Title: Non-Motorised Transport Connectivity

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Background:

Traffic congestion in market areas across Africa is a significant issue, affecting economic productivity, environmental quality, and public health. One consequence of heavy traffic in these areas is road traffic noise. A previous study at a market in Accra reported noise levels exceeding 75 dB. Air pollution is another major concern, particularly for individuals who spend long periods in market environments, such as traders, traffic wardens, police officials, and schoolchildren. Reported health effects of such exposure include breathing difficulties, hearing problems, excessive sweating, mental stress, eye irritation, fatigue, and headaches. It could therefore be argued that the environmental conditions in African marketplaces negatively affect people's quality of life (QoL).

Quality of life has attracted considerable interest throughout history, dating back to Aristotle and Plato. An individual's QoL is influenced by both objective and subjective indicators. Objective indicators include income, climate, mortality rates, and crime rates. However, researchers have become increasingly dissatisfied with relying solely on objective indicators, as they fail to capture the full complexity of human life. Consequently, QoL is also understood to be shaped by a person's social environment, which includes both private and public dimensions:

- **Social private:** social networks, social support, income level, education, and employment.
- **Social public:** community environment, climate, social security, housing quality, pollution, aesthetic surroundings, traffic, transport, crime incidence, equality, and equity.

Sustainable development is often directly or indirectly linked to QoL. In the context of transportation, several indicators related to safety and accessibility have been identified, including vehicle speeds, pedestrian crashes, the quantity and quality of pavements, the availability of services within walking distance, and facilities for people with disabilities. Sustainable mobility options are, therefore, an important contributor to QoL. To promote such mobility, developing a robust pedestrian infrastructure network is crucial to ensuring safety, accessibility, and good health in urban areas.

Despite this, investment in pedestrian infrastructure has remained minimal. Considerable attention continues to be directed towards motorised transport infrastructure, while the needs of vulnerable road users receive comparatively little attention. To encourage walking and make it a more attractive mode of transport, it is essential to establish safe, operationally efficient pedestrian infrastructure in urban areas, particularly near trip-generating locations such as schools, markets, public transport terminals, parks, and hospitals.

Market areas generate substantial movement, not only from customers and vendors but also from freight transport delivering goods to shops. Measures are therefore needed to improve traffic conditions around markets, including local traffic planning and management. This study

focuses on market activities around Makola Market in Accra, which, according to Transitec (2023[1]), "partially paralyzes motorized traffic, including public transport."

According to the Ministry of Local Government in the Greater Metropolitan Area of Accra, the ambition is to "ensure a high quality of life, good health, and well-being through promoting preventative measures, reducing traffic accidents, and through developments reducing pollution and promoting sustainable urban mobility.

The aim of this study, which addresses accessibility and mobility in the area, is:

- Enlargement of the pedestrianised zone on Derby Avenue, between Makola Circle and Kwame Nkumah Avenue.
- Restructuring of road sections around the pedestrianised zone and in connection with terminals
- Restructured road sections to improve connectivity by foot and cycle to the terminals and the zones with high activity.

Methods:

Procedure

Freight traffic is allowed to deliver goods only at night and must depart no later than 7 am. Any deliveries after 7 am will be left at a location 4 km from the area. Concept 1 is confirmed (blocking vehicular traffic on Derby Avenue altogether and preventing traffic from Kwame Nkrumah Avenue from entering Commercial Street).

The pilot will be evaluated using a before-and-after design.

Evaluation: Data collection before and after implementation (June 2025; May 2026):

- Vehicle counting (3 hours, am, noon, pm), counting per type
- Pedestrian counting (3 hours in total), separate adults from children
- Pedestrians' responses to a survey measuring QoL and their perception of the marketplace

Observations are conducted at two locations, point 1 and 2.

Duration

Observations and survey data collection will be conducted for one day. Observations will start no later than 8 am and continue until 6 pm.

Participants

In the survey, 207 pedestrians were interviewed before implementation, 46% of whom were female. Their average age was 33 years, with no difference between men and women.

Results:

Observations at the two locations before implementation showed that the highest traffic volume occurred in the afternoon, with an average of 548 vehicles. Morning traffic (between 8.00 and

[1] Transitec. (2013). Local area traffic and parking plans – Accra Metropolitan Assembly (AMA). Final report.

9.00) was slightly lower, at 349 vehicles. In total, 2.442 vehicles passed through the market area at either of the two observation points (some may have been counted twice). Of these, approximately 1600 were light vehicles (65%).

For pedestrians, at the same two location points, the largest number of pedestrians passed through the area in the morning between 08.00 and 09.00, with an average of 2506. In the evening it was fewer (average 1717). The same applies to children, with an average of 84 children in the morning whereas only 57 children in the evening.

Results from the survey showed that only 7 per cent were satisfied with the area (i.e., they rated it 7 to 10 on a scale from 1 to 10). The survey also measured satisfaction with different aspects of the environment using a scale from 1 to 7, where scores between 1 and 3 indicated dissatisfaction. The highest levels of dissatisfaction were related to traffic noise (87%), followed by traffic volume (82%), and a lack of safety (62%). Almost half of the respondents (41%) reported being worried about being involved in a motor vehicle accident, and 12 per cent had already experienced such an incident.

The follow-up studies will show whether the implementation has prevented cars from entering the area during the day, whether it has influenced the number of pedestrians, and whether pedestrians have become more satisfied with the area.

Conclusion:

This study will provide valuable information on planning a market area, including whether the proposed implementation will reduce congestion and improve pedestrian experience. This could then serve as the best practice for others to follow. However, if the post-study results indicate it did not achieve its aims, it will be possible to recommend any further actions needed.