

TECHNICAL MEMORANDUM

Date: May 10, 2024
To: St. Cloud Area Planning Organization Technical Advisory Committee
From: Bolton & Menk Future Regional Arterials and Collectors Study Team
Subject: Task 3.1 Functional Class Summary

I. Introduction

This memorandum is intended to provide an overview of roadway functional classifications and their status within the boundaries of the Saint Cloud Area Planning Organization (APO). It covers fundamental concepts in understanding functional classification, a description of the Federal Highway Administration's (FHWA) functional classification guidelines, an analysis of existing functional classification with the Saint Cloud APO, and a look at state level processes to adjust functional classification of a roadway.

The characteristics of roads differ greatly across the roadway system and the characteristics of a roadway can reveal its intended travel objectives. Travel objectives range from serving long-distance passenger and freight needs to serving short trips between residential neighborhoods and nearby essential services. Planners and engineers have developed the functional classification hierarchy to define the role that a specific roadway plays in serving the flow of trips through an entire network.

Assigning functional classifications to roadways defines the role each element of the roadway system plays. Reflecting the patchwork of jurisdictions that make up a road network, developing a functional classification hierarchy requires coordination between many stakeholders and agencies. Functional classification can play an important role in the administration of federal and state transportation programs, where certain funding sources are reserved for roadways above a certain classification.

II. Overview

Functional classifications are determined by a variety of characteristics, but largely depend on the degree to which a roadway serves mobility or serves direct access to locations. Roadways serving high degrees of mobility are called "Arterials" and those serving direct land access with low mobility are "Local Roads," between these two ends of the spectrum there lies a hierarchy of roadway classifications. Below is a breakdown of the functional classifications and the needs they serve in the transportation system.

Principal Arterial Interstate

Interstates are the highest classification of roadway and are designed with mobility and long-distance travel in mind. Interstates connect major urban centers at high speeds with complete access control. As such, there is no ambiguity in the classification of these roadways. All routes that comprise of the Dwight D Eisenhower National Interstate system are automatically

classified as Principal Arterial Interstate by the FHWA. Interstate-94 is the only Principal Arterial interstate within APO boundaries.

Other Principal Arterial Expressways

These roads connect major metropolitan centers, offer significant mobility, and provide access to rural areas. They serve high traffic corridors and meet long trip demands. These roadways serve demand for intra-area travel, frequently connecting central business districts to outlying residential areas. However, they differ from interstates in that they lack total access control. They occasionally provide direct access to parcels and feature at-grade intersections with other roadways. US Highway 10 is an example of an Other Principal Arterial expressway within APO boundaries.

Minor Arterial

Minor Arterials support medium-length trips, cover smaller geographic areas than major arterials, and connect to the main arterial network. In urban settings, they enhance the main arterial system, ensure local community connectivity, and may accommodate local bus routes. They feature higher speeds with more access than major principal arterials, but they do not penetrate identifiable neighborhoods like collectors and local roads. Benton Drive in Sauk Rapids is a good example of a Minor Arterial roadway.

Major Collector

Major Collectors are very similar in characteristics and function as Minor Collectors. They serve land access and short trips in denser residential and commercial areas. They distribute traffic between local roads and the arterial system over longer distances than Minor Collectors (greater than .75 miles). These roadways often have higher AADT, higher speeds, and more signalization than Minor Collectors. 4th Ave S (adjacent to Saint Cloud State University) is an example of a Major Collector.

Minor Collector

Collectors' role in the system is to gather traffic from local roads and distribute it to the arterial system. Collectors fall at the midpoint of the mobility-access continuum and serve mixed roles. As such, it can be difficult to define Minor and Major Collectors precisely. Minor Collectors typically serve lower density residential areas. In urban settings, minor collectors distribute traffic between local roads and arterials over short distances (less than .75 miles). Minor Collectors usually have lower speed limits and fewer signalized intersections than Major Collectors. Centennial Drive (10th St N) in the City of Saint Cloud is an example of a minor collector.

Local Roads

Often located in residential areas, local roads comprise the great majority of roadway mileage. Local roads serve traveling needs typically at the beginning or end of a trip. They prioritize access to abutting land and are often designed to discourage through traffic. Local roads make up the entire roadway system that is not classified otherwise.

These classifications span the full range of roadway functions; however, the FHWA guidelines use additional considerations to describe roadway function more accurately. Distinctions between access-

controlled and full access roadways, and the surrounding urban or rural development pattern can also help determine a specific roadway classification.

Although many roads provide both property access and travel mobility, their primary purpose determines functional classification. Beyond mobility and access, it is also important to consider livability and whether the classification is appropriate for the surrounding context.

Continuity

The concept of continuity is important to understanding the functional classification hierarchy. Simply put, a roadway of higher classification should not connect to an individual roadway of a lower classification. Arterials should only connect to other arterials and so on. However, there are some exceptions to this rule, in the case of arterial terminating at a very large traffic generator for example.

III. Existing Functional Classifications

The Federal Highway Administration's (FHWA) *2023 Highway Functional Classification Concepts, Criteria and Procedures*, provides guidance to planners and engineers to utilize when evaluating a roadway network.

For the purposes of recommendations, the FHWA defines states as either urban or rural states. Rural states are those where 75 percent or less of their population resides in urban areas. FHWA research has determined this to be a reasonable breakpoint to capture the geographical differences between states. According to the MN State Demographer, about 73% of Minnesota's population lives in an urban setting. Therefore, Minnesota's regional planning organizations should utilize rural state guidelines.

Table 1 - St. Cloud APO Planning Area Existing Functional Classification Overview

DESCRIPTION	Mileage	Percentage	FHWA GUIDELINES: Rural State/Urban System*	Within FHWA Guidelines?
Local Roads	939.13	62.3%	62%-74%	Yes
Minor Collector	60.16	4.0%	3%-16%	Yes
Major Collector	169.50	11.2%	3%-16%	Yes
Minor Arterial	139.19	9.2%	7%-14%	Yes
Principal Arterial - Other	152.97	10.1%	4%-9%	No
Principal Arterial - Interstate	46.58	3.1%	1%-3%	No

*Urban System Mileage Extent for Rural States from Highway Functional Classification, Criteria and Procedures 2023 Edition

In **Table 1** above, you can see the distribution of functional classifications within the Saint Cloud APO Planning Area and how the distribution of roadways line up with FHWA guidelines. Notably, the Principal

Arterial system mileage exceeds FHWA Guidelines for Principal Arterial – Other and Principal Arterial – Interstate. All other classifications are within the FHWA guided range for a rural state.

Saint Cloud Area Planning Organization’s Existing Guidelines

The Saint Cloud APO has most recently addressed Functional Classification guidelines in the 2050 Metropolitan Transportation Plan (MTP). In this plan, maintaining functional classifications that are consistent with FHWA guidelines was an identified objective to achieve an integrated and connected multimodal system. Federal regulations require that roadways must be functionally classified to receive federal funding. Within the Saint Cloud APO urbanized area, Major and Minor Collectors and above are eligible for federal Surface Transportation Block Grant (STBG) funding; Rural Minor Collectors are not eligible for STBG funding¹.

IV. MnDOT Functional Classification Guidelines & Policies

Federal law requires that: *“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.”*

Therefore, the FHWA has delegated authority for functional classification approval to MnDOT. This law applies to all 139,000 miles of public road in Minnesota. This law also requires significant effort on MnDOT’s part to collaborate with the State’s MPOs, Counties, and local governments to effectively classify the entire roadway system.

Changes to Functional Classification

MnDOT has an organized process for adjusting functional classifications and assigning classifications to new roadways. Requests to adjust or assign Functional Classification are accepted throughout the year and MnDOT’s Office of Transportation System Management administers this process. Changes to local non-state aid roadways require the approval of the MnDOT District’s Planner, and changes to state-aid roadways require the approval of the district’s state-aid engineer. The outlier in this process are changes to principal arterials, which require FHWA approval to be reclassified.

V. Conclusion

The FHWA stresses the importance of performing ongoing maintenance of Functional Classification hierarchies. Frequently determining and assigning functional classification to a roadway is straightforward, based on FHWA’s guidelines. This study effort provides additional information for existing functional classification towards this effort. There can be significant flexibility when determining between adjacent classifications, such as when deciding between a Major and Minor Collector.

For existing functional classification, it is important that a roadway’s current function is what is considered in its classification, rather than its future role in the system. Establishing a future functional

¹ Up to 15% of STBG apportionment (DOT) may be used on otherwise STBG-eligible projects or maintenance activities on roads functionally classified as rural minor collectors or local roads, ice roads, or seasonal roads, may be transferred to the Appalachian Highway System Program or the Denali Access System Program [§ 11109(a)(7); 23 U.S.C. 133(k).
<https://www.fhwa.dot.gov/bipartisan-infrastructure-law/stbg.cfm>

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classification assists the region in preserving roadway function and characteristics that are consistent with the future system network vision.