criteria and calculations are based on the Illuminating Engineering Society's (I.E.S.) standards modified to meet the higher uniformity and illumination levels required by the WED and the Municipality of Abu Dhabi.

Uniformity Ratio
A Uniformity Ratio (UR) is defined as the average maintained illumination of the roadway design area, divided by the lowest value at any point in the area. See Table 1000.01 for roadway criteria.

Light Source
Light sources shall be as identified in Table 1000.01 and as modified during the design phase if advised by the Municipality. It is important that the lighting design be compatible with the surrounding area.

The roadways not identified in this manual will use a light source as directed by the Municipality. Side roads and ramps shall have the same light source as the adjacent main roads. Metal halide or high pressure sodium shall be selected to blend with the surroundings on sector roads.

Lantern and Lamp Selection
"Sharp cutoff" lanterns are proposed for roadway lighting per Table 1000.01. These lanterns are designed to illuminate a relatively large area without spilling light into adjacent areas. They produce uniform illumination and minimum glare.

High pressure sodium lamps provide excellent golden white color and enhance the esthetic qualities of concrete, stone and brick. Metal halide gives a whiter light, providing a color contrast to sodium lamps, and enhance the appearance of green and pastel colored materials.

The lanterns shall be mechanically strong and easy to maintain. They shall be of adequate design to operate at mounting heights of 30.5 meters and able to withstand sustained wind speeds of 160 kph with 208 kph gusts.

Lanterns mounted on 14 meter poles shall be 1000 Watt high pressure sodium, metal halide and mercury vapor lanterns cut-off, and provide efficient even illumination.

Lanterns mounted on 10 m poles shall be 400 watt high pressure sodium or metal halide lanterns.

Lanterns shall have optical systems sealed against moisture, dirt and insects, and be mechanically strong and easy to maintain.

Glare control for the mounting height specified, and cut-off characteristics shall be designed based on I.E.S. standards.

Lantern Mounting Height
High mast lighting (30.5 m) is proposed for applicable interchanges and between closely spaced interchanges when conditions permit. On major thoroughfares not suitable for high mast lighting, but where substantial lighting requirements remain, pole heights would be 14m.

High-mast lighting (30.5 m poles) shall be used on rural and urban freeways and expressways with wide medians where one row of 14 m poles is not suitable. The 30.5 m poles shall also be used at all interchanges. Wherever possible high mast lighting shall be used for ramps.

High mast lighting will be used on main roads only when light height will not substantially interfere with nearby buildings. On other major thoroughfares, poles would be 14 m high and would be placed at the side or in the median of the roadway, as applicable. Single or multiple lanterns would be used to provide uniform illumination of the roadway.

1002 PARKING AREA LIGHTING

1002.01 GENERAL

The function of light sources in parking areas is to give an overall view of the parking area and provide a measure of security. Lighting is also critical for vehicle maneuvers such as backing.

1002.02 ILLUMINATION REQUIREMENTS

Light source shall be high pressure sodium or metal halide selected to blend with the surroundings per Table 1000.01.