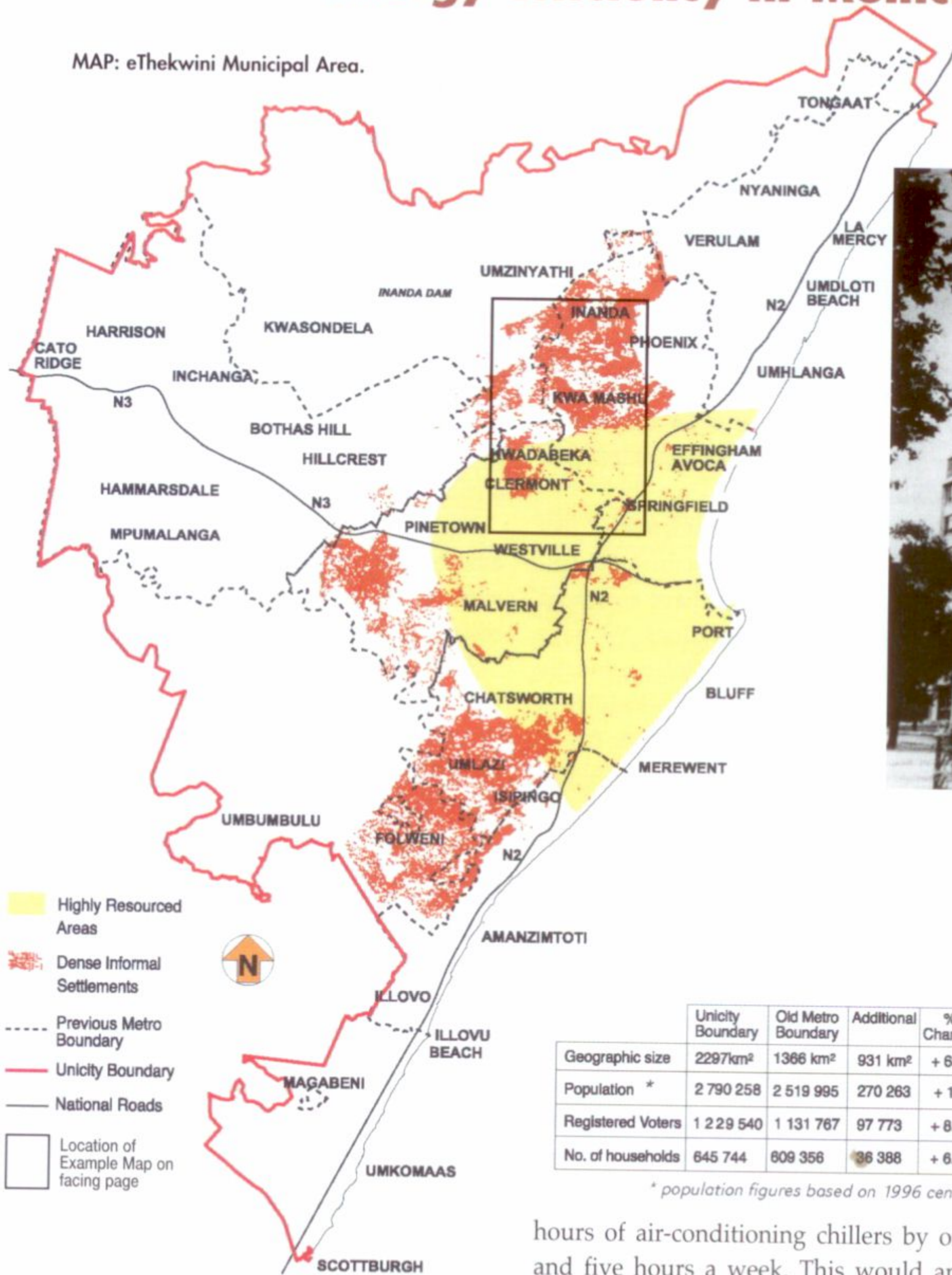


Energy Efficiency in Municipal Buildings

MAP: eThekweni Municipal Area.



City Engineer's Building, 166 Old Fort Road.
LA Lambert, Chief Architect, 1957.
Lynsky, R. (1982) *They Built a City*, City Engineers Dept.



Key findings:

- the collective payback on all recommendations identified is five months;
- the total energy saving of 418 700 kWh per annum is equivalent to 17% of this building's energy usage;
- if the low-cost and no-cost opportunities are considered alone, the annual saving would be 283 700 kWh per annum, or 12% of this building's energy usage;
- payback for the low-cost and no-cost opportunities would be achieved collectively within two weeks; and
- the annual CO₂ savings based on a low-cost and no-cost measures alone would be 241 tonnes.

	Unicity Boundary	Old Metro Boundary	Additional	% Change
Geographic size	2297km ²	1366 km ²	931 km ²	+ 68
Population *	2 790 258	2 519 985	270 263	+ 10
Registered Voters	1 229 540	1 131 767	97 773	+ 8.6
No. of households	645 744	609 356	36 388	+ 6.0

* population figures based on 1996 census

The business plan of the eThekweni City Architects Department has a section on Sustainable Architecture as one of its focus areas, of which the key performance indicators (kpi) are: reduced energy use in the operation of Council buildings; reduced non-renewable resources in the construction of Council buildings; the use of recycled buildings for Council requirements; and the design of sustainable buildings. The Department is targeting that eThekweni Municipality be recognized as an originator and leader in Sustainable Architecture.

As part of the study into the kpi on reduced energy use in the operation of Council buildings, an energy audit and energy efficiency assessment was carried out of the City Engineer's building at 166 Old Fort Road in August 2005 by the eThekweni Energy Team (Environment Management and Architecture Department).

The energy-saving recommendations were of low-cost, non-cost, and medium-cost options. Low-cost and non-cost options proposed a minimization in the operational

hours of air-conditioning chillers by one day and five hours a week. This would annually save Council R99 500. Should that successful, the second proposal is to raise the chilled water set-point by 2-degrees C during the six winter months. Currently it is maintained at 6-degrees C throughout the year. This would save Council R8 300 annually.

Medium-cost options are to install timers to limit the operations of the air-conditioning fan-

coil units during after-hour periods. Although it would cost Council R1 500 per timer to install four timers on each of the seven floors, the savings would amount to R45 000 annually.

The non-cost proposal is the initiation of an awareness-raising campaign among staff. Observations made during the survey and subsequently, suggested that there are opportunities for energy efficiency improvement via good house-keeping measures. Such measures

often amount to little more than ensuring lights are switched off during lunch break and after-hours. The savings to Council would be R30 400 annually.

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eThekweni City Architects' Dept

Reference:
eThekweni Municipality (2006). *CCP2 - Buildings Energy Efficiency Roll-out Programme*.

Summary of Recommendations

Cost	No.	Saving kWh/yr	Saving R/yr	Cost, R	Payback, Years	CO ₂ Saving tonnes/yr
Low	1	262,000	99,500	0	0	223
Low	2	21,700	8,300	5,000	0,6	18
Medium	3	118,000	45,000	42,000	0,9	105
Medium	4	80,000	30,400	30,000	1	71
Total	-	418,700	183,200	77,000	0,4	417

City Engineer's Typical Load Breakdown

