

Evaluation Methodology and Assessment Criteria

Chapter 3



CHAPTER THREE EVALUATION METHODOLOGY AND ASSESSMENT CRITERIA

Data Sources

1. Environmental baseline data collated under Phase I of the Study, and adopted for the environmental assessment of the Hybrid Options were extensively used in the evaluation of the Preferred Options. Data matrices prepared by the Planning Department (PlanD) for the TDS Review, encompassed population and job place distribution, school places, commercial, hotel and retail requirements and the distribution of port back up facilities for both development options. The same data matrices were supplied to the Transport Studies Section of PlanD for input to the TDS Review transport model and are summarised in Chapter Four. Data were extracted from the transport model for use in the assessments of air quality and noise impacts associated with the Preferred Options at three time horizons (i.e. 2001, 2006, and 2011).
2. The findings of, inter alia, the Port and Airport Development Strategy (PADS), Science Park Study, Freight Transport Study, Sewerage Master Plan Studies, Rail Development Study and the 1991 Annual Traffic Census were taken into account in these assessments. The latter was specifically used to develop a Territory-wide baseline road traffic noise profile for use in this Study. While it is noted that the 1994 Annual Traffic Census data are now available and should be used for any subsequent definition of noise profiles, the 1991 data were maintained for consistency and to enable comparison.

Two Tiered Assessment System

3. A two tiered evaluation process was adopted for the Preferred Options. The two Preferred Options were initially examined to assess the extent of potential impacts associated with each option in terms of water, noise and air quality, solid waste arisings, ecological impacts and proximity of new developments to Potentially Hazardous Installations. Assessments were carried out for the year 2001 to provide a basis for assessing the urgency of any remedial works which may be required and to determine the relative effects of the Base Growth. Assessments were also carried out to assess the performance of the medium-term (2006) and the long term 2011 strategies. An iterative approach was also adopted in which the first set of assessments were undertaken for all components of the Preferred Options with the second round evaluations focusing upon areas of particular concern or where refinements could be made. The environmental assessment of the Refined Preferred Options were discussed at Working Group meetings. The components of the development strategies, and any revisions necessary to the method of assessment, have been agreed with the relevant Government departments.
4. Following this macro assessment, a component evaluation was carried out to judge the relative performance of individual elements of each module of the strategy. Elements subject to individual assessment included residential growth areas, transport links, port-related activities and industry, offices, hotel and retail developments. These component, or strategy, evaluations have drawn on the results of the sectoral studies in terms of air, noise and sewage disposal to provide a comprehensive evaluation of the development strategies. Although this two-level approach may appear cumbersome, it was considered to be the best practical approach in view of the complex structure of the Preferred Options. Furthermore, this approach permitted an integration of the individual components of the environmental assessments and allowed these to be reviewed in the context of environmental sustainability.

Assessment Criteria and Performance Measures

5. Performance measures developed under the Phase I Study were endorsed by both the Evaluation and Steering Groups for use in the present Study. In the Inception Report, a section was included to identify those performance measures which were excluded from this assessment, and the addition of some new evaluation criteria considered to confer benefit on the overall evaluation process.
6. Performance measures, or assessment criteria, which were adopted for use in the Initial and Hybrid Options promulgated under the Phase I Study, and used in the Phase II Stage I Study, are indicated for reference in Table 3.1 below. Performance measures with an asterisk denotes that they were adopted for both the assessment of the Initial Options and the Hybrid Options. Following discussions with EPD, it was agreed that for consistency the performance measures adopted for the assessment of the Hybrid Options would be maintained for this round of evaluations. New performance measures introduced for either the Hybrid, and/or Preferred Options are indicated at the foot of the relevant sections.

Table 3.1 PERFORMANCE MEASURES

Performance Measure	Used in Initial Options	Used in Hybrid and Preferred Options
<u>Water Quality</u>		
- areas of development without connection to trunk sewers or sewage treatment facilities	*	*
- surplus capacity in the trunk sewers	*	*
- projected maximum daily flow (domestic and industrial)	*	*
- projected increase in BOD from all sources	-	*
- flows in excess of committed disposal capacity	*	-
- current pollution status of surface waters	-	-
- ecological status of freshwaters	-	-
- relative increase in BOD discharge from effluent flows	-	*
- proximity of outfall to SSSI/Reserves, Marine Conservation Areas, Mariculture Zones, Gazetted Beaches	*	*
- ecological status of adjacent waters	-	-
- proximity of outfalls to confined water body	-	*
- estimate of <u>E.coli</u> generated from domestic loads	-	*
- extent of new reclamations, significance of the location, whether any contaminated mud will require disposal	-	*

Performance Measure	Used in Initial Options	Used in Hybrid and Preferred Options
<u>Air Quality</u>		
<u>Traffic</u>		
- kilometres of new road	-	*
- interface of new roads with agricultural land, residential areas, Country Parks, SSSI's, Landscape Protection Areas	-	*
- interface of junctions with agricultural land, residential areas, Country Parks, SSSI's, Landscape Protection Areas	-	*
- kilometres of road passing through airshed	-	*
- projected number of vehicles on roads	-	*
- projected number of HGV's on roads	-	*
- total AM peak traffic	-	-
- estimated CO emission rates - peak AM	-	*
<u>Industry</u>		
- total emissions from industrial developments for NOx, SOx	-	-
- proximity to residential areas	-	*
- proximity to pollution blackspots	-	*
- proximity to areas of ecological significance	-	*
- impact on existing air quality (cumulative effects)	-	*
- population within a confined airshed or with existing poor/bad air quality	-	*
- length of interface between industry and residential areas	-	*
- industry within confined airsheds	-	*
- from mathematical modelling studies determine whether industrial developments and/or vehicular traffic will cause AQO's to be exceeded	-	*
<u>Noise</u>		
<u>Rail Traffic</u>		
- direct interface with residential areas	-	*
- estimated volume of rolling stock	-	*
- peak flows	-	*
<u>Major Road Links</u>		
- direct interface with residential areas	*	*
- interface with other noise sensitive receptors	-	*
- estimated noise levels	-	*
- length of interface of industrial and residential areas	*	*
- population within the NEF 25 contour	-	-
- estimate the relative noise levels compared to the existing situation	*	-
<u>Wastes</u>		
- projected domestic wastes production	*	*
- projected industrial wastes in residential areas	-	-
- employee wastes generated by residential areas	-	-
- industrial wastes production	*	*
- employee generated wastes from industrial sectors	*	*
- total industrial wastes generated	-	-
- proximity to appropriate disposal facilities	-	*

Performance Measure	Used in Initial Options	Used in Hybrid and Preferred Options
<u>Potentially Hazardous Installations</u> - hectares of new development within PHI consultation zones - kilometres of new road passing through PHI consultation zones - population within PHI consultation zones	- * *	- * *
<u>Ecology:</u> - length of interface with ecologically significant sites - extent of wetland depletion - extent of coastal modification - volume of dredged contaminated spoil requiring off-site disposal	- * * -	* * - *
<u>Planning Guidelines Compliance</u> - air quality - noise - water quality - wastes - ecology	* * * * *	* * * * *
<u>Sustainability of Development Proposals</u>	-	*