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Access and constraints to commuting in Gauteng Province, South Africa



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Abstract

The research presents problems of commuting in Gauteng province, South Africa. Gauteng province is the economic hub of South Africa and as such is faced with commuting challenges. The study further investigates interventions implemented to reduce access and constraints to urban commuting in the Gauteng Province. In order to answer the study main aim and research questions, primary and secondary data collection methods were employed. Primary data was collected making use of direct observation, checklist and interview techniques. Secondary data was collected from government records and publications, searching scientific articles from prime internet sites such as EBSCOhost, PROQUEST, SCOPUS etc. A total of 1550 questionnaires were administered to households in the study area. A two stage-random sampling process was used first to identify blocks and secondly to randomly select the dwelling units from the blocks. A sample size of 9% in each area was administered (i.e. Pretoria CBD, Mamelodi, Pretoria East, Mabopane, Hammanskraal, Midrand, Johannesburg CBD, Tembisa, Soweto, Alexandra and Sandton). The household questionnaire was tested in a pilot study conducted during May 2011 in Soweto and in May 2013 in Pretoria North prior to rolling out of the full survey in 2014. Commuting access and constraints to commuting were discovered to be related to four main reasons: (1) Fragmentation of space which leads to long commuting times, long commuting distances and congestion related issues (2) Spatial planning paradigms that promote spatial fragmentation rather than integration (3) Spatial mismatch and disjuncture between areas of socio-economic opportunity and residential areas, and (4) The existence of land use and transport policy gaps which makes the implementation of sustainable urban growth, development and management challenging. The existing commuting challenges are attributable to the cumulative outcomes of both the pre-apartheid and post-apartheid planning and policy interventions which either consciously or subconsciously resulted in reinforced or consolidated fragmentation of spaces. This situation obtains despite the fact that the spatial planning philosophies applied during the two periods were not similar. Long commuting times, long travel distances, high transport costs and travel interchanges characterised commuting experiences for commuters in Gauteng and in particular low income earners from peripheral settlements. In investigating access and constraints in Gauteng three central questions were used in unlocking the transportation issues in the study area. First was an exploration of the influence and impact of the degree of built environment density or non-density on commuting. This was because density shortens distances between people and the places they need access to. Second, was determining the extent of how land use mixing contributed to increasing or reducing accessibility and mobility. Questions which had to be answered included how were different activities, amenities and people juxtaposed spatially? In addition, the question on what was the attraction between different parts of the mix

had to be answered? Third understanding how access constraints and opportunities manifested themselves in terms of commuting lifestyles. This aspect sought answers regarding how motorists and commuters get around Gauteng province's cities? At the same time a series of inter-related questions flowed from the access theme. How did for example the same residents, commuters and visitors make spatial and transport connections between different areas given different dynamic needs? What are the existing access routes and are they tree-like or networked? How permeable or fast are/were existing routes at different scales and for different modes of transport? Making use of a systems analysis approach to unravel commuting access and constraints issues in Gauteng province, the research findings show that commuting challenges in Gauteng are greatest for low income earners who live in peripheral settlements. This group of commuters face long commuting distances (50% of the survey respondents), spend long travelling times (11% of the survey respondents spent more than 31 minutes travelling to work places) and in addition use more money to meet their transport costs (average of 21.3% of total household income). This is twice higher than the 10% South African Government stated benchmark in the White paper on transport policy (1996). The research results show that in Gauteng, constraints to commuting is related to the fragmented form of urban development. It is discovered that a north-south transportation network was more favoured than a transversal or loop form of transportation facilities. Fragmentation of space in Gauteng has evolved to deprive those who reside in the peripheries of regional, local and neighborhood centres functional access to transportation. Considering that in Gauteng the challenges to commuting are historical and political which translated into spatial fragmentation of space, a structure forming tool or integrated transport spatial model to promote integrated commuting in Gauteng is suggested. This model is able to link regional centres with neighborhood centres and overcome the current commuting bottlenecks in Gauteng. The model allows for the implementation of transport proposals in the Gauteng Spatial Development Framework (GSDF), the Metropolitan Spatial Development Framework (MSDF), Gauteng Land Transport Framework (GLTF) Integrated Transport Plans (ITPs), sector plans and local plans to fall in line with national objectives and vision 2050, the National Development Plan 2030 as determinants of compact against fragmented urban form. The model can be applied to assess the impact of transportation plans for short term commuting habits and long term locational behaviour of firms, malls and individuals. The model is flexible as it allows for modification to be made to the urban structure (fragmentation) in the light of inter-locking connectivity. The model runs contrary to traditional transportation planning in Gauteng "fragmented transport network" on the one hand towards a framework for interaction for a viable urban community that commutes i.e. an integrated model.

Key Words: *Access, constraints, fragmentation, integrated model Gauteng province*