

HIGHWAY FUNCTIONAL CLASSIFICATION MAP

SHOWING RURAL FREEWAYS AND ARTERIALS

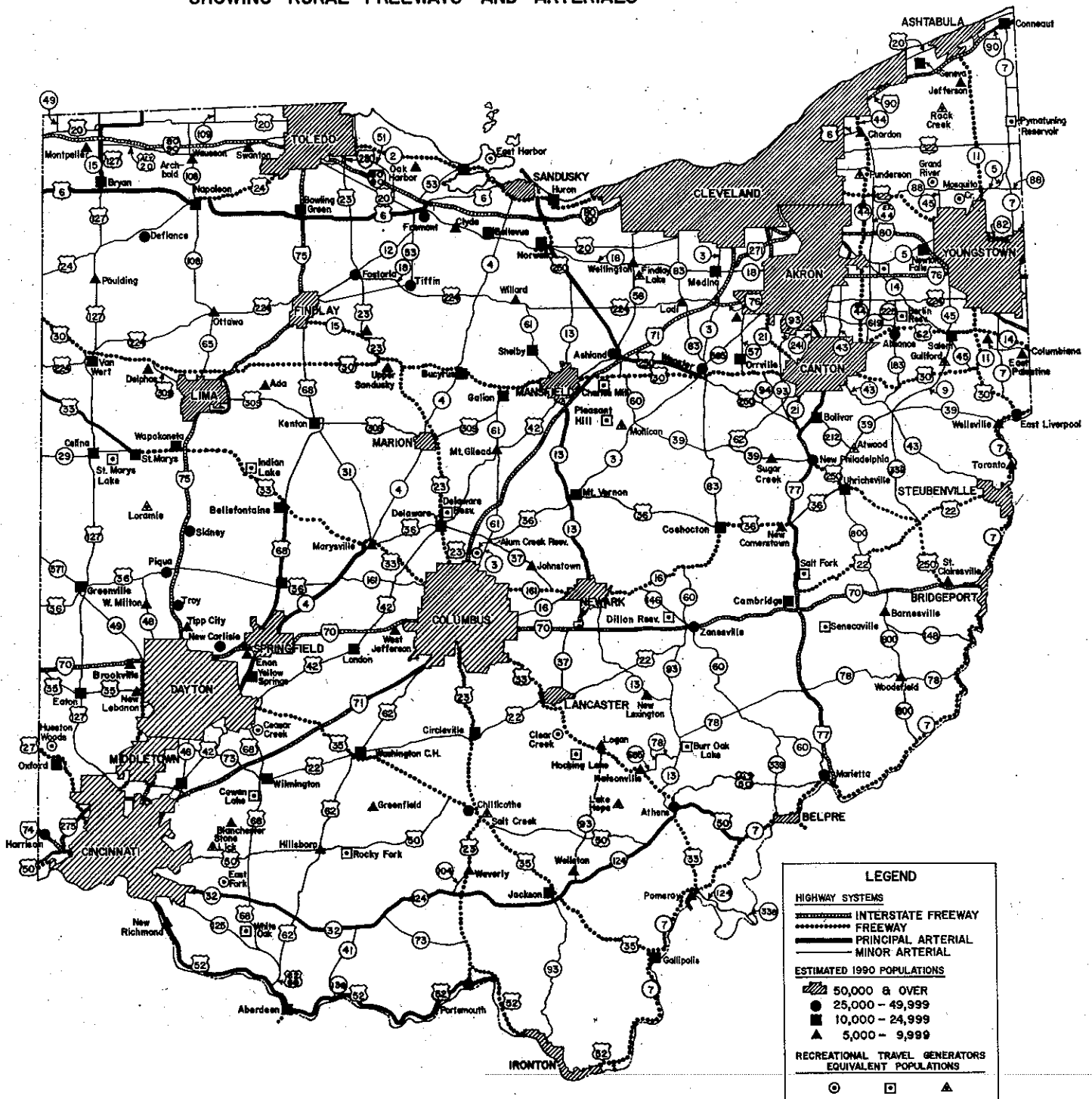


Table 202-2
Feb. 1978

TABLE 202-2			
HIGHWAY DESIGN CLASSIFICATION			
LOCATION	CLASS	DESIGN SPEED	CODE NUMBER
URBAN	FREEWAY	70	UF 70
		60	UF 60
	PRINCIPAL ARTERIAL	60	UA 60
		50	UA 50
		40	UA 40
MINOR ARTERIAL	50	UMA 50	
	40 30	UMA 40 UMA 30	
COLLECTOR	40 30	UC 40 UC 30	
LOCAL	40 30	UL 40 UL 30	
RURAL	FREEWAY	80	RF 80
		70	RF 70
		60	RF 60
	PRINCIPAL ARTERIAL	70	RA 70
		60	RA 60
		50	RA 50
MINOR ARTERIAL	60	RMA 60	
	50	RMA 50	
	40	RMA 40	
MAJOR COLLECTOR	60	RC 60	
	50	RC 50	
MINOR COLLECTOR	50	RMC 50	
	40	RMC 40	
LOCAL	50	RL 50	
	40	RL 40	
	30	RL 30	

401 BASIC DESIGN STANDARDS

CRITICAL LENGTH OF GRADE FOR ALL DESIGN SPEEDS OF 50 MPH OR MORE

PERCENT OF GRADE	CRITICAL LENGTH IN FEET
Less than 2	* 3500
2	2350
2.5	1800
3	1500
3.5	1250
4	1075
4.5	950
5	850
5.5	750
6	* 750
Over 6	

(G) Shoulders to be bituminous treated 4 feet each side of pavement where total of current Type B and C vehicles exceeds 250 per day, or if required for erosion control.

(H) 4-foot-wide bituminous treatment on the left side of divided directional pavements and 8-foot-wide bituminous treatment on right side of all pavements if current average total of Type B and C units is less than 1000 per day. 4-foot-wide paving on left side of divided directional pavements and 8-foot-wide paving on right side of all pavements if current average total of B and C units is more than 1000 per day.

(J) Vertical clearance for Strategic Network may vary plus or minus 2 inches. The "Strategic Network" comprises all rural Interstate Mileage and approved Urban or Bypass Interstate Mileage.

(K) These minimum dimensions apply if the route is not on the Strategic Network. Design tolerance is not to exceed 4 inches, plus.

(L) Where continuous barrier curbs are used on narrow medians, such curbs shall be offset at least one foot from the edge of the through traffic lane. Where vertical elements more than 12 inches high, other than abutments, piers, or walls, are located in a median, there shall be a lateral clearance of at least 3.5 feet from the edge of through traffic lane to the face of such elements.

(M) To face of parapet or guard rail.

(N) The Engineer of Bridges and Structures shall be consulted for structure criteria not covered herein.

(P) A desirable minimum longitudinal grade of 0.48% is recommended for all pavements. A minimum grade of 0.24% may be used in areas where the terrain is extremely flat. Flatter grades will require special ditches for uncurbed pavements and a more expensive drainage system for curbed pavements.

(Q) See table 602-2 for appropriate superelevation rates which are based on a maximum superelevation rate of 0.06 ft/ft.

401.1 GENERAL
The following criteria are the basic standards to be used in designing highways in the State of Ohio. Where there is a choice of a minimum or desirable criteria, the desirable should be used.

401.2 REFERENCE ITEMS PERTAINING TO TABLE 401-1
The following lettered items, A thru Q, refer to various items that are on Table 401-1. To fully understand the table these references should be used.

(A) Design Year traffic volumes may be obtained from the Bureau of Technical Services. If Design Year traffic volumes are not available from the Bureau of Technical Services, an approximate method of determining Design Year traffic is shown below in reference "B". Design Year ADT volumes in the range of 4,000 to 9,000 vehicles should be investigated for required number of initial or future lanes, using the more detailed analysis of the Highway Capacity Manual and/or the AASHTO publications titled "A Policy on Geometric Design of Rural Highways" and "A Policy on Design of Urban Highways and Arterial Streets".

(B) FORMULA FOR ADJUSTING CURRENT AVERAGE DAILY TRAFFIC:
Current (P+A) traffic + T(B+C) traffic. T varies with the type of terrain as shown:

Terrain:	Flat	Rolling	Hilly	Rugged
	2	4	6	8

TO INCREASE CURRENT ADT TO DESIGN TRAFFIC:

Multiply the computed volume above by the factor (indexed below) corresponding to the applicable locale.

Design Yr.	Locale Factor		
	Urban	Suburban	Rural
20	1.40	1.70	1.60
10	1.20	1.35	1.30
5	1.10	1.18	1.15

TERRAIN SELECTION

Selection of terrain for the purpose of determining adjustment factor shall be made, as follows, for design speeds of 50 MPH or more except in rugged terrain:

- (1) Assume a reasonable terrain classification, and calculate the probable design traffic.
- (2) From Table 401-1 find the maximum grade allowed for the type of terrain selected in (1).
- (3) Check the project grade line to determine whether any grade must exceed the maximum allowable.
- (4) If no grade exceeds the maximum, determine whether the length of any allowable grade must exceed the critical length indicated in the following table.

(5) Adjust grades as necessary to fit criteria, or assume new terrain classification and repeat procedure.

For design speeds of 50 MPH or greater, areas in which grades must exceed 6 percent shall be considered rugged and no restriction on length of critical grade need be applied. For design speeds less than 50 MPH, type of terrain shall be arbitrarily chosen and restriction on length of grade need not be applied.

If, after the investigation of a grade line, it is found that the critical length of grade must be exceeded, consideration should be given to the addition of truck lanes.

If truck lanes are necessary, on 2-lane highway, and the length of the lanes are over 10% of the total distance between important terminal, consideration should be given to the construction of a divided multi-lane project in the restricted section.

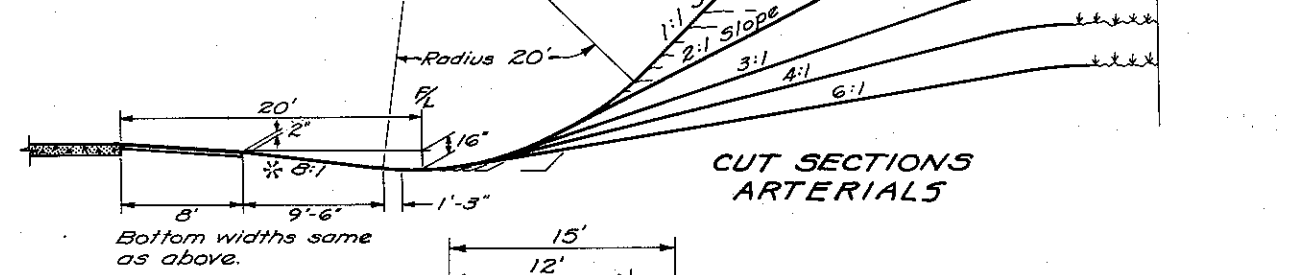
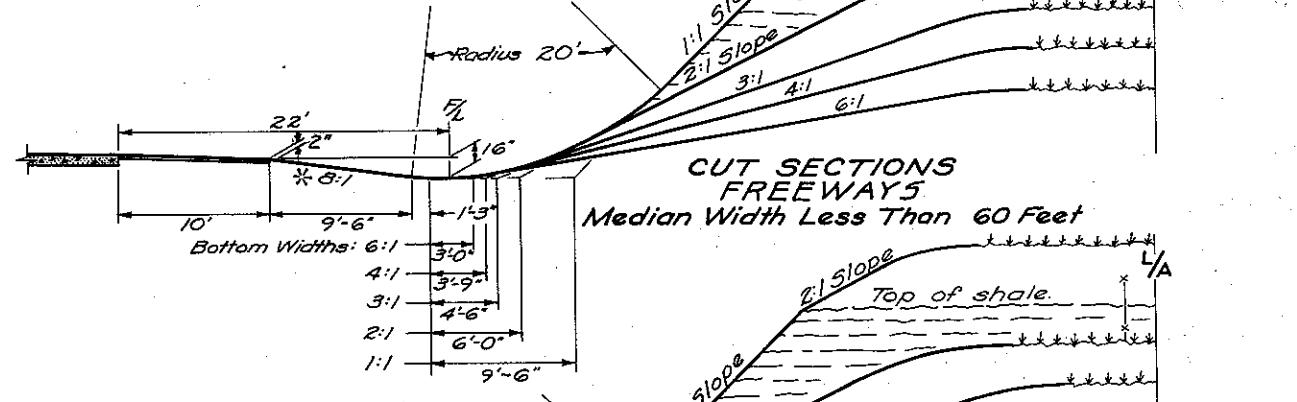
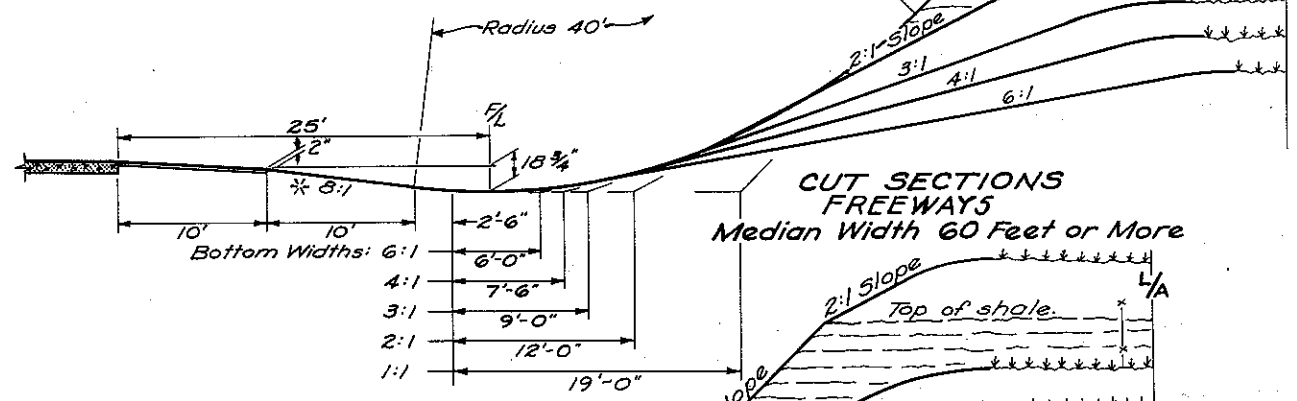
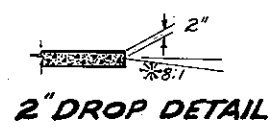
(C) Percentage of total length of passing sight distance opportunities of 1500 feet in length, measured from eye height to road surface, shall not be less than 70% of the total project length.

(D) Same as (C) except that percentage of total length shall not be less than 50%.

(E) Minimum and Desirable Stopping Sight Distance are based on height of eye of 3.75 feet and height of object of 6 inches. Passing Sight Distance is based on a height of eye of 3.75 feet and height of object of 4.5 feet.

(F) Effective shoulder is the width of shoulder measured between the edge of the pavement and the face of the guard rail.

ROADSIDE DESIGNS ~ FREEWAYS AND ARTERIALS



* 6:1 slope may be used with the horizontal distance remaining the same, thereby increasing the ditch depth.

** Optional erosion control 3" of 30I with or without asphalt curb.

