

DESIGN GUIDE

PARAMETER	FUNCTIONAL CLASSIFICATION	FREEWAY & MAJOR ARTERIAL A,B	MINOR ARTERIAL		COLLECTOR		LOCAL				TRUCK ROUTE	
			C	D	MAJOR E	MINOR F	G	H	I	J	M	N
DESIGN YEAR TRAFFIC. AADT		>10000	>5000	<5000	>3000	<3000	>300	<300	<50			
DESIGN HOURLY VOLUME		>450	>450	<450	>250	<250						
DESIGN SPEED RANGE, km/h		120-90	100-80	90-80	90-80	80-70	80-60	70-50		50	90-80	80-50
GRADIENT - MAXIMUM, %		6	7	7	8	9	10	12		8	7	9
SURFACE TYPE		PAVED	PAVED	PAVED	PAVED	PAVED	OPTIONAL	UNPAVED	UNPAVED	OPTIONAL	PAVED	OPTIONAL
LANE WIDTH, m		3.7	3.7	3.5	3.5	3.3	3.0	4.0	3.3	3.0	3.5	3.3
SHOULDER TYPE		PAVED OUT-2.0 IN-1.5	PAVED 0.5	PAVED 0.3	PAVED 0.0-0.2 ¹	UNPAVED	UNPAVED			OPTIONAL	UNPAVED	UNPAVED
SHOULDER WIDTH (USEABLE),m		OUT-2.5 IN-2.0	2.2	2.0	2.0	1.5	1.2			1.6	2.0	1.2
SHOULDER ROUNDING, m		0.8	0.6	0.6	0.4	0.4	0.4			0.4	0.6	0.4
FINISHED TOP WIDTH, m		13.5-14.0	13.0	12.2	11.8	10.4	9.2	8.0	6.6	10.0	12.2	9.8
SIDE SLOPES ²		4:1	3:1	3:1	2:1	2:1	2:1	1.5:1	1.5:1	2:1	2:1	2:1
BACK SLOPES ³		3:1	2:1	2:1	2:1	2:1	2:1	1.5:1	1.5:1	2:1	2:1	2:1
MINIMUM ROW WIDTH ⁴		150 & 60	60	60	50	50	40	30	30	40	50	50

DESIGN SPEED PARAMETERS⁵

DESIGN SPEED, km/h	120	110	100	90	80	70	60	50
POSTED SPEED - MAXIMUM, km/h	120	110	100	90	80	70	60	50
HORIZONTAL CURVE - MINIMUM RADIUS, m ⁶	750	600	440 ⁷	340	250	190	130	90
STOPPING SIGHT DISTANCE - MINIMUM, m ⁸	290	250	210	170	140	110	85	65
VERTICAL SAG CURVE - MINIMUM, k ⁹	60	55	50	40	30	25	20	11
VERTICAL CREST CURVE - MINIMUM, k	105	85	70	55	35	22	15	7
PASSING SIGHT DISTANCE - MINIMUM, m	800	730	680	610	550	490	410	350

NOTES:

- 0.0 FOR AADT <5000; 0.2 FOR AADT >5000.
- ON EMBANKMENTS OVER 3m, MAY BE REDUCED TO 2:1 WITH THE INSTALLATION OF GUARDRAIL IF ECONOMICALLY FEASIBLE.
- MAXIMUM SLOPES; STEEPER SLOPES MAY BE PERMITTED AS DETERMINED BY LABORATORY TESTS; IN CUTS OVER 3m MUST BE DETERMINED BY LABORATORY TESTS PRIOR TO CONSTRUCTION.
- ROW LIMIT TO BE ADJUSTED TO ALLOW FOR MINIMUM OF 5.0m BEYOND DAYLIGHT LOCATION OR EXCEPTIONALLY 3.0m MAY BE ACCEPTABLE.
- RURAL; FOR URBAN SEE TAC GEOMETRIC DESIGN GUIDE FOR CANADIAN ROADS
- BASED ON MAXIMUM SUPER ELEVATION OF 0.06 m/m.
- MINIMUM RADIUS OF 1270m REQUIRED TO ACHIEVE HORIZONTAL SIGHT DISTANCE WHEN JERSEY BARRIER USED.
- BASED ON EYE HEIGHT OF 1.05m AND OBJECT HEIGHT OF 380mm.
- K-VALUES ARE BASED ON HEADLIGHT CONTROL.
- THE TAC GEOMETRIC DESIGN GUIDE FOR CANADIAN ROADS SHOULD BE CONSULTED WHEN COMBINING MINIMUM VALUES.

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2	CORRECTION TO CLASS - MAY 2013
1	CHANGE TO NOTES - OCT 2010
No.	REVISION

Scale : N.T.S.
 Drawn by : M.LABREQUE
 Checked by : K.BODDY
 Date of Plan : AUG2009
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HIGHWAY DESIGN GUIDELINES

Explanation of Nova Scotia's Highway Functional Classification System

The Arterial System has three subsystems:

FREEWAY (A) - This is a highway designed for safer high-speed operation of motor vehicles through the elimination of at-grade intersections. It is fully access controlled with the only access/egress being via ramps at interchanges. While this definition is quite often used to describe either a divided or undivided facility, it has been decided to apply the definition simply to fully 'controlled access' divided facilities - in Nova Scotia's case that means the divided four lane highways such as Highway 118, Highway 102, Highway 104 from New Glasgow to the New Brunswick border, sections of Highway 103 & Highway 101 that have been twinned, etc.

MAJOR ARTERIAL (B) - This is an undivided 'controlled access' highway designed to form part of the Freeway system when the additional lanes are added. An example would be much of Highway 103 and Highway 101 that are planned for 'twinning' in the future. The twinning, including parallel access roads, will remove all access/egress except by ramp and make these roads true Freeways.

MINOR ARTERIAL (C, D) - This is an undivided roadway that performs an arterial function as follows:

Minor Arterial (C) - A high speed connector to a Freeway or Major Arterial e.g. Highway 142 (the Springhill Connector); or a roadway currently serving as part of the overall Major Arterial/Freeway system but slated to be bypassed in the future (e.g. Highway 104 at Antigonish; Highway 103 - Hebbs Cross to Danesville; Highway 101 from Digby to Weymouth; and since it is internal to completed sections of the Major Arterial system - Trunk 4 from the Canso Causeway to Highway 104 at Exit 43, Highway 104).

This classification also applies to interchange ramps leading to a Major Arterial or a Freeway and "purpose built" controlled access connectors such as Greenwich Connector, Highbury Connector, etc.

There are other situations involving interchange ramps and connector roads as follows:

- In many cases, Major Arterials and Freeways interchange with existing Trunks or Routes. In these cases, while the actual ramps will be Minor Arterial, the connector will reflect the function of the intersecting roadway which could be a Minor Arterial, or a Collector (Major or Minor).
- In some cases, a Major Arterial or Freeway interchanges at a local road. This interconnection may require that the local road (or the section leading to an Arterial or Collector) to be reclassified to a new functional class, typically a Minor Collector. There will be a couple of cases where, despite the interchange at a local road, the functional classification does not change from local.

Minor Arterial (D) - A highway serving a part of the province not serviced by a Freeway or Major Arterial Road, e.g. Trunks 6, 8, 10, 14, 30 (the Cabot Trail), Trunk 7 - Musquodoboit Harbour to Antigonish, and Trunk 4 - St. Peter's to Sydney/Glace Bay.

Note: A Trunk road that has been paralleled by a Major Arterial or Freeway will not normally qualify as an Arterial and will fall into a lower classification.

COLLECTOR ROADS (E, F) - As the name implies, these roads 'collect' traffic from the local road system and transmit this traffic to the arterial system and/or other collector or local road systems. They have the following characteristics:

- ▶ Typically serve inter-county as opposed to intra-provincial traffic and are characterized by shorter travel distances than arterials.
- ▶ Generally have lower speeds than arterials.
- ▶ The mobility function is equivalent to or greater than the land access function.

See Policy # PR5063 'Reclassification of Local Roads' for a complete list of minimum criteria for reclassifying a Local Road to a Collector Road.

Collector Roads are further subdivided as follows:

Major Collectors (E) - These roads have the following characteristics:

- Serve small towns (population less than 4000) or major traffic generators (Federal Parks, Major Tourist Destinations, Major Industries, etc.) not served by the Arterial System.
- Link these places with nearby cities, towns or Arterial Roads.
- Serve the more important intra-county traffic.

Minor Collectors (F) - These roads have the following characteristics:

- Are spaced such that they bring developed areas within a reasonable distance of a Collector Road.
- Serve remaining small communities.

LOCAL ROADS (G, H, I, J) - These roads primarily provide land access and have little or no through traffic. Further stratification of Local Roads was beyond the scope of the Highway Functional Classification Review.

TRUCK ROUTES (M, N) - These roads primarily provide access for trucks associated with resource-based industries. Further stratification of Truck Routes was beyond the scope of the Highway Functional Classification Review.

Ref: Highway Functional Classification Review, Martin Delaney, December 2007

Revised May 2013