

Collectors are typically designed for travel at medium speeds and for medium distances. Collectors are typically two-lane roads that collect and distribute traffic to/from the arterial system.

The **urban collector system** consists of two systems: major and minor collectors. **Urban major collectors** provide direct property access and traffic circulation in higher density residential neighborhoods and commercial and industrial areas. Unlike arterials, major collector roads may penetrate residential neighborhoods for significant distances and channel traffic from local streets onto the arterial system.



Urban minor collectors provide traffic access and traffic circulation in lower density residential and commercial/industrial areas. They may penetrate residential neighborhoods for only a short distance and channel traffic from local streets to/from the arterial system.

The **rural collector system** consists of two systems: major and minor collectors. **Rural major collectors** provide service to any county seat not on an arterial route. They also serve larger towns not accessed by higher order roads, and important industrial or agricultural centers that generate significant traffic and smaller communities not served by a higher-class facility. **Rural minor collectors** are spaced at intervals, consistent with population density, to collect traffic from local roads and to ensure that all developed areas are within a reasonable distance of a collector road.

Major collectors typically serve higher traffic volumes than minor collectors. Overall, in both urban and rural settings, the total mileage of Major Collectors should be lower than the total mileage of Minor Collectors.

Table 8 presents some of the characteristics of urban and rural major and minor collectors.

MAJOR COLLECTORS	
Urban	Rural
Serve both land access and traffic circulation in <u>higher</u> density residential, and commercial/industrial areas	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 intra-county importance such as consolidated schools, shipping points, county parks and important mining and agricultural areas
Penetrate residential neighborhoods, often for <u>significant</u> distances	Link these places with nearby larger towns and cities or with Arterial routes
Distribute and channel trips between Local Roads and Arterials, usually over a distance of <u>greater than</u> three-quarters of a mile	Serve the most important intra-county travel corridors
Operating characteristics include higher speeds and more signalized intersections	
MINOR COLLECTORS	
Urban	Rural
Serve both land access and traffic circulation in lower density residential and commercial/industrial areas	Be spaced at intervals, consistent with population density, to collect traffic from Local Roads and bring all developed areas within reasonable distance of a Collector
Penetrate residential neighborhoods, often only for a <u>short</u> distance	Provide service to smaller communities not served by a higher class facility



MINOR COLLECTORS	
Urban	Rural
Distribute and channel trips between Local Roads and Arterials, usually over a distance of <u>less than</u> three-quarters of a mile	Link locally important traffic generators with their rural hinterlands
Operating characteristics include lower speeds and fewer signalized intersections	

Table 8 - Characteristics of Urban and Rural Collectors. Source: [USDOT FHWA Highway Functional Classification Concepts, Criteria and Procedures, 2013 Edition, page 23, table 2-1: Relationship between Functional Classification and Travel Characteristics.](#)

In both urban and rural areas, a distinction is recognized between major and minor collector roads, those serving any of the trip purposes 8, 9, and 10 will be considered major collector roads and those serving trip purpose 11 only will be considered minor collector roads.

Trip Purpose 8. Interconnection of major thoroughfares

A route that provides a high-volume cross-connection between roads that meet at least two of the trip purposes, 1 through 6, qualifies for this trip purpose. The intent is to ensure that the trips being observed are for through traffic seeking to reach the distant major road.

Trip Purpose 9. Interconnection of minor thoroughfares

A route that provides cross-connection between roads that meet at least one of the trip purposes 1 through 7 qualifies for this trip purpose.

Trip Purpose 10. Access to concentrated property use areas

This is a route that connects major thoroughfares to concentrations of property use, such as the primary connection to a community, large residential subdivision, neighborhood shopping center, or a public facility serving a local audience.

Trip Purpose 11. Access to rural diffused property use areas and lower density urban residential and commercial/industrial areas

A route that connects major thoroughfares to diffused areas of a single or mixed property use and lower density urban residential and commercial/industrial areas serves this trip purpose. Such areas include the primary connection to a rural farming area consisting of large acreage tracts, and scattered small residential developments or in urban areas, lower density residential and commercial/industrial areas.

3.2.3 Locals

Local roads represent the largest percentage of all roadways in terms of mileage. For rural and urban areas, all public road mileage below the collector system is considered local. Local roads provide basic access between residential and commercial properties, connecting with higher order highways. A route meeting this purpose would connect a home, work, or entertainment trip by connecting the destination to the roads serving longer trips. Examples of roads meeting



the purpose described in this paragraph include those located within a residential subdivision or a cluster of commercial buildings.

Local roads generally do not carry bus routes and, in many instances, they include various roadway treatments to discourage through traffic. In general, local roadways are often classified by “default.” In other words, once all arterial and collector roadways have been identified, all remaining roadways are classified as locals.

Table 9 presents some of the key characteristics of local roads:

Local Roads	
Urban	Rural
Provide direct access to adjacent land	Serve primarily to provide access to adjacent land
Provide access to higher systems	Provide service to travel over short distances as compared to higher classification categories
Carry no through-traffic movement	Constitute the mileage not classified as part of the Arterial and Collector systems
Constitute the mileage not classified as part of the Arterial and Collector systems	

Table 9 - Characteristics of Urban and Rural Local Roads. Source: [USDOT FHWA Highway Functional Classification Concepts, Criteria and Procedures. 2013 Edition, page 24, table 2-1: Relationship between Functional Classification and Travel Characteristics](#)

3.3 FEDERAL-AID PROGRAMS DETERMINED BY FUNCTIONAL CLASSIFICATION

3.3.1 Programs

The two largest Federal-Aid Programs are the National Highway Performance Program and the Surface Transportation Program:

The National Highway Performance Program provides funding for an enhanced National Highway System (NHS) which includes the existing NHS, all principal arterials, STRAHNET, and intermodal connectors.

The Surface Transportation Block Grant Program (STBG) includes additional roads eligible for federal aid that are not on the NHS and are not functionally classified as local roads or rural minor collectors. The STBG was established to provide funds for non-NHS roads that are eligible for federal aid. The Fixing America's Surface Transportation (FAST) Act was signed into law on December 4, 2015, changing the Surface Transportation Program (STP) program name to the Surface Transportation Block Grant Program (STBG).

3.3.2 Funding

For information on the use of federal funds, refer to the [Work Program Instructions](#), Part IV- Federal Aid Programs Administrated by Federal Highway Administration (FHWA).



3.3.3 Outdoor Advertising Federal-Aid Maps

National Highway System (NHS) roads are included on Outdoor Advertising Regulatory maps that are used to determine the regulation of signs along certain roads. The Outdoor Advertising maps include not only the NHS but also roads that were classified as Federal-Aid Primary as of June 1, 1991. These categories are found in federal-aid feature 112 in the RCI database. Changes to feature 112 are the responsibility of TDA.

3.3.4 National Highway System (NHS)

National Highway System (NHS) routes, except for Intermodal connectors or STRAHNET connectors; must be classified as principal arterials. NHS Facilities which have been functionally classified lower than principal arterial must be removed from the NHS unless they are Intermodal Connectors or STRAHNET Connectors.

Changes to the NHS can be made when FHWA determines the change is justified. When a request for a change is made, the District will work with the requesting entity to compile information on the preferred route. The request for a change must include an NHS application (signed by the local MPO chair or County), location map, shapefiles, spreadsheet detailing road data changes, and a justification report for TDA to submit to FHWA for consideration and approval.

Some types of justification considered for changes to the NHS are changes to STRAHNET or STRAHNET connector routes, realignments, new construction of more efficient travel ways and changes in travel patterns and demand; e.g., re-alignments.

Some of the types of justification considered for changes to NHS connectors to intermodal facilities are freight and passenger needs, routes that more effectively serve facility users, and future system considerations such as facility relocation or closure.

3.4 STEPS IN FUNCTIONALLY CLASSIFYING RURAL AND URBAN ROADWAYS

The TDA Office is available to assist and support the District in developing contacts, conducting meetings, and making decisions by applying future planning and capacity projects as consideration to the functional classification application process. The Functional Classification Process Flowchart, [APPENDIX B: FUNCTIONAL CLASSIFICATION PROCESS FLOW CHART](#), shows the order in which functional classification development is recommended. This flow of activities logically shows the coordination process and the order of events required to obtain FHWA functional classification approval.

The following section provides a summary of the recommended steps to functionally classify roadways:

Using the TDA provided Urban Area Boundary and Functional Classification GIS data:

1. Prepare a map showing the road network and the existing federal functional classification overlaying the new adjusted urban area boundary.



2. Add trip service characteristics, such as major traffic generators and property use patterns. The most recent aerial images and land use data available for an area are a good resource.
3. Reclassify the functional classification for highways and streets where trip service characteristics have changed. When reclassifying roads, remember to include logical system continuity considerations. Select principal arterial systems first, followed by minor arterials, then collectors and locals.

The following section outlines the reclassification steps:

- Perform a preliminary classification of the total arterial system considering the list below:
 - Evaluate service to urban activity centers.
 - Consider system continuity.
 - Determine property use considerations.
 - Evaluate spacing between routes and the spatial distribution of activities to be served.
 - Average trip length.
 - Traffic volumes – Annual Average Daily Traffic (AADT) - State DOTs are required to collect, analyze and publish traffic data on the roadways within their borders. Specifically, through the Highway Performance Monitoring System, each roadway segment on the Federal-aid highway (e.g., urban roadways classified as Minor Collectors and above and rural roadways classified as Major Collectors and above) is required to have an AADT value that is based on an actual traffic count within the last 3 years.
 - Access control.
 - Vehicle miles of travel and system mileage.
 - Future routes should be functionally classified with the existing system if they are included in an approved short range improvement program (i.e., 5-year work program) and there is a good probability that the route will be under construction within four years. Where applicable, the same classification should be given to the future route and to the existing route that it will replace until the future route is constructed.
- Classify the final arterial system breaking it into the principal and minor arterial street system.
 - **By service to urban activity centers:**
 - Business districts.
 - Air, rail, bus, and truck freight terminals.
 - Regional retail shopping centers.
 - Large colleges, hospital complexes, military bases, and other institutional facilities.
 - Major industrial and commercial centers.
 - Important recreation areas.
 - **By system continuity:**
 - The principal arterial system should provide an integrated, continuous network throughout an area.
 - Minor arterials, collectors and locals are not integrated systems by themselves. They are in combination with previously designated higher order systems.
- Sub-stratify the principal arterial system:
 - Divide it into Interstate, other freeways and expressways, and other principal arterials.



- Classify the minor arterial system (arterials not qualifying as principal arterials).
- Classify collector and local streets:
 - **Collector streets**
 - Have a relatively important property access function.
 - Serve to funnel traffic between local streets.
 - **Local streets**
 - All remaining streets which have not been designated as arterials or collectors.
- FHWA requests the submittal of a spreadsheet at the same time maps are provided for review that shows the changes to functional classification by road. An example of this spreadsheet is found in [APPENDIX G: FUNCTIONAL CLASSIFICATION MINIMUM DATA ELEMENTS](#).

Roads are assigned to a Federal System according to their functional classification designation. **Do not** request RCI feature 112 updates until functional classification has been approved by FHWA.

Functional classification is important for determining federal-aid funding eligibility; the following is a summary of federal-aid funding eligibility:

System/Funding Eligibility	Functional Classification
National Highway System	Principal arterials, intermodal connectors, and STRAHNET connectors.
Surface Transportation Block Grant (STBG) Program	All functional classifications except rural minor collectors and locals.
Federal-Aid None Except for special considerations, contact the FDOT Work Program Office for additional information.	Rural minor collectors, locals.

Table 10 - Summary of Federal Aid Funding Eligibility

3.5 PROBLEMS THAT IMPACT FUNCTIONAL CLASSIFICATION OF ROADWAYS

To review each county and urban area, GIS maps are produced utilizing the data represented in RCI features 121 (functional classification) and 124 (urban classification). This mapping process brings direct attention to problem areas that need further examination and review. Some of the more common problems are listed below:

- RCI features 121 and 124 must be updated whenever changes occur, and they must complement each other. Feature 121 directly affects feature 112 (federal systems). Districts should request TDA to update feature 112.
- If the difference in length between the digitized and RCI alignments is greater than or equal 0.100 miles or 5% of the RCI length. Districts should provide marked-up aerials displaying the correct alignment for comparison with the RCI LRS.
- If a realignment of a roadway has not been digitized into the RCI LRS, the correct realignment should be shown on a copy of the latest aerial image. Districts should make sure the location of the realignment can be determined within the county by adding discerning features. RCI feature



140 (section status exception) must be coded correctly, and the total realignment length must be correctly noted in RCI. Feature 138 (roadway realignment) must be completed.

- The original digitized alignment of a roadway may not have been put in correctly on the RCI LRS. A marked aerial printout showing the correct alignment will be needed to make required adjustments.
- The field Distance Measuring Instrument (DMI) measurement can be used instead of the GIS digitized length when the lengths are within 0.009 miles. The length of the road and the magnitude of the error will determine the selection of one or the other, using the information described in the bullets above.

Problems will occur if two or more section numbers are assigned to the same section of roadway or to overlapping roadways. If this is determined to be an exception, code it in properly. If this is not due to an approved exception, the problem will need to be corrected by field or map review.

4. DISTRICT FINALIZATION RESPONSIBILITIES

The District, MPO and local entity should all confirm that the map or maps reflect the accurate representation of the decisions made for the urban area boundary and functional classification. After FHWA approves the urban area boundary and functional classification designations, the District will prepare final maps to be sent to the TDA Office for final signatures from FDOT/FHWA. Maps will include the following elements:

- Adhere to line symbology required of the FHWA. [APPENDIX L: UABFC SHAPEFILE TEMPLATES](#).
- Provide GIS data (e.g., feature class, shapefile, etc.) in the Florida Department of Transportation's Linear Reference System (LRS) preferred coordinate projection system: UTM 17; Datum: NAD 83.
- Legend detailing urban area boundary and functional classifications.
- Recommended by Signature/Date blocks for FDOT and the Local Entity.
- Approved by Signature/Date block for FHWA.
- Include colored FDOT logo.
- File created date.
- Prepared by and in cooperation with statement.
- County title.
- Include a compass rose.
- Include map scale in miles.
- Provide insets of main urban areas.

Obtain the following official signatures, required by the Procedure, on the final maps and provide the described materials as follows:

- County maps and unincorporated urban area maps shall be signed by the Chairman, Board of County Commissioners (or another authorized representative of the county).



- Incorporated urban area maps shall be signed by the mayor (or another authorized representative of the city) and if they extend beyond the municipal limits, the Chairman, Board of County Commissioners (or another authorized representative of the county). (This does not include urban areas within an MPO planning area boundary.)
- FHWA urban area maps shall be signed by the Chairman of the MPO (or another authorized representative of the MPO) for all areas within the MPO planning area boundary. For urban areas with multiple MPOs, the Chair of each MPO (or another authorized representative of the MPOs) will sign the maps. If the MPO planning area includes the entire county, the MPO has coordination responsibility with local entities and only the MPO must sign.
- The District will finalize the written descriptions to be accompanied by the TDA Offices' functional classification tabulations.
- The District will prepare the final package for submittal to the TDA Office, which will consist of the following items:
 - A cover letter requesting TDA to transmit the package to FHWA for approval.
 - Signed county and urban area functional classification maps.
 - Final written descriptions and the functional classification tabulations in spreadsheet format showing the extent of functional classification on a district-wide scale.
 - A statement that the functional classification was developed in cooperation with local entities (County, City, or MPO).
 - Any available resolution(s) from the involved local entities (County, City or MPO) agreeing to the designations.

5. DATA AVAILABILITY AND ACCESS

U.S. Census Bureau Urban Area data for the state of Florida, existing Functional Classification data, and other reference datasets will be made available on the Urban Area Boundary and Functional Classification (UABFC) Data Hub web site: <https://urban-boundary-functional-class-update-2020-fdot.hub.arcgis.com/>

The UABFC Data Hub is a publicly accessible online resource and will provide the Districts, local entities, and MPOs the ability to download the official U.S. Census Bureau urban areas and functional classification data to be adjusted. The UABFC Data Hub also includes references, resources, and training material to help facilitate the UABFC update process.

Once the Adjusted UABs have been finalized by FHWA and all parties involved, TDA will compile the UAB boundaries into a statewide GIS layer, resolving data conflicts such as overlaps and gaps between District boundaries. The TDA Office will provide access to the final Adjusted UABs and updated Functional Classification data via the UABFC Data Hub as well as other FDOT enterprise business systems.



APPENDICES

APPENDIX A: URBAN AREA BOUNDARY PROCESS FLOW CHART

APPENDIX B: FUNCTIONAL CLASSIFICATION PROCESS FLOW CHART

APPENDIX C: SAMPLE LETTER TO LOCAL ENTITIES FOR URBAN AREA BOUNDARY PROCESS

APPENDIX D: SAMPLE LETTER FROM LOCAL ENTITIES FOR URBAN AREA BOUNDARY PROCESS

APPENDIX E: FUNCTIONAL CLASSIFICATION APPLICATION

APPENDIX F: FUNCTIONAL CLASSIFICATION LOCATION MAP

APPENDIX G: FUNCTIONAL CLASSIFICATION MINIMUM DATA ELEMENTS

APPENDIX H: ACRONYMS AND DEFINITIONS

APPENDIX I: UAB GIS DATA FORMAT REQUIREMENTS

APPENDIX J: BEST PRACTICES FOR URBAN AREA BOUNDARY AND FUNCTIONAL CLASSIFICATION PROCESS

APPENDIX K: UABFC MAP PACKAGE REQUIREMENTS

APPENDIX L: UABFC SHAPEFILE TEMPLATES