APPENDIX 1

1 Methodology

1.1 Determination of the base population.

The 1996 Census in the form of the 10% sample constituted the starting point of his study. He was further informed by the deliberations of the Census Review Task Team (1998) which was set up by the Interim Statistics Council of South Africa, of which he was a member.

It was necessary to determine the best estimate of the base population in 1996 by:

- Comparing the 1996 Census results with other estimates such as PAWC (1995), etc.
- Adjusting the 1996 Census results for suspected deficiencies as outlined in the Report of the Census Review Task Team (1998).
- Allocation of a significant number of the population (about 4%) where age and/or population group were "not stated" to particular age and population groups.

It should be noted that by mid-1999, the CMC and other institutions within the CMA, took receipt of the electronic Community Profile databases which are new products provided by Statistics South Africa based on the 1996 Census. These databases are not samples but “packaged data” based on the full count. Consequently, minor discrepancies will arise between the figures contained in the 10% sample and those generated by the Community Profiles. This is to be understood since a sample, by definition, is not the universe.

1.2 Modelling the HIV/AIDS epidemic.

Past HIV prevalence levels were estimated from the antenatal survey results and discussion with various experts. The projections were carried out using the ASSA600 model after suitable recalibration. This model is one of the most sophisticated models for projecting the likely impact of the epidemic in South Africa. It attempts to take into account, *inter alia*, the risk group profile and risk group behaviour, probabilities of transmission and trends in underlying fertility and mortality, apart from the patterns of the epidemic in other provinces and countries.

1.3 Appropriate mortality and fertility rates.

The rates applicable to the Black population group, in particular, had to be estimated from the 1996 Census data by making use of indirect demographic techniques. These estimates were then compared with other estimates (e.g. Dorrington (1998), Sadie (1993), etc). The rates for the other population groups were based on the official statistics and Sadie (1993) estimates. The combination of estimates were then compared with those derived for the country as a whole by applying indirect techniques to the total 1996 Census data (Udjo, 1998).

A city's population growth is determined by three factors, namely, births (fertility), deaths (mortality) and net migration (difference between in- and out-migration). The excess of births over deaths is the natural increase of the population.

1.4 Net migration to the CMA by population group.

- Past patterns in total migration by population group for province, Cape Metropolitan Region (CMR) and CMA were analysed.
- Past efforts to project the population
  Consider other factors (e.g. economic growth (particularly relative to the Eastern Cape), any particular plans, etc.), were also analysed.
- Population Figures 1995,1996 for the CMA – as collected by the Spatial Planning Department were also taken into consideration.

1.5 Project the population for the CMA

The cohort survival model has been the main technique employed to project the population. It involves the separate projection of the numbers of males and females in each age group of the population on the basis of estimates of current fertility (births), mortality (deaths) and migration rates, as well as assumptions as to the likely future trends. The term "cohort" is used in the technical sense of "a group of persons born during the same period who consequently belong to the same age group at any given time"[1]. The reason for using a cohort survival technique is that people of differing age groups, sexes and population groups have different characteristics in terms of their survival rates, migration rates and, in the case of women, their fertility rates.

1.6 Estimate the distribution of the population by MLC[2].

Estimates of the MLC populations were achieved by applying the Ratio Method which is commonly used to project at a sub-regional level where the major determinant of the size of the population is also the most uncertain, i.e. sub-regional migration. These projections were then tempered by checking their reasonableness against likely plans for the future, the trends in household size and the trend in number of households built in the recent past.

1.7 Household structure.

The distribution of people per house (by size and type) was considered in relation to Mazur and Qangule (1995) and the 1996 Census and then applied to the population projection.

[1] United Nations 1956: Methods of Population Projections by Sex and Age, ST/SOA/Series A, Population Studies No. 25, p.1

[2] When the study was commissioned, the MLCs were legal and functional entities. Notwithstanding any proposals around the Unicity, it was agreed by the Steering Committee that the MLCs as spatial entities still had relevance.

2 Deficiencies in the Census

The 1996 Census departed from the practice of the past in that respondents self classified themselves into population groups. One of the consequences was that some people were unclassified by population group. At a national level this amounted to less than 1% and hence is of little consequence, however, for the Western Cape the figure was about 3% and for the CMA this figure was 3.75%, (or the equivalent of 95 742 people), with some MLCs as high as 6%.

The Census Review Task Team also identified the following shortcomings for the total population, which had potential implications for the CMA:

(i) underenumeration of the 0-4 year olds
(ii) too few foreigners identified
(iii) age misstatement, particularly age exaggeration, particularly across the pensionable ages for both males and females
(iv) too few male in-migrants and/or significant male undercount (relative to the number of females)
(v) potential significant undercount of Whites
(vi) extra Coloured males and females in the 0-15 year age range

Census errors may occur at any of the various stages of enumeration and processing and may be either ***coverage*** errors, resulting from persons being missed or counted more than once, or ***content*** errors, that is, errors in the characteristics of the persons counted, resulting from incorrect reporting or recording or from failure to report.