
Care-responsive Mobility: Integrating Safe Systems Principles into Market Centre Design in Emerging Cities

Owen Mwaura^{1,2}, Peninah Ndegwa^{1*}, Marianne Vanderschuren²

*Corresponding author: owen@transformmobility.africa

¹ Transform Mobility Africa, Mobility Social Enterprise, Nairobi, Kenya

² Centre for Transport Studies, Department of Civil Engineering, University of Cape Town, South Africa

Keywords: Road Safety, Caregivers, Pedestrian vulnerability, NMT, Markets, Public Transport

Background

Markets are engines of urban economies, providing livelihoods and essential services for thousands of people daily. However, market infrastructure is largely designed without care in mind, overlooking the gendered realities of unpaid care work often shouldered by women who make up 80% of the vendors in Nairobi Markets (ref). Lack of social protection, like paid maternity leave for the informal female traders, coupled with a lack of quality and affordable childcare services prompt women to bring their children to work, with caregiving responsibilities reducing their profitability significantly. Over the last 4 years, WOW MOM an NGO in partnership Nairobi City County Government (NCCG), has been implementing childcare services within the market centres (Gikomba and Mwariri) a program that has served over 5000 children.

While market-based childcare services have proven impactful by reducing unpaid care burdens, supporting women's economic participation and enhancing children's growth and development, their uptake remains constrained, due to the unsafe and inaccessible market environments. Poor pedestrian infrastructure, unsafe road crossings, inadequate lighting, congestion at market entrances, and weak integration with public transport create significant barriers for caregivers travelling with children. These conditions heighten exposure to traffic accidents, insecurity, and environmental health risks, and reduce caregiver confidence in accessing childcare services located within or adjacent to markets.

A recent survey conducted by WOW MOM (2025) revealed that convenience is fundamental to childcare choices by caregivers (82%), preferring services close to home or the workplaces, with 79% accessing childcare within a 5–10-minute walk. For those using market-based childcare services, 33% walk, 17% motorcycle and 50% public transport (matatus). This underscores the need to evaluate the accessibility of market centres for all road users.



Figure 1 –Access to the market from the carriage way. *Source: Author 2026*

This study addresses the intersection of transport accessibility, urban market planning, and gender-responsive infrastructure by strengthening safe, inclusive access to market centres for pedestrians, cyclists, and public transport users. By embedding the mobility needs of women, caregivers, and children into last-mile connectivity and market access design, the project positions inclusive transport and public realm improvements as critical enablers of market-based daycare uptake, reduced unpaid care burdens, and equitable participation in urban economies.

Aim

This study aims to generate visibility and create a case for investment in improving safety, promoting inclusive access to market centres through care-responsive mobility and urban design interventions, thereby increasing the uptake of market-based childcare services, thereby reducing unpaid care burdens on women.



Figure 2 – Caregiver walking on the carriage way. *Source: Author 2026*

Method

This study adopts a mixed-methods, care-responsive mobility assessment framework combining quantitative accessibility analysis, qualitative inquiry, and participatory urban design evaluation to examine how transport and public space conditions influence the uptake of market-based childcare services in Nairobi. The approach will integrate caregiver and vendor surveys, a GIS-based accessibility and NMT infrastructure audit, and safety mapping, such as posted and operational speeds, on-site walkability and child-safety audits to identify physical, social, and perceptual barriers to safe market access. These diagnostics will be complemented by in-depth interviews and participatory mobility mapping for women traders and caregivers to capture lived experiences of unpaid care burdens and mobility constraints. Based on the findings, targeted low-cost urban design and last-mile connectivity interventions will be co-developed with stakeholders and implemented in selected markets. A pre- and post-impact evaluation, measuring changes in childcare uptake, travel time, perceived safety, and women's economic participation will follow, thereby empirically testing the role of care-responsive transport and urban design in strengthening inclusive market access.

Results

The project is expected to lead to increased utilisation of market-based childcare services as safer, more accessible and convenient connections to markets improve caregiver confidence and reduce the daily logistical burden of combining work and childcare. By upgrading pedestrian infrastructure, calming traffic, and strengthening last-mile connectivity, the project will significantly reduce the exposure of children and their caregivers to traffic-related accidents and environmental risks, creating a safer travel environment for the most vulnerable

users. These improvements will also produce measurable gains in overall market safety and accessibility for all users, including persons with disabilities and older persons, through better sidewalks, crossings, lighting, and public space design. Finally, through collaboration with county agencies and market management, the project will strengthen institutional capacity to systematically integrate care considerations into urban mobility and market planning, embedding care-responsive principles into future transport and urban development policies and practice.



Figure 3 – Market activities outside the market. *Source: Author 2026*

Conclusions

Care-responsive mobility assessments of selected market centres, focusing on pedestrian, cyclist, and public transport access with women and children in mind.

Targeted infrastructure improvements, including safe walkways, traffic calming measures, accessible crossings, lighting, and clearly marked childcare access routes.

Public transport integration, such as safe drop-off points and improved last-mile connectivity to market-based childcare facilities.

Stakeholder engagement and co-design, involving caregivers, traders, transport operators, county officials, and childcare providers.

Policy and planning integration, embedding care-responsive mobility principles into county transport, urban planning, and gender frameworks.