APPENDIX 14.2

DETAILS OF DISPERSION MODEL BREEZE ROADS

Details of Dispersion Model Breeze Roads

BREEZE ROADS is a computational dispersion model that is used to model the emissions from road traffic. It is a US EPA regulatory model and its algorithms are based primarily on the line source dispersion model Caline 3. The model permits the inclusion of up to 120 roadway links and 60 receptor locations in each run.

It utilises digital hourly meteorological data to predict the dispersion of emissions. The main meteorological parameters that effect dispersion of pollution are the wind speed and direction, although atmospheric stability is also an important factor.

The model uses UK vehicular emission factors from the NAQIA, traffic flow information for individual hours or on an average daily basis, and using these it can calculate pollutant concentrations for queuing traffic and idling vehicles at road junctions with traffic signals.

It can be used predict concentrations of carbon monoxide, particulate matter and other inert pollutants along roads and at intersections. Individual receptor locations can be input into the model so that the effects of road traffic on air quality at sensitive locations, e.g. school and residential properties, can be calculated.

The model has some limitations, for example, wind speeds should be at least 1 m/s as lower wind speeds have not been validated. Also, the model is highly sensitive to mixing heights lower than 100m, which would typically occur at night. More detail on these assumptions, and other can be found in the Users' Guide.