An urban data bank

Dr Peter Newton of the CSIRO Division of Building Research has got Melbourne taped. He has put on computer file data on Melbourne's demography, land use, housing, transport, and so on — altogether more than 2000 variables — to aid the urban planner.

He calls his system MELDATA, and it is designed to give somebody who is not a computer specialist quick and easy access to a large bank of information. Interpretation is made simple, too, with special analysis programs and statistical tabulations built into an interactive microcomputer system.

The MELDATA system has been designed to save the urban planner's time. Planning makes heavy demands on data and their analysis, especially now that impact assessment studies, and their evaluation, are increasing in number and complexity. With all the data pooled together, MELDATA can reduce the time spent on information collection and manipulation to one day in most instances. This frees the professional to work on more creative and demanding aspects of his job.

Two major sources are used in compiling the data bank. The main one comprises census data from the Australian Bureau of Statistics, which cover the years 1961 to 1981 in 5-year steps. The data are coded for census district — each one a neighbourhood covering perhaps a dozen suburban blocks.

The other principal source is the Australian Municipal Information System, whose data are indexed to 55 local government areas in Melbourne. This set adds more than 450 variables to those available from the census data.
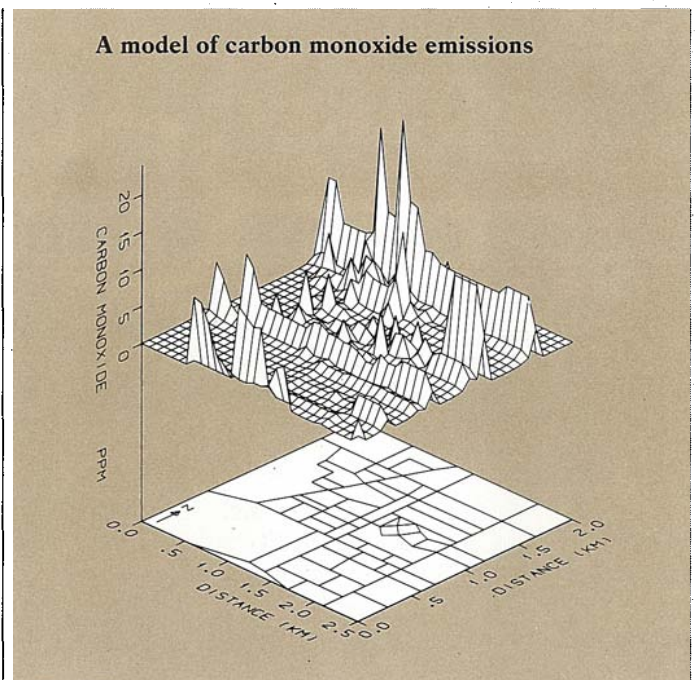
Property sale prices from the Valuer-General's Department also provide useful information.

New data and analytical routines are being added to MELDATA on a regular basis. An up-to-date list of the variables held on the system can be had on request to Dr Newton (P.O. Box 56, Highett,

Victoria, 3190 — phone (03) 555 0333).

An operating manual is also available, and the system has been used successfully by several State and municipal agencies over the past year.

For example, the City of Heidelberg made use of it in the development of their local area plan. They drew on the census data to look at past local population changes, and made projections of future population sizes and age distributions. Information such as this is helpful in planning future land zoning (how much land for houses, how much for shops) and for allocation of child welfare services and care for the aged.

Dr Michael Taylor and Mr Miles Anderson, scientists in the Division, are also using MELDATA in the modelling of urban systems. One aspect of their work is to look at the consequences of various land use planning policies and traffic-control strategies. Traffic flow, energy consumption, carbon monoxide levels, and noise levels are some of the factors they examine.

Data on how people travel form a key part of the analysis. Census data on journeys to work give a typical day's picture of the origin and destination of work trips, cross-tabulated by occupation, mode of transport, age, income group, and sex — an enormous data set. Further information on traffic movements through small parts of an urban area is also needed for investigating environmental impact.

Producing colour maps is easy with an interactive microprocessor system. Dr Taylor believes that, if a picture is worth a thousand words, then computer graphic output is valued in reams of line printer output.

Computer-generated colour maps allow the data to be analysed for trends as the scientist interacts with the keyboard to set or alter various parameters. The example of the computer's handiwork reproduced here gives an idea of what can be done.

Andrew Bell

A model of carbon monoxide emissions

Carbon monoxide levels in the mapped area (Hawthorn, an eastern Melbourne suburb) reach a peak near Kew Junction.