

## CHAPTER 74

# Nelson Mandela Bay

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The Nelson Mandela Bay metropolitan area is in the Eastern Cape province of South Africa and includes the cities of Port Elizabeth and Uitenhage, with a population of approximately 1.2 million inhabitants.

The issue of complexity drove the development of a scenario for this region. We needed an area where we could experiment with various modules and elements offered by MATSim, but one less complex than the mega-city region of Gauteng. The Nelson Mandela Bay case was attractive; it still had a substantial population, only one official bus operator (Algoa Bus Company) and one passenger rail operator (Metrorail). It also displayed the characteristic apartheid urban form of South African cities and towns, where many low-income commuters lived on the outskirts of spatially sprawled cities.

The population was, initially, generated from the 2001 census: later revised and updated to the 2011 census data. Travel demand was inferred from the 2006 travel diary conducted in the metro. The process of synthetic population generation is described in detail on the MATSim <https://matsim.atlassian.net/wiki/display/MATPUB/South+Africa+Confluence> site. The population was generated as entire households, using MLIPF (Multi-Level Iterative Proportional Fitting) as published by Müller and Axhausen (2012). Households were also assigned to buildings, based on census description.

This was the first South African scenario to include private cars, freight and detailed public transport. The unique minibus taxis, a form of paratransit in South Africa and many developing countries, were incorporated in the Nelson Mandela Bay area and reported in Röder (2013) and Neumann et al. (2015).

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