PART 2
ROADWAY DESIGN

SECTION 100
GENERAL DESIGN CRITERIA

101 DESIGN SPEED

Design speed establishes specific minimum roadway design elements. These design elements include vertical and horizontal alignment, and sight distance. Design speed relates indirectly to other elements such as pavement and shoulder width, and horizontal clearance.

Design speed is influenced by terrain, economic considerations, environmental factors, type and volume of traffic, roadway functional classification, and adjacent land use (rural or urban).

Drivers expect consistent design speeds for adjacent roadways or roadways with similar characteristics. A driver in a mountainous area would expect to travel more slowly than a driver crossing the open desert. Further, the driver crossing the open desert expects the travel speed to be similar for a divided road or a two-lane roadway. Normally, the design speed difference between adjacent segments should not exceed 10 kph.

A roadway carrying a large traffic volume may justify a higher design speed than a less important facility in similar topography, particularly where the savings in vehicle operation and other costs are sufficient to offset the increased cost of right of way and construction.. However, a lower design speed should not be assumed for a secondary road where the topography is such that drivers are likely to travel at high speeds.

Subject to the above considerations, as high a design speed as practical should be used. The design speed for any section of roadway should be a constant value. However, during design, situations may arise in which engineering, economic, environmental, or other considerations make it impractical to provide the minimum elements established by the design speed. Examples include partial or brief horizontal sight distance restrictions, like those imposed by bridge rails, bridge columns, retaining walls, sound walls, cut slopes, and median barriers.

The cost to correct such restrictions may not be justified. Technically, this will result in a reduction in the effective design speed at the location in question. Such technical reductions should be discussed and carefully considered before accepted.

Design speed may be lowered, especially in densely developed urban areas. The design speed for special projects will be established by the Road Section. Maximum design speeds, as related to roadway classifications, are shown in Table 100.01.

Table 100.01
Design Speed

Roadway Classification	*Terrain Type*	*Desirable (kph)*	*Min. (kph)*
RURAL			
Freeway			
	Flat	140	120
	Rolling	120	100
	Mountainous	100	80
Expressway			
	Flat	140	120
	Rolling	120	100
	Mountainous	100	80
Major Collector			
	Flat	100	80
	Mountainous	80	60
Minor Collector			
	Flat	90	80
	Rolling	80	60
	Mountainous	60	40
Local Access			
	Flat	90	80
	Rolling	80	60
	Mountainous	60	40
URBAN			
Freeway		120	100
Expressway		120	100
Arterial (Main Rd)			
Outlying		100	80
Low Interruption		90	60
High Interruption		60	40
Frontage Road		60	50
Sector Road		50	40
DIRECTIONAL RAMPS		80	60

The maximum design speed varies by area on Abu Dhabi Island therefore, refer to Figure 100.01 for the posted speeds on the Island. Posted speeds are considered to be approximately 85% of design speed.