



Policy Number: 2014-025
Effective: 07/11/14
Responsible Division: Planning
Date: 07/11/2014

FUNCTIONAL CLASSIFICATION AMENDMENT POLICY

POLICY STATEMENT:

The Northeast Ohio Areawide Coordinating Agency's (NOACA) functional classification policy requires all proposed functional classification revisions to be evaluated thoroughly prior to making a recommendation to the Ohio Department of Transportation. Evaluation is based on guidelines suggested by the Federal Highway Administration (FHWA) and the Ohio Department of Transportation (ODOT) with some criteria refined to reflect local conditions. Criteria evaluated includes:

- Lane widths
- Shoulder widths
- Average Annual Daily Traffic (AADT)
- Access
- Speed limit
- Parallel spacing of routes
- Area type
- Percentage of mileage by functional classification (by region, by county)
- Functional classification density analysis

AUTHORITY:

Ohio Revised Code, Sections § 307
23 U.S.C. 101(a) (2)

PURPOSE:

Functional Classification is the grouping of roads, streets, and highways in a hierarchy based on the type of highway service they provide. Streets and highways are part of an interconnected network, and each one plays a role in moving traffic throughout the system. Generally, streets and highways provide either traffic mobility or land access and can be ranked in terms of the proportion of service they perform.

In addition to mobility and access, there are other factors that can help determine the proper category to which a particular roadway belongs such as trip length, speed limit, volume, and vehicle mix. Planners and engineers use this hierarchy of roadways to properly channel transportation movements through a highway network efficiently and cost effectively.



Functional classifications roadway categories are segregated into seven categories that apply in both urban and rural areas. The classification categories are:

- 01 Principal Arterial (Interstate)
- 02 Principal Arterial (Freeway and Expressway)
- 03 Principal Arterial (Other)
- 04 Minor Arterial
- 05 Major Collectors
- 06 Minor Collectors
- 07 Local

ELIGIBILITY:

All public roadways have a functional classification assigned to them. Currently all roadways classified as greater than a local road in urban areas, and roadways classified as greater than minor collector in rural areas are eligible for federal aid.

DEFINITIONS:

NOACA Board of Directors: NOACA is the metropolitan planning organization (MPO) and designated areawide water quality management agency for the counties of Cuyahoga, Geauga, Lake, Lorain, and Medina in Ohio directed by a 45-member Governing Board, representing all five NOACA counties, plus transit agencies, the Northeast Ohio Regional Sewer District, the Cleveland-Cuyahoga County Port Authority, Ohio EPA, and the Ohio Department of Transportation (ODOT).

Functional classification: is the process by which streets and highways are grouped into a hierarchy of classes, or systems, according to the character of traffic service that they are intended to provide.

Arterial: Include classes of highways emphasizing a high level of mobility for through movement of traffic. Land access is subordinate to this primary function. Generally, travel speeds and distances are greater on these facilities compared to other roadway classes. The highest class of arterials are limited access to allow the free flow of traffic.¹

Collector: Collect traffic from the lower facilities and distribute it to higher classified roadways. Collectors provide both mobility and land access with trip lengths, speeds and volumes being moderate.²

Local: Primary function is to provide land access. Travel speeds, distance and volumes are generally low and through traffic is discouraged.³

¹ *Ohio Roadway Functional Class Background Document*. Ohio Department of Transportation.

<http://www.dot.state.oh.us/Divisions/Planning/SPPM/SystemsPlanning/Pages/RoadwayFunctionalClass.aspx>.

² Ibid.

³ Ibid.

Functional Classification Change Procedure

Functional Classification is the grouping of roads, streets, and highways in a hierarchy based on the type of highway service they provide. Streets and highways are part of an interconnected network, and each one plays a role in moving traffic throughout the system. Generally, streets and highways provide either traffic mobility or land access and can be ranked in terms of the proportion of service they perform.

In June 2014 the NOACA Board of Directors approved Resolution Number 2014-025, which created a NOACA functional classification policy for the review of proposed functional classification revisions. The policy requires all proposed functional classification revisions to be evaluated thoroughly prior to making a recommendation to the Ohio Department of Transportation. Evaluation is based on guidelines suggested by the Federal Highway Administration (FHWA) and the Ohio Department of Transportation (ODOT).

A NOACA Functional Classification modification request form was developed so that municipalities interested in changing the functional classification of a roadway within their jurisdiction could provide pertinent information to NOACA staff. The [form](#) is posted on NOACA's website.

There are three steps in the evaluation process, and all three steps must be met to recommend the functional classification change. The recommendations that result from the evaluation process will proceed through the committee process beginning with the Transportation Subcommittee and ending with the NOACA Board of Directors providing the final approval of all recommendations. After Board concurrence, the information will be forwarded to ODOT and FHWA for further review and action.

Step 1: NOACA Functional Classification Modification Request Form and Step 1 review

- The information provided by the municipality will be compared to quantitative ranges and qualitative values provided by FHWA and ODOT
 - o Number of lanes
 - o AADT
 - o Lane Widths/shoulder widths
 - o Parallel spacing
 - o Access
 - o Connectivity
 - o Speed Limit
- By comparing the provided information to the FHWA and ODOT guidance and NOACA region existing conditions, NOACA staff will be able to determine which functional classification the roadway in question most closely resembles.

For a proposed functional classification request to make it to step 2, the following conditions must be met;

1. The speed limit must be greater than 25 mph unless more than 50% of the requested length of the functional classification change is located in a high commercial or CBD

designated area type (see map 1). The speed limit requirement will not apply to roadways currently on the federal aid network.

2. No new proposed functional classification will end in a stub. Basic tenets of the functional classification network is connectivity and continuity. Each federal aid route should connect to another federal aid route to create a closed connected network. A roadway of a higher classification should not connect to a single roadway of lower classification. It is permissible for a higher classified road to connect to two or more roads with lower classification which combined provide comparable service.
3. Lane Width must meet the following requirements for the proposed Functional Classification category (see Table 1).
4. The functional classification candidate must meet two out of three of the following requirements (see step 1 NOACA modification request);
 - a. AADT
 - b. Parallel Spacing (see map 1)
 - c. access

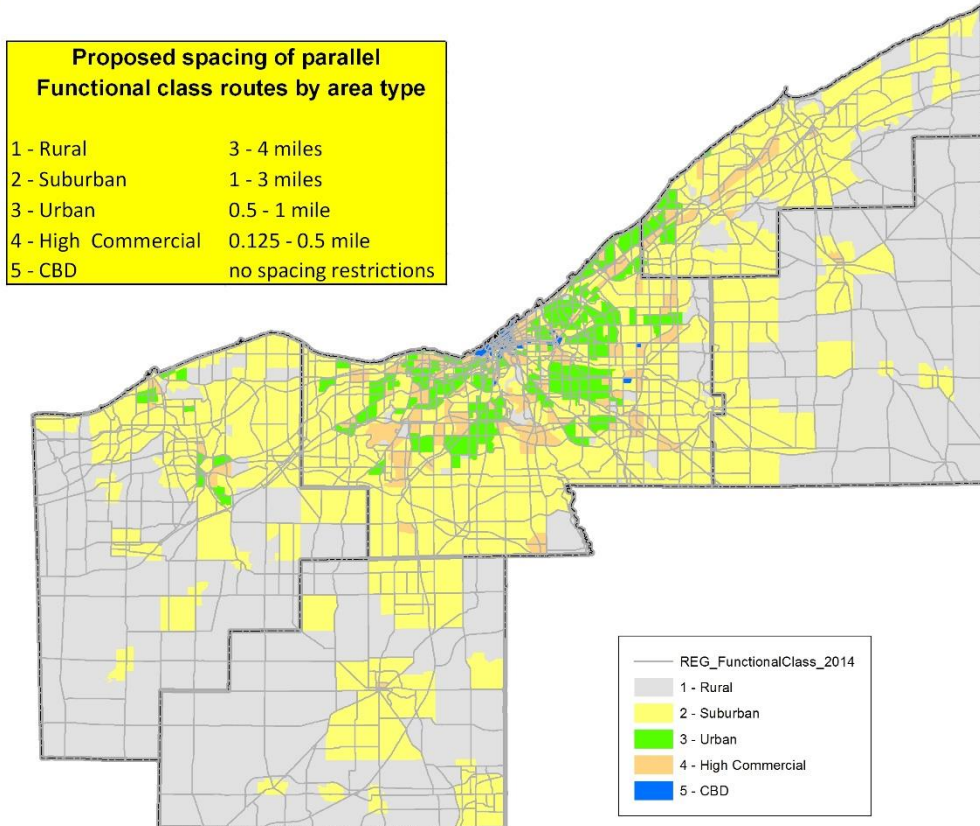
Table 1: NOACA FC modification request criteria

Factor	1 - Interstate	2- Other Frwy or Expwy	3- Other Prin. Arterial	4- Minor Arterial	5- Major Collector	6- Minor Collector	7- Local
Lane Width	12 ft.	11-12 ft.	11-12 ft.	10-12 ft.	10-12 ft.	10-11 ft.	8-10ft.
Shoulder Width	10-12 ft.	8-12 ft.	8-12 ft.	4-8 ft.	1-6 ft.	0 ft.	0 ft.
AADT (Urban)	45,000-120,000	14,000-60,000	10,000-30,000	6,500-15,500	2,000-8,500	2,000-8,500	500-7000
AADT (Rural)	25,000-50,000	8,000-30,000	5,500-10,500	4,500-7,500	1,500-5,000	1000-2,000	50-1200
Access	Full Control	Partial/ Full Control	Partial/Un-controlled	Un-controlled	Un-controlled	Un-controlled	Un-controlled

Parallel Spacing	Rural	Suburban	Urban	Commercial	CBD
	3-4 miles	1-3 miles	½ - 1 mile	1/8 – ½ mile	No restrictions

Map 1 was used to determine area type and parallel spacing of federal-aid routes. Area types were developed for use in NOACA's Travel Demand Modeling process.

Map 1



Step 2: Functional Class Network Share

- FHWA provides guidance in terms of the percentage of miles each functional classification should account for in a properly balanced statewide or regional roadway network. These percentage ranges are different for urban and rural areas.
- NOACA staff calculated the percentage of miles accounted for by each functional classification in urban and rural areas both on a regional scale and county scale.
- Once a modification request is received, NOACA staff will determine if the current functional classification, as well as, the requested functional classification is over or under served by those functional classifications in its region (see table 2).

Table 2 Functional Classification Network Share

	Functional Class	Suggested Range	Region	CUY	GEA	LAK	LOR	MED
Urban	Total Mileage		8338.71	4971.93	311.24	1098.25	1350.79	608.45
	1 Mileage		198.11	132.24	0.00	15.41	34.07	16.38
	1: Principal Arterial (Interstate)	1%-2%	2.38%	2.66%	0.00%	1.40%	2.52%	2.69%
	2 Mileage		59.75	16.82	1.75	23.22	17.94	0.00
	2: Principal Arterial (Expressway or Freeway)	0%-2%	0.72%	0.34%	0.56%	2.11%	1.33%	0.00%
	3 Mileage		392.36	259.72	21.26	34.16	60.97	16.22
	3: Principal Arterial (Other)	4%-5%	4.71%	5.22%	6.83%	3.11%	4.51%	2.67%
	4 Mileage		746.78	461.37	17.11	96.34	132.92	39.01
	4: Minor Arterial	7%-12%	8.96%	9.28%	5.50%	8.77%	9.84%	6.41%
	5/6 Mileage		708.67	329.46	41.37	137.58	97.19	103.05
	5/6: Major/Minor Collector	7%-13%	8.50%	6.63%	13.29%	12.53%	7.20%	16.94%
	7 Mileage		6233.04	3772.32	229.75	791.54	1007.70	433.79
	7: Local	67%-76%	74.75%	75.87%	73.82%	72.07%	74.60%	71.29%
	Rural	Total Mileage		2623.04	59.26	894.08	224.94	640.19
1 Mileage			46.87	0.00	0.00	15.46	2.80	28.58
1: Principal Arterial (Interstate)		1%-2%	1.79%	0.00%	0.00%	6.87%	0.44%	3.55%
2 Mileage			10.80	0.00	4.40	0.00	6.38	0.00
2: Principal Arterial (Expressway or Freeway)		0%-2%	0.41%	0.00%	0.49%	0.00%	1.00%	0.00%
3 Mileage			94.42	2.03	30.98	3.63	26.38	31.35
3: Principal Arterial (Other)		2%-5%	3.60%	3.43%	3.47%	1.61%	4.12%	3.90%
4 Mileage			131.52	5.24	44.50	6.17	48.43	26.31
4: Minor Arterial		3%-7%	5.01%	8.84%	4.98%	2.74%	7.56%	3.27%
5 Mileage			464.64	14.59	159.89	31.01	119.76	136.69
5: Major Collector		10%-17%	17.71%	24.62%	17.88%	13.79%	18.71%	16.99%
6 Mileage			116.99	0.00	8.82	19.42	54.91	33.80
6: Minor Collector		5%-13%	4.46%	0.00%	0.99%	8.63%	8.58%	4.20%
7 Mileage			1757.80	37.40	645.49	149.25	381.53	547.84
7: Local	66%-74%	67.01%	63.11%	72.20%	66.35%	59.60%	68.09%	

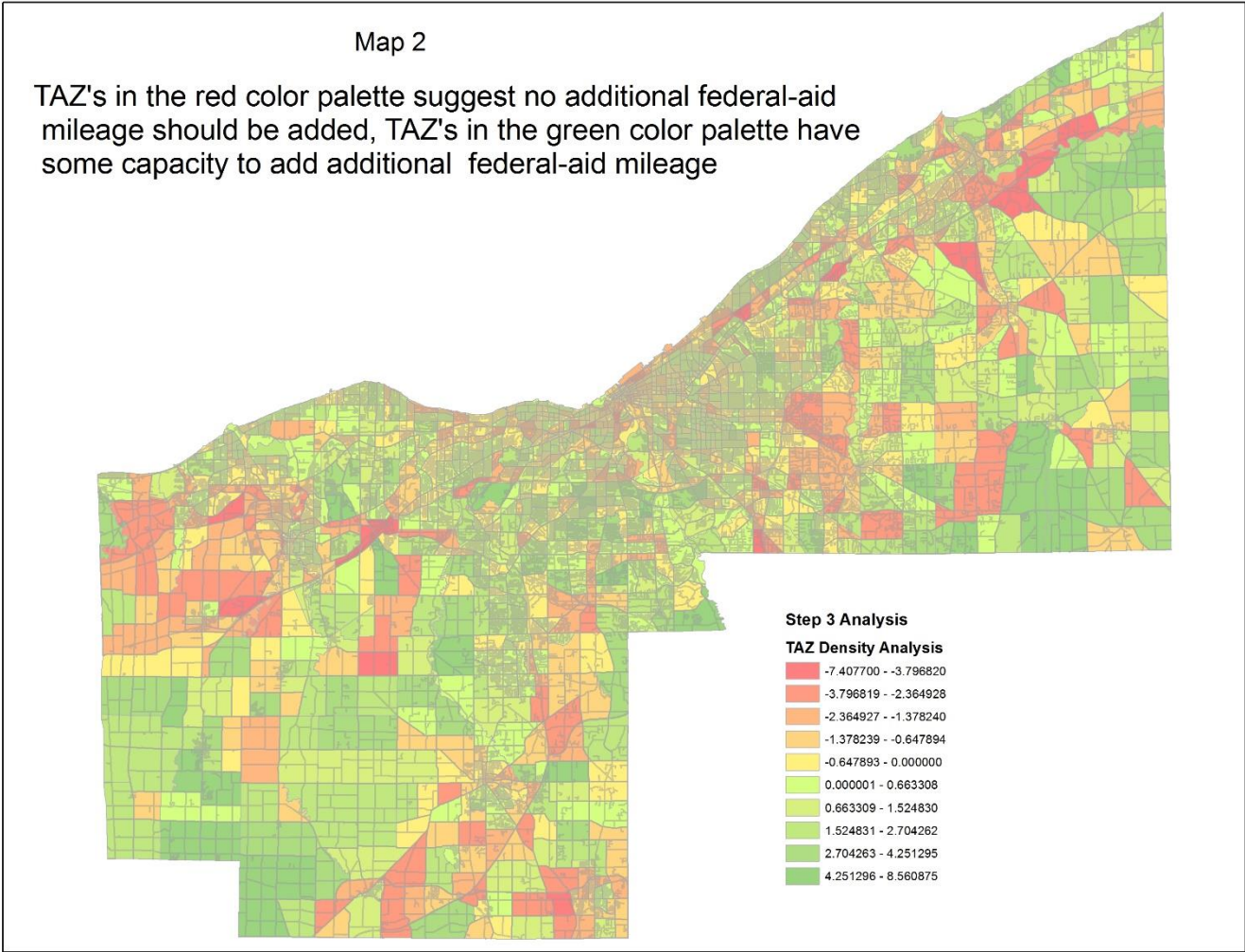
- If a functional classification modification is approved by FHWA, NOACA staff will update table 2 to reflect the new conditions.
- No new mileage will be added to any functional classification category either at a county or regional level that is beyond FHWA's network share guidance. The only exception will

be for a roadway which is currently on the federal aid system and is being reclassified for continuity purposes.

Step 3: Functional Classification Route Density

- FHWA guidance states the roadway spacing is one of the most important factors to consider when processing a modification request. Spacing should be different in urban and rural areas, because the two have different transportation needs.
- NOACA staff developed a methodology for comparing spacing of roadways with a functional classification of 6 or higher (non-local, federal-aid eligible roadways) in similarly rural and urban areas utilizing GIS tools. The comparison is made at the Transportation Analysis Zone (TAZ) level.
 - o Step I: TAZ's were ranked by population and employment density. TAZ's were then split into quintiles based upon their density.
 - o Step II: The route density for roadways was calculated at the quintile scale
 - o Step III: The representative density was then used to calculate an estimated allotment of miles of roadway for each individual TAZ within the same quintile

Step IV: All TAZ's were evaluated to determine the amount of federal-aid mileage based upon the density calculation. Map 2 shows the results of this analysis.



- The functional classification request must pass through at least one traffic analysis zone which suggests there is capacity to add additional federal-aid mileage (see map 2). The only exception will be for a roadway which is currently on the federal-aid system which is being reclassified for continuity purposes.

Concluding Notes

For a functional classification request to be approved all three steps in the procedure must be met.