

FHWA URBAN BOUNDARY and FEDERAL FUNCTIONAL CLASSIFICATION HANDBOOK

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**FHWA Urban Boundary and
Federal Functional Classification Handbook**
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1. INTRODUCTION

This handbook is a supplement to the FHWA Urban Boundary and Federal Functional Classification Procedure 525-020-311. It provides additional guidance, sample letters and forms, and background material. The Sample letter and form in the Handbook can be tailored or changed to fit specific circumstances, providing only a starting point for users. Samples are not official forms of the Department.

The Census Bureau redefined the criteria for determining urbanized areas. Population density by block group (BG) and block is the key factor in the selection of areas to be included in the Urbanized Area (UA). Place (or city) boundaries are not used. Using the Census boundary instead of smoothing the boundary will not involve a boundary delineation process.

However, there are consequences that must be discussed with the local governmental entities. The Census Bureau did not automatically recognize previously existing Urban Area territory for Census 2000 Urban Area delineation and there is no “grand-fathering” of areas that qualified previously. Census boundaries are jagged and irregular. A Census urban area is made up of a core area and adjacent blocks with a certain density. Depending on the size of the block and the distance from the core area, density requirements can change and eligible blocks may not be contiguous to the core area.

The adjustment of the Census boundaries by the development of the FHWA adjusted urban boundary (projected 5 years) is very much the same as in previous years. This is expanded in the Urban Boundary portion of this Handbook and displayed in the Attachments.

The determination must be made to use the 2000 Census boundary or the FHWA adjusted urban boundary prior to classifying the roads. The FHWA March 1989 Highway Functional Classification Concepts, Criteria and Procedures Manual discusses suggested procedures for functional classification in rural, urban cluster (previously referred to as small urban area), and urbanized areas. The use of functional classification to update and modify the Federal-Aid Highway System is a legislative requirement dating back to 1973.

Federal functional classification is required by the Federal Highway Administration (FHWA). The principal purpose of roadway classification is to establish the relativity of candidate roads in the overall hierarchy of roadways. Functional classification is used for planning, budgeting, programming, and for fiscal management. It is used to evaluate Federal, State and local highway programs. It is used by other offices within and outside of the Department, directly and indirectly, to help meet other federal requirements, including the preparation of the Department’s Work Program and the MPOs’ Transportation Improvement Plans. The Outdoor Advertising Office uses boundaries and functional classification to determine the roads with billboard restrictions. Federal

functional classification is the only functional classification recognized by the Department. This is the functional classification coded in the Roadway Characteristics Inventory (RCI) database that is used as the basis for federal system assignment and funding. After state functional classification was eliminated, some local governments began using federal functional classification in their Comprehensive Plans.

This Handbook is NOT a substitute for the FHWA Manual. The Manual contains detailed concepts, definitions, and system characteristics for classifying roads.

It is the responsibility of the FHWA Division Office to approve any changes to the urban boundaries and the classification of highways. If a state proposes major changes to the principal arterial system, those changes should be submitted to the FHWA Division Office on Intermodal and Statewide Programs in Washington for further review prior to Division action.

2. ACRONYMS AND DEFINITIONS

* denotes new terms used in the 2000 Census Bureau revised evaluation and selection process.

Any terms used in the Procedure but not defined in this Handbook shall be defined as in the Federal Highway Administration publication, Highway Functional Classification Concepts, Criteria and Procedures, March 1989 edition, plus subsequent updates and related guidelines or memoranda that may be separately issued from time to time.

ARTERIAL HIGHWAY SYSTEM: The group of roads constituting the highest degree of mobility and largest proportion of total travel.

CENTRAL CITY: An area of very high land valuation and high traffic flow, characterized by a high concentration of retail and business services.

* **CENSUS BLOCK:** An area normally bounded by visible features, such as streets, streams, and railroads, and by non-visible features, such as the boundary of an incorporated place, minor civil division, county or other Census 2000 tabulation entity.

* **CENSUS BLOCK GROUP:** A group of census blocks within a census tract whose numbers begin with the same digit.

* **CENSUS DESIGNATED BOUNDARY:** The 2000 census boundary is determined by contiguous census block groups and census blocks that meet minimum population density requirements.

COLLECTOR ROAD SYSTEM: The group of roads providing a mix of mobility and land access functions, typically within a given county or urban area, linking major land uses to each other or to the arterial highway system. The collector road system is composed of rural major collector roads, rural minor collector roads, and urban collectors (differentiation between major and minor classes is not made in urban areas).

CROSS-CONNECTION: A road that connects an origin point to a destination point with no stub connections except where unusual geographic or traffic flow conditions dictate their use (international boundary connections and connections to coastal cities).

DISTRICT STAFF: The staff of appropriate offices in the district that handle the various requirements for designating boundaries and assigning functional classification. District management is encouraged to select an office to be the contact office when more than one office share responsibilities.

* **EXTENDED PLACE:** Any place that is split by an urbanized area or urban cluster boundary is referred to as an extended place. The new urban criteria, based solely on the population density of census block groups and census blocks, will provide a continuum of urban areas.

FEDERAL-AID HIGHWAY: A road that is classified as principal or minor arterial, urban collector or rural major collector.

FHWA: The Federal Highway Administration.

FHWA RURAL AREA: A rural area is one that is outside an urban area. Population centers of less than 5,000 persons are considered to be rural for purposes of this Procedure.

FHWA URBAN CLUSTER: An urban area as designated by the Bureau of Census having a population of 5,000 to 49,999, and not within any urbanized area. The boundaries shall encompass the entire urban area as designated by the U.S. Bureau of the Census *plus* that adjacent geographical area as agreed upon by local officials in cooperation with the State.

FHWA URBANIZED AREA: An area with a population of 50,000 or greater. The boundaries of the area shall encompass the entire urbanized area as designated by the U.S. Bureau of the Census *plus* that adjacent geographical area as agreed upon by local officials in cooperation with the State.

FLORIDA INTRASTATE HIGHWAY SYSTEM (FIHS): An interconnected statewide system of limited access facilities and controlled access facilities developed and managed by the Department that allows for high speed and high volume traffic movement within the State. The FIHS includes the Interstate highways, as well as other principal arterial roads and minor arterial roads. An FIHS road must be on the State Highway System.

* **HOP:** The Census Bureau developed the hops to extend the urban definition across small non-qualifying census blocks, and thereby avoid the need to designate the break in qualifying blocks as a jump. Hops between qualifying areas are less than or equal to 0.5 mile.

* **JUMP:** The Census Bureau developed the jump to connect to high-density blocks or other cores that are within 2.5 miles of the main core area. This jump distance is permitted to recognize improvements in the transportation network, and the associated changes in development patterns that reflect these improvements and the desire to add green space between developments. This distance can be up to 5 miles if you have military installations, National monuments, or National parks along your jump.

LOCAL GOVERNMENT: A unit of government with less than statewide jurisdiction, or any officially designated public agency or authority of such a unit of government.

LOCAL STREET SYSTEM: The group of roads having land access as their primary purpose, typically within a portion of a county or urban area. Although providing the largest proportion of road miles, this system contributes little to total highway travel due to short trip lengths and low volumes.

NATIONAL HIGHWAY SYSTEM (NHS): A system designated by Congress that includes all Interstate routes, a large percentage of urban and rural principal arterials, the Strategic Highway Corridor Network (STRAHNET) and Strategic Highway Corridor Network Connectors and connectors to approved Intermodal Facilities.

PROFUNCL: A characteristic in RCI feature 121 for the coding of proposed functional classification. After FHWA approves the proposed functional classification, the Transportation Statistics Office will transfer the proposed information into the FUNCLASS characteristic. DO NOT UPDATE FUNCLASS.

STATE HIGHWAY SYSTEM: Highways under the jurisdiction and maintenance responsibility of the State.

STRATEGIC HIGHWAY CORRIDOR NETWORK (STRAHNET): Interstate and non-Interstate highway corridors essential to strategic mobility. These highways can support mobilization and sustainment of forces during a defense contingency. These routes constitute part of the NHS.

SURFACE TRANSPORTATION PROGRAM (STP) FUNDS: Available for all roads functionally classified as rural major collector, urban collector, urban and rural minor arterial and principal arterial. There are two exceptions; rural minor collectors are eligible for a portion of STP funds and bridge projects may be on any federal-aid or non federal-aid public road.

TRANSPORTATION STATISTICS OFFICE (TSO): The central office responsible for reviewing draft and final proposals for boundary and functional classification. The TSO will submit these documents for FHWA review and approval.

* **URBAN:** For Census 2000, the Census Bureau classified “urban” as all territory, population, and housing units located within an urbanized area or an urban cluster. It delineates urbanized area and urban cluster boundaries to encompass densely settled territory, which consist of:

- Core census block groups or blocks that have a population of at least 1,000 people per square mile and
- Surrounding census blocks that have an overall density of a least 500 people per square mile and
- In addition, under certain conditions, less densely settled territory may be part of each urban cluster or urbanized area.

* **URBAN CLUSTER:** Urban Cluster for FHWA purposes consists of a densely settled core of census block groups and census blocks that meet minimum population density requirements, along with adjacent densely settled surrounding census blocks that together encompass a population of at least 5,000 people, but fewer than 50,000 people or greater than 50,000 people if fewer than 35,000 of them live in an area that is not part of a military installation. For Census 2000 the Census Bureau will use Urban Clusters

rather than urban places to determine the total urban population outside of Urbanized Areas. Previously, place boundaries were used to determine the urban and rural classification of territory outside of Urbanized Areas. With the creation of Urban Clusters, place boundaries are “invisible” when creating and classifying the cores of densely settled population agglomerations.

* **URBANIZED AREA (UA):** An area that consists of a densely settled core of census block groups and census blocks that meet minimum population density requirements, along with adjacent densely settled surrounding census blocks that together encompass a population of at least 50,000 people, at least 35,000 of whom live in an area that is not part of a military installation. “Densely settled” means one or more contiguous census block groups that have a total land area less than or equal to two square miles and a population density of at least 1,000 people per square mile. Some small portions of an area not reaching the density threshold are included for spatial continuity or edge smoothing.

3. URBAN BOUNDARIES

MAKING THE CHOICE

The State may adopt the census boundaries or, propose further adjustments of these boundaries (smoothing). Any adjustments that are proposed must include everything that the Bureau of Census included within the census boundary.

DETERMINING THE FHWA BOUNDARY

The 2000 urban cluster and 2000 urbanized area boundaries will be fixed by responsible State and local officials in cooperation with each other, subject to approval by FHWA.

The most important step in determining the new FHWA adjusted boundaries is to obtain the proper tools. These include the 2000 census boundary maps, and land use maps showing areas of growth that can be used to predict areas of future growth, and if available, the DOQQs. **Attachment 1** lists some of the resources available to guide you in your designation effort. Schematics showing the relationship between different types of boundaries recognized by FDOT are found in the FHWA March 1989 Manual.

Adjusted urban boundaries, as a minimum, encompass the entire urban area designated by the U.S. Bureau of the Census (Census boundary). Any adjusted Census urban area boundary must be agreed on by the appropriate local governmental officials (City, County and/or MPO personnel) in cooperation with the District Office and the Transportation Statistics Office, and approved by FHWA. This final boundary is referred to as the FHWA adjusted Census urban area boundary. FHWA adjusted Census urban area boundaries shall be established in accordance with federal regulations before or concurrent with initiating functional classification activities within a given county.

Census boundaries should be expanded so as to smooth out 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 urban area boundary that would otherwise be selected. Careful consideration should be given to the selection of boundary locations which will include logical control points for transportation linkages such as interchanges, major cross roads, etc., where the inclusion of such areas will not unduly distort the urban area as would otherwise be selected. Boundaries should not be modified to accommodate a single project.

FHWA urban cluster and urbanized area boundary determinations should also consider the service areas of transit operations. Such considerations are particularly important if

boundaries are to determine eligibility of capital projects, e.g. commuter railroad lines and stations, and rail transit and bus lines.

FHWA urban area boundaries are determined primarily for reporting and for capital project funding and are not to be confused with boundaries established for the comprehensive, cooperative and continuing urban transportation planning process.

The proposed FHWA urban area boundary location should be developed in cooperation with the local governments. Maps showing the proposed boundaries should be prepared in a geographic information system (GIS) such as ArcView. The Transportation Statistics Office GIS section will work with the Districts to accomplish this. The boundary 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, corporate limits, township lines, etc., as well as the new limits of the urban area. The draft maps will be submitted through the TSO to FHWA for preliminary approval. If FHWA has concerns, the District and the local governments will review and modify the boundaries for re-submittal to FHWA. After preliminary approval is received from FHWA, the District will prepare a final set of maps, together with any supporting documentation. Urbanized area maps will be at a scale of 1:100,000 and urban cluster maps at a scale of 1:50,000. District and local officials will sign the signature block on the final maps indicating their formal approval. The TSO will submit these boundary maps to the FHWA Division Office for final approval.

When the designation of urban boundaries has significant transit implications, and Federal Transit Administration (FTA) concurrence is necessary, the FHWA Division Administrator will secure such concurrence from FTA before formal approval is given. FHWA approval will be indicated by signature on the maps in the space provided.

An interim modification to an approved FHWA adjusted urban/urbanized area 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 boundary.

FHWA BOUNDARY DEVELOPMENT

The Urban Boundary flowchart, **Attachment 2**, shows the order in which urban boundary development is recommended. This flow of activities logically takes you through the coordination process and the order of events required to obtain FHWA boundary approval.

Particulars of boundary designation follow:

The GIS section of the Transportation Statistics Office will provide assistance to enable you to make your own maps. (When TSO made the 1990 boundary maps, there were problems with interpretation of the boundary location. With the Districts preparing their own maps, the maps can be edited and corrected while being made.) The 2000 FHWA adjusted boundary must incorporate the entire 2000 Census boundary. Coordinate with the local officials to obtain their input. Smooth the Census boundary, to include potential

areas of growth anticipated over the next 5 years. The 2000 Census boundary **does not** grandfather in areas that did not meet the population density criteria.

When coordinating boundaries, remember that a census boundary that parallels a road, street, or similar right of way **does not include** the right of way when it is in an urban/urbanized area. This can be modified to include the right of way if the State and local officials choose to include the right of way in the FHWA approved urban/urbanized area. The Census boundary that parallels an incorporated area boundary **includes** the right of way. We are recommending that parallel roadways be included in the adjusted boundary.

Attachment 3 is an example of the correspondence that is used when urban/urbanized area boundaries require local signatures.

After the boundary is approved by FHWA, update feature 124 (urban classification).

4. FEDERAL 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 federal functional classification is made at least once every 10 years following the decennial census taken by the U.S. Bureau of the Census, or whenever required by federal regulation.

There are three functional classification categories that are common to rural and urban roads: Principal Arterial, Minor Arterial, and Local. In rural areas, there are two additional categories, Major Collector and Minor Collector, while urban areas have one additional category, Urban Collector. The rural or urban designation is part of the complete functional classification designation; e.g., Urban Minor Arterial.

<i>Urban</i>	<i>Rural</i>
Principal Arterial	Principal Arterial
Minor Arterial	Minor Arterial
Urban Collector	Major Collector / Minor Collector*
Local	Local

*Rural minor collector routes may be eligible for some STP funds under special circumstances. Refer to the Work Program Instruction manual, Section 3.1.6.

Attachment 4 relates travel desire to functional classification terminology, with arterials representing the heaviest used trip route and locals representing the least used facility. The arterial system provides a high level of mobility for through movement, local facilities provide predominantly land access and the collector system provides a compromise between the two.

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

PROCESS

The District Office may hold concurrent boundary and functional classification workshops, but the urban boundary must be determined and approved by FHWA prior to requesting rural or urban functional classification assignment.

All boundary and federal functional classification designations are to be made

jointly by the Department, local governments, and where applicable, the Metropolitan Planning Organization. These designations are subject to approval by the Federal Highway Administration following submission by the Department.

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) or there is a good probability that the route will be under construction within 6 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 Census urban area boundary shall be classified as urban. Those roads located outside urban areas shall be classified as rural.

The classification of a road will change where there is a change in traffic conditions, land use and development, and other factors. Trip purposes may change at intersections or large developments.

Functional classification designations usually remain stable over many years being changed only when necessary to recognize evolving travel patterns, relocated urban area boundaries, and other factors. These are changes that should be considered during the ten year Census boundary revisions. FHWA usually accepts revisions at this time without having detailed justification.

Interim re-evaluations can occur when the Department or a local government has indications that the usage of a road has changed so as to indicate a possible change in function. A local government or a Metropolitan Planning Organization may request re-evaluation by writing to the appropriate District Secretary. If a local government is requesting a review of a road or roads located within the area influenced by a Metropolitan Planning Organization, then both parties shall be involved in the re-evaluation process and concur with the outcome of the review. District staff shall complete the Department's portion of the re-evaluation work within 6 months from the date the request is received.

Changes to urban area boundaries, feature 124 (HWYLOCAL) and proposed federal functional classification, feature 121 (PROFUNCL) must be updated in the Roadway Characteristics Inventory database by the District staff. The Transportation Statistics Office will update feature 112 (FAHWYSYS) and batch load the proposed federal functional classification from PROFUNCL to the current federal functional classification (FUNCLASS). **Attachment 5** is a sample screen print for feature 121. DO NOT ENTER OR CHANGE INFORMATION IN FUNCLASS.

CRITERIA AND METHODS FOR CLASSIFYING ROADS

Trip purpose identified by one or more quantifiable conditions

The ***Federal Highway Functional Classification Manual*** calls for the grouping of similarly ranked travel generators. This procedure delineates twelve traffic generators, more precisely referred to in this procedure as trip purposes. When evaluating the function of a road, the Department shall consider the character of service these roads are intended to provide. A road may serve more than one significant trip purpose.

Trip purpose identified by concept of service and consideration of proximity

It is not necessary for a road to go directly to the main entrance of a particular facility for it to serve that facility. A number of connections may exist between the primary access route and the facility itself. 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 periphery of an urban area serves that urban area if a direct connection is provided between the Interstate highway and the urban area. The ***Federal Highway Functional Classification Manual*** provides a general guideline on the topic for rural inter-urban routes.

ARTERIALS

The **arterial system** provides the highest level of mobility at the highest speed, for long, uninterrupted travel. The Interstate Highway System is an arterial network. Arterials generally have higher design standards than other roads, often with multiple lanes and some degree of access control.

A road serving two trip purposes listed in **1** through **7** will be classified as a principal arterial road. All limited-access highways and all roads serving the purpose of connecting urbanized 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 listed in **1** through **7** will be classified as a minor arterial road.

The **urban principal arterial system** is divided into principal and minor arterials. The urban principal arterial system is the most important group; it 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, have 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 all rural arterials that intercept urban boundaries.

The **urban minor arterial system** provides service for trips of moderate length and at a lower level of mobility. They connect with urban principal arterial roads and rural collector routes.

A **rural principal arterial highway** network provides interstate and inter-county service so that all developed areas are within a reasonable distance of an arterial highway. The principal arterial network is more significant. It serves virtually all urban areas with populations greater than 50,000 people. Additionally, most urban areas larger than 25,000 people are served by rural principal arterial highways. 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 international borders, coastal cities, water ports and airports). The rural principal arterial network is divided into two subsystems, Interstate highways and other principal arterials.

A **rural minor arterial highway** serves an urban area if it penetrates or comes within 2 miles of the urban boundary. A road connecting the rural minor arterial highway to the urban area is not necessary.

1. Travel to and through urbanized areas

These are primary routes that connect one urbanized area to another. In selecting the primary route between two adjacent urbanized areas when more than one direct route exists, the Department shall first consider the route that extends to the largest number of distant urbanized areas. If that test does not provide a clear selection, the Department may then consider which road serves the largest volume of traffic traveling between the two adjacent urbanized areas. A connected urbanized area may be in another state. Two routes may be considered when the amount of travel in a given corridor connecting two urbanized areas is substantially served by trips on more than one highway. This is also true when an urbanized area is so geographically large as to result in multiple corridors having been established. This two-connector option will be applied in very limited cases. The Manager of the Transportation Statistics Office will review two-connector options as proposed by the District Planning Offices and present them to FHWA for consideration. In general, the use of multiple highways to serve the trip needs of a single corridor for this trip purpose may 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: I-10 is a limited access facility. US 90 that parallels I-10 is not a limited access facility.

2. Travel to and through small urban areas

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

3. National defense

A national defense route is identified as a primary National Strategic Highway Corridor Network (STRAHNET) route. National defense routes also include connector routes

identified in the STRAHNET Connector Atlas that may be judged as serving the purpose of major or minor public facility access, as described in **6** and **7**, according to the size of the facility and the degree of mobility provided by the connector route.

4. Interstate and regional commerce

Routes serving this trip purpose are identified by relatively high volumes of freight movements over long distances. A United States Route designation granted by the American Association of State Highway Transportation Officials (AASHTO) may often indicate that the so designated route serves the primary purpose of interstate commerce. Those roads that serve the purpose of travel to and through urbanized 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. Any needed changes, including proposed route changes, will be submitted by the Transportation Statistics Office on the appropriate forms to the American Association of State Highway Transportation Officials at the next meeting of the Special Committee on U.S. Route Numbering.

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 the Department and approved by the Federal Highway Administration.

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 during the time evaluated for purposes of concurrency management. For the purposes of this procedure, 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.

7. Access to minor public facilities

A route providing access to the major point of entrance to a minor public facility is considered the primary access route. For the purposes of this procedure, minor public

facilities are those not meeting the requirements listed in **6**, and include manmade attractions and publicly owned cultural and historical facilities that attract local audiences.

COLLECTORS

Collectors provide a lower degree of mobility than arterials. They are designed for travel at lower speeds and for shorter distances. Collectors are typically two-lane roads that collect and distribute traffic from the arterial system.

The **urban collector system** provides traffic circulation within residential neighborhoods and commercial and industrial areas. Unlike arterials, collector roads may penetrate residential communities, distributing traffic from the arterials to the ultimate destination for many motorists. Urban collectors also channel traffic from local streets onto the arterial system.

The **rural collector system** is stratified into two systems: major and minor collectors. **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 (but are avoided by arterials). **Minor collectors** are spaced at intervals, consistent with population density, to collect traffic from local roads and to insure that all urbanized areas are within a reasonable distance of a collector road.

A road serving any of the purposes given in **8, 9, 10, and 11**, will be classified as an urban collector road. In rural areas, where a distinction is recognized between major and minor collector roads, those serving any of the purposes given in **8, 9, and 10** will be considered to be rural major collector roads and those serving number **11** only will be considered to be rural minor collector roads.

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 listed under **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.

9. Interconnection of minor thoroughfares

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

10. Access to concentrated land use areas

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

11. Access to diffused land use areas

A route that connects major thoroughfares to diffused areas of a single or mixed land use serves this trip purpose. Such areas include the primary connection to a farming area consisting of large acreage tracts or scattered small residential developments.

LOCALS

Local roads represent the largest element in the road network 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 final 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.

5. FEDERAL- AID SYSTEM ROAD CATEGORIES DETERMINED BY FEDERAL FUNCTIONAL CLASSIFICATION

DEFINITIONS

There are two federal-aid systems: the National Highway System (NHS) and the Interstate System, which is a component of the NHS.

The Intermodal Surface Transportation Efficiency Act of 1991 established a National Highway System (NHS). Congress approved the NHS on November 28, 1995. The NHS includes the Interstate Highway System, the National Strategic Highway Corridor Network (STRAHNET) and STRAHNET connectors to military installations, connectors to approved Intermodal Transportation Facilities, and other roads nominated by the Department. The Transportation Statistics Office can produce National Highway System maps or they can be accessed from the FHWA web page.

The National Highway System currently includes roads in all functional classification categories. Many of the designated connector routes are classified as collectors and locals.

The Surface Transportation Program (STP) was established to provide funds for non-NHS roads that are eligible for federal-aid.

FUNDING

For information on the distribution of federal funds, refer to the Work Program Instruction Manual, Section 3. Sub-section 3.1 covers the Use of Funds, and 3.1.5 describes the National Highway System and 3.1.6 describes the STP.

ROADWAY CHARACTERISTICS INVENTORY FEATURE 112 (FEDERAL SYSTEMS)

National Highway System 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 Roadway Characteristics Inventory database. Changes to feature 112 are the responsibility of the Transportation Statistics Office.

NATIONAL HIGHWAY SYSTEM CHANGES

Changes to the NHS can be made when the Federal Highway Administration determines that the change is justified. When a request for a change is made, the District Office will work with the requesting entity to compile information on the preferred route. The request for a change must include justification and maps of a quality suitable for submittal to FHWA for consideration and approval. The submittal must also include evidence of coordination with local officials.

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 demands.

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.

6. STEPS IN FUNCTIONALLY CLASSIFYING RURAL, URBAN AND URBANIZED AREA ROADWAYS

The Functional Classification flowchart, **Attachment 6**, shows the order in which functional classification development is recommended. This flow of activities logically takes you through the coordination process and the order of events required to obtain FHWA functional classification approval.

Using the new approved urban area boundary map:

1. Prepare a map showing the road network and the existing federal functional classification superimposed over the new approved boundary map
2. Add land service characteristics, such as major traffic generators and land use patterns. Current DOQQs are a good resource if available for your area.
3. Reclassify the functional classification for highway and streets where land service characteristics have changed. **NOTE*** The revised functional classification will be coded in feature 121, as *proposed*. This will be a new characteristic in feature 121. **DO NOT** change the existing functional classification characteristic.

When reclassifying roads, remember to include logical system continuity considerations. Select principal arterial systems first, followed by minor arterials, then collectors and locals.

- Perform a preliminary classification of the total arterial system considering the list below
 - Evaluate service to urban activity centers
 - Consider system continuity
 - Determine land use considerations
 - Evaluate spacing between routes and the spatial distribution of activities to be served
 - Average trip length
 - Traffic volumes (AADT)
 - Access control
 - Vehicle miles of travel and system mileage
- 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 land access function
 - Serve to funnel traffic between local streets
 - Local streets
 - All remaining streets which have not been designated as arterials or collectors
- FHWA requires the submittal of a spreadsheet at the same time maps are provided for review that shows the changes to FC by road. An example of this spreadsheet is found as **Attachment 7**.

Roads are assigned to a Federal System according to their functional classification designation. **Do not** request feature112 update until functional classification has been approved by FHWA and feature 121 has been updated in RCI.

Functional Classification

Federal System/Funding Eligibility

local, rural minor collector

Federal Aid none -
except for special considerations,
contact the work program office

rural major collector, urban collector,
minor arterial, principal arterial

Surface Transportation Plan

local, rural minor collector,
rural major collector, urban collector,
minor arterial, principal arterial

National Highway System
(determined by Congress,
and revised by FHWA, from
FDOT and DO request)

7. PROBLEMS THAT EFFECT FUNCTIONAL CLASSIFICATION OF ROADWAYS

To review each county and urbanized/urban cluster, GIS maps are produced utilizing the data represented in 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.

- Features 121 and 124 must be updated whenever changes occur and they must complement each other. Feature 121 directly affects feature 112 (federal systems). Request the Transportation Statistics Office (TSO) to update feature 112.
- If there is a difference of more than .250 miles or 10% of the total length of the roadway between the GIS digitized length and the RCI length, the newest aerials or DOQQs should be used to show the correct roadway alignment.
- If a realignment of a roadway has not been digitized into the base map, the correct realignment should be shown on a DOQQ. Make sure the location of the realignment can be determined within the county by adding discerning features. 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 GIS base map. A marked DOQQ (latest available) showing the correct alignment will be needed to make required adjustments.
- The field DMI measurement can be used instead of the GIS digitized length when the lengths are close. The length of the road and the magnitude of the error will determine the selection of one or the other.
- Problems will occur if two or more section numbers are assigned to the same section of roadway or to overlapping roadways. If this is an exception, code it in properly. If this is not due to an exception, the problem will need to be corrected by field or map review.

To determine which roadways in RCI have not been digitized on the base map, go to <http://cotranstat/gis/welcome>. Select your District and look for the section number in question.

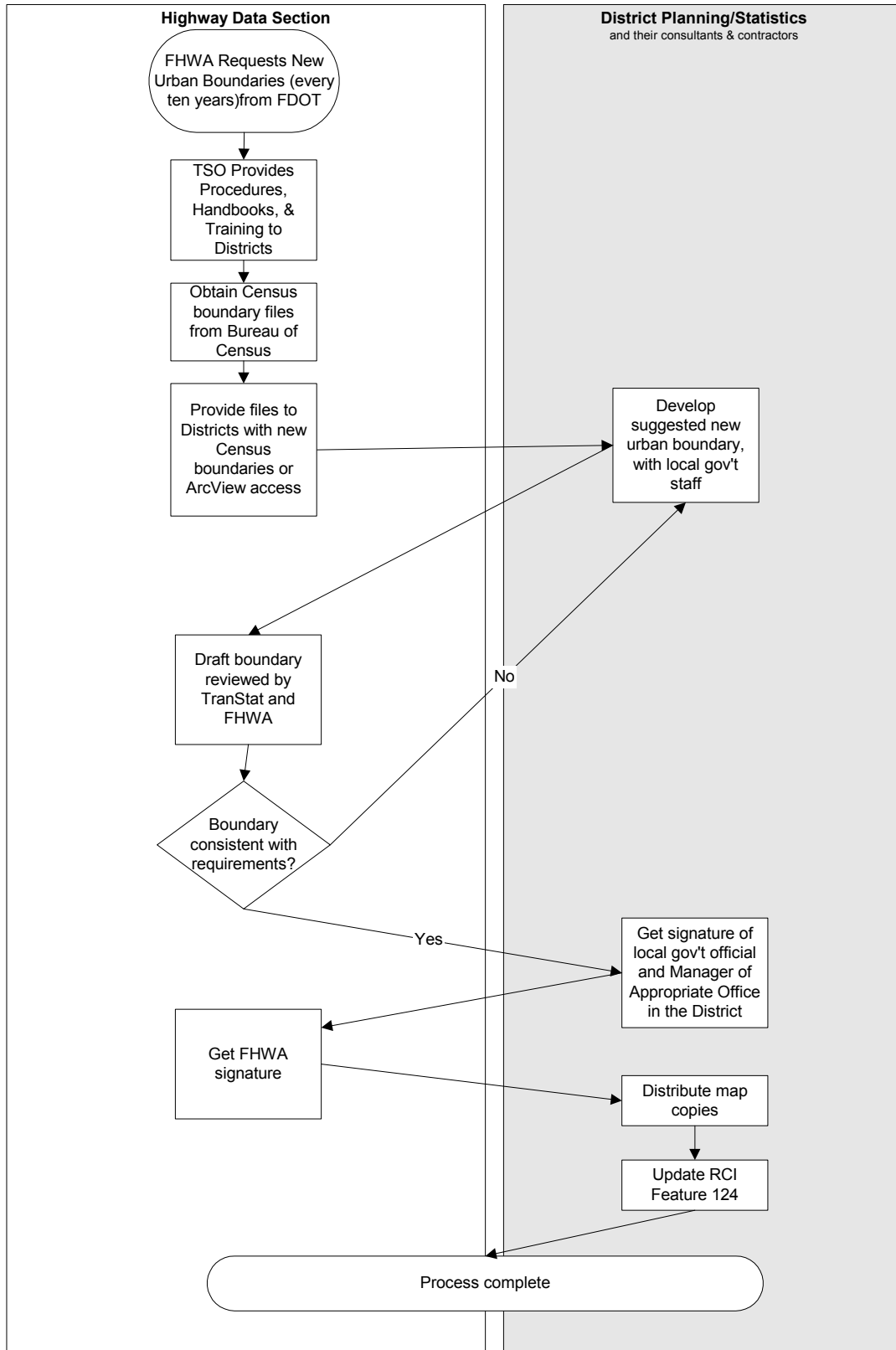
Attachment 1 AVAILABLE DATA SOURCES

In addition to existing functional classification maps, a number of useful sources are available to help guide the districts in proposing functional classification designations, and urban boundaries. Various types of maps and listings are in the Transportation Statistics Office (SunCom 994-4848), the Office of Policy Planning (SunCom 994-4800), the Topographics Office (SunCom 278-8911), Maps and Publications (SunCom 994-4050) and the Outdoor Advertising Office (SunCom 994-4600).

Maps and listings of the NHS are available in the Transportation Statistics Office. The Transportation Statistics Office furnishes the Outdoor Advertising Office with copies of Outdoor Advertising Regulatory maps.

- Lists of Census designated urban clusters and Census designated urbanized areas (Office of Policy Planning).
- Digitized maps of the State Highway System are available from the Transportation Statistics Office in standard Geographic Information Systems (GIS) formats; these maps include the State Highway System, many off-system roads classified as collector or above, and county boundaries.
- Aerial photography (Topographics Office); contact prints of 1" to 2000' countywide photography is available.
- County highway maps (Maps and Publications Office and Topographics Office); these maps include state and local highways, county boundaries, and water features such as lakes and rivers. The standard size is 1/2" to a mile.
- 1999 Digital Ortho Quad (DOQQ) – TSO by request
- Rural and urban total public road mileage by District (Transportation Statistics Office)
- USGS Quadrangle maps (Transportation Statistics Office, USGS, or commercial map sources)
- Data from other sources such as plat maps, engineering drawings, and field review. Special care must be taken when using outside data sources and, when possible information should be verified thorough multiple sources.

Develop Urban Boundaries - Attachment 2



Attachment 3

Letter of correspondence with local officials concerning cluster or urbanized area boundaries

Date

Mr. James Jones
Mayor
123 Olde Road
Adams City, Florida 31234

Dear Mr. Jones:

Subject: Urban Cluster Boundary Map

The Urban Area Boundary map for Adams City is enclosed. The Appropriate Office in the District prepared this map incorporating all the changes recommended by your office.

It is a requirement of the Federal Highway Administration (FHWA) that urban cluster maps be signed by the Mayor and by the Chairman of the Board of County Commissioners. Therefore, we are asking that after you have signed the map, that you forward it to the County Commission Chairman for signature.

After we receive the map signed by both parties, we will send it to the Transportation Statistics Office for submittal to FHWA for their final approval and signature.

Your cooperation in returning this map to this Office within 20 working days from date of receipt will be appreciated. A copy of the signed map will be sent to you and the Chairman of the Board of County Commissioners.

Please contact this office if you have any questions or need any additional assistance.

Sincerely,

Mary Jane Smith
Appropriate Office in District 10

Attachment
cc:

**Attachment 4
The Hierarchy of Functional Systems**

Rural Areas	Urbanized Areas	Urban Clusters
Principal Arterials	Principal Arterials	Principal Arterials
Minor Arterials	Minor Arterials	Minor Arterials
Collectors	Collectors	Collectors
Locals	Locals	Locals

Guidelines on Extent of Rural Functional Systems

System	VMT	Range (percent) Miles
Principal Arterial System	30-55	2-4
Principal Arterial plus Minor Arterial Road System	45-75	6-12*
Collector Road System	20-35	20-25
Local Road System	5-20	65-75

*with most States falling in the 7-10 percent range

Guidelines on Extent of Urban Functional Systems

System	VMT	Range (percent) Miles
Principal Arterial System	40-65	5-10
Principal Arterial plus Minor Arterial Road System	65-80	15-25
Collector Road System	5-19	5-10
Local Road System	10-30	65-80

Arterial Spacing Guidelines

Area Type	Arterial Spacing
Central City (previously called CBD)	1/8 – 1/2 mile
Urban (except central city)	1/2 - 1 mile
Suburban	1 – 2 miles
Lowest density development	2 – 3 miles

Attachment 5
New PROFUNCL Characteristic in Feature 121
(example only)

RCITS06A 00 E 72XXX000 121 000.000 009.064

3/31/03 09:59:44

121 Functional Classification Characteristic	(Length Feature) Value	Side Unit Beg Pt End Pt
Functional Classification	Rural Collector	CD C 000.000 005.581
Proposed Functional Classif	Rural Collector	CD C 000.000 002.581
Proposed Functional Classif.	Urban Collector	CD C 002.581 004.581
Functional Classification	Urban Collector	CD C 005.581 009.064
Proposed Functional Classif	Urban Minor Art	CD C 004.581 009.064

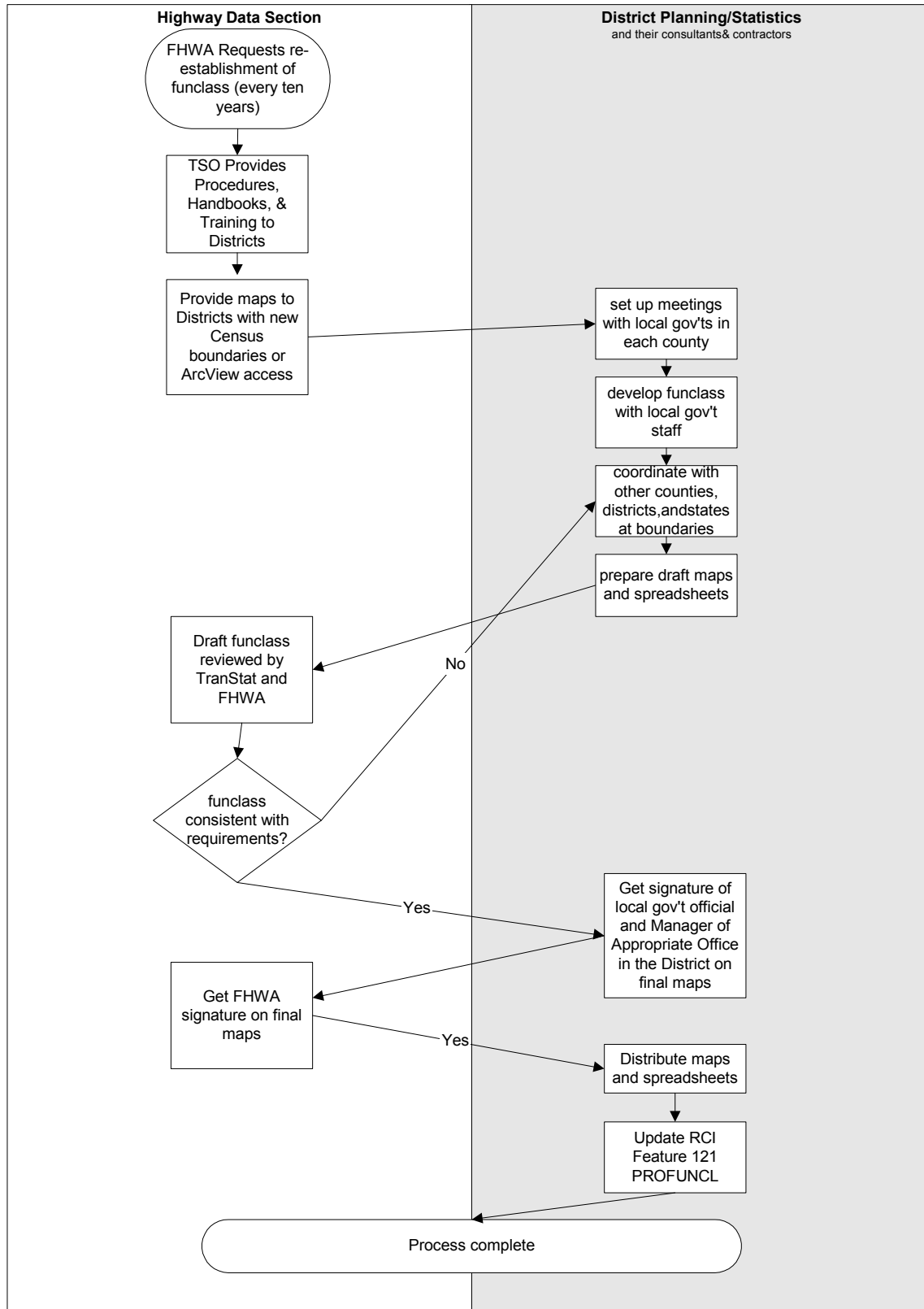
Code only **Proposed FC**. Do not change data in the current FC.

As an **area** is completed, the Transportation Statistics Office will replace the current FC with the proposed FC.

An area is:

- a rural county,
- a county with urban cluster(s),
- a county with urbanized area(s),
- a county with urbanized area(s) and urban cluster(s),
- an urban cluster(s) or urbanized area(s) that extend into 2 or more counties (when this occurs, all the counties, clusters and urbanized areas are considered one **area**). An example of this could be – Lee and Collier counties, Bonita Springs and Naples urbanized area, and Marco Island cluster. Proposed FC will not be moved to current FC until this entire **area** is complete and the boundaries and FC are approved by FHWA.

Re-establish Functional Classification - Attachment 6



Attachment 7

Example of Written Narrative Described in the Procedure

Section 3.2.2 on page 9

This is the minimum information to be provided to FHWA on the narrative spreadsheet.

county name	section no.	road no.	local name	MP	from	MP	to	net lgth	curr FC	prop FC
Polk	16280	CR 542	Central Ave.	0.000	SR 555	0.380	SR 549	0.380	UMA	TBA
		SR 542	Central Ave.	0.380	SR 549	6.338	SR 25	5.958	UMA	TBA
		CR 542	Dundee Rd.	6.338	SR 25	6.352	boundary	0.014	UL	TBA
		CR 542	Dundee Rd.	6.352	boundary	7.177	SR 17	0.825	RL	TBA
	16080	CR 540A	CR 540A	1.419	CR 655	2.746	Lk Eloise Rd	1.327	UL	TBA
			Lk Eloise Rd	2.746	Lk Eloise Rd	7.244	SR 540	4.498	UC	TBA

Other information that may be added to the spreadsheet to justify FC changes are; ADT, lane additions, changes in trip purpose, etc.

These are only examples. You may have different column headings.

ADT 1990	ADT 2000	ADT proposed (2005)	lanes 1990	lanes 2000	trip purpose 1990	trip purpose 2000	trip purpose proposed (2005)
1,500	10,500	18,300	2 undivided	4 divided	sparse residential	medium density strip commercial	high density strip commercial
25,000	3,200		4 divided	4 divided		traffic rerouted on new facility	
-0-	21,000		-0-	4 divided		new facility	