

Livelihoods, Location & Public Transport: Opportunities for Poverty Reduction and Risks of Splintering Urbanism in Nairobi's Spatial Planning



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***Cover photograph of Mutindwa Market, Nairobi taken by Colin Hagans (2011)**

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ABBREVIATIONS

| | |
|-----------------------------------------------|------------|
| Bus Rapid Transit | BRT |
| Central Business District | CBD |
| Common Market for Eastern and Southern Africa | COMESA |
| Consulting Engineering Services, Ltd | CES |
| East African Community | EAC |
| Foreign Direct Investment | FDI |
| Government of Kenya | GoK |
| Integrated National Transport Policy | INTP |
| Jomo Kenyatta International Airport | JKIA |
| Kenya Informal Settlement Improvement Program | KISIP |
| Kenya Shilling | KSH |
| Light Rail Transit | LRT |
| Mass Rapid Transit | MRT |
| Ministry of Nairobi Metropolitan Development | MoNMD |
| Micro and Small Enterprise | MSE |
| National Cooperative Housing Union | NACHU |
| Nairobi Metropolitan Region | NMR |
| Nairobi Railway Station | NRS |
| Projected Passengers per Hour per Direction | PPHPD |
| Southern African Development Community | SADC |
| Structural Adjustment Program | SAP |
| Sustainable Livelihoods Approach | SLA |
| United Nations Human Settlements Program | UN-HABITAT |

Introduction: Renewal of Spatial and Transport Planning in Nairobi

Kenya is currently at an historic juncture, both in terms of its reform of national institutional frameworks that will impact future socio-economic development, and more specifically in its reform of spatial planning processes that have the potential to redress historic inequalities, including in the capital of Nairobi. In 2010, a new constitution was approved by referendum, which “strengthens the claims of citizens for access to basic services, including adequate housing and water and sanitation” and that devolves “many of the responsibilities [previously held] by central ministries to county-level administrations.”¹ The constitution incorporates many of the principles contained within the draft National Land Policy of 2009, including “equitable access to land rights and security of land rights.”²

As part of institutional reforms, the Government of Kenya (GoK) is renewing its emphasis on planning, particularly through the adoption of *Kenya Vision 2030*, a national visioning framework developed to inform economic, social and spatial planning in the country. Aligned with the reformation of institutional frameworks and the planning renaissance, GoK established the Ministry of Nairobi Metropolitan Development (MoNMD) in 2008, with the mandate to “look at the larger public service, governance and land-use challenges for the entire [Nairobi Metropolitan] region” (see Figure 1.1).³ MoNMD subsequently developed a visioning framework for the Nairobi Metropolitan Region (NMR), as well as a draft spatial plan emanating from the national and NMR visioning frameworks.

Transport planning (including planning for public transport), has emerged as a central focus of spatial planning in Nairobi, under the recognition that inadequate transport systems are hindering the economic and spatial development of the city,⁴ which, as a primate city, contributes 45 percent of the national Gross Domestic Product (GDP) per annum.⁵ A range of bilateral and multilateral donors are providing support to the planning and implementation of improved transport systems in the city, including the African Development Bank, the Japanese International Cooperation Agency, the United Nations Human Settlements Program (UN-HABITAT) and the World Bank.

If historic inequities in the city are to be addressed, however, transport planning cannot only focus on improving economic efficiency; instead, it must incorporate a focus on improving the welfare of the urban poor by responding to their specific accessibility needs. While Kenya’s 2010 constitution made no mention of public transport (except for the right of disabled persons to have access to such services),⁶ Kenya’s 2009 *Integrated National Transport Policy* (INTP) recognized the importance of transport for both national economic development and poverty reduction, stating that the sector “will be important not only in improving the competitiveness of products, but also ... remain a key

1 World Bank, *Project Information Document: Kenya Informal Settlements Improvement Program* (World Bank: Washington, DC, 2011), 3.

2 Ibid., 4.

3 Elliot Sclar, “Engaging complexity: a prologue for creating effective urban transport and land-use planning for Metropolitan Nairobi”, paper presented at the *Fourth International Conference on the Future of Urban Transport: Access and Mobility for the Cities of Tomorrow* (Gotenborg, Sweden: 19-21 April 2009), 9.

4 Kenya Institute for Public Policy Research and Analysis, “Organising Urban Road Public Transport in Nairobi City”, *Policy Brief* 18 (2006), 5.

5 Republic of Kenya, *City of Nairobi Environment Outlook* (Nairobi City Council: Nairobi, 2007), 14.

6 Republic of Kenya, *The Constitution of Kenya* (Nairobi: National Council for Law Reporting, 2010), 37.

component in tackling such challenges as reduction of poverty by half by the year 2015 and overall improvement in the general welfare of the population.”⁷

While the government’s inclusion of poverty reduction in the INTP was a positive step in recognizing the potential role of transport in achieving such an objective, the applied linkages between transport planning and poverty reduction in much of the world remain weak.^{8,9} The lack of applied linkages are evident within the INTP itself, given that beyond the Executive Summary, poverty is rarely mentioned in the document, with no detailed analysis of how improved transport (including public transport) would, in practice, lead to reductions in poverty. There is a risk, therefore, that renewed public transport planning in Nairobi will not sufficiently incorporate accessibility needs specific to the urban poor.

The aim of this dissertation is to develop a framework for identifying the accessibility needs critical to the urban poor in Nairobi that, if met, would contribute to poverty reduction efforts, and subsequently to examine whether renewed planning in Nairobi is sufficiently responding to such needs, or whether structural influences are influencing the prioritization of other objectives, including those that may produce regressive equity impacts.

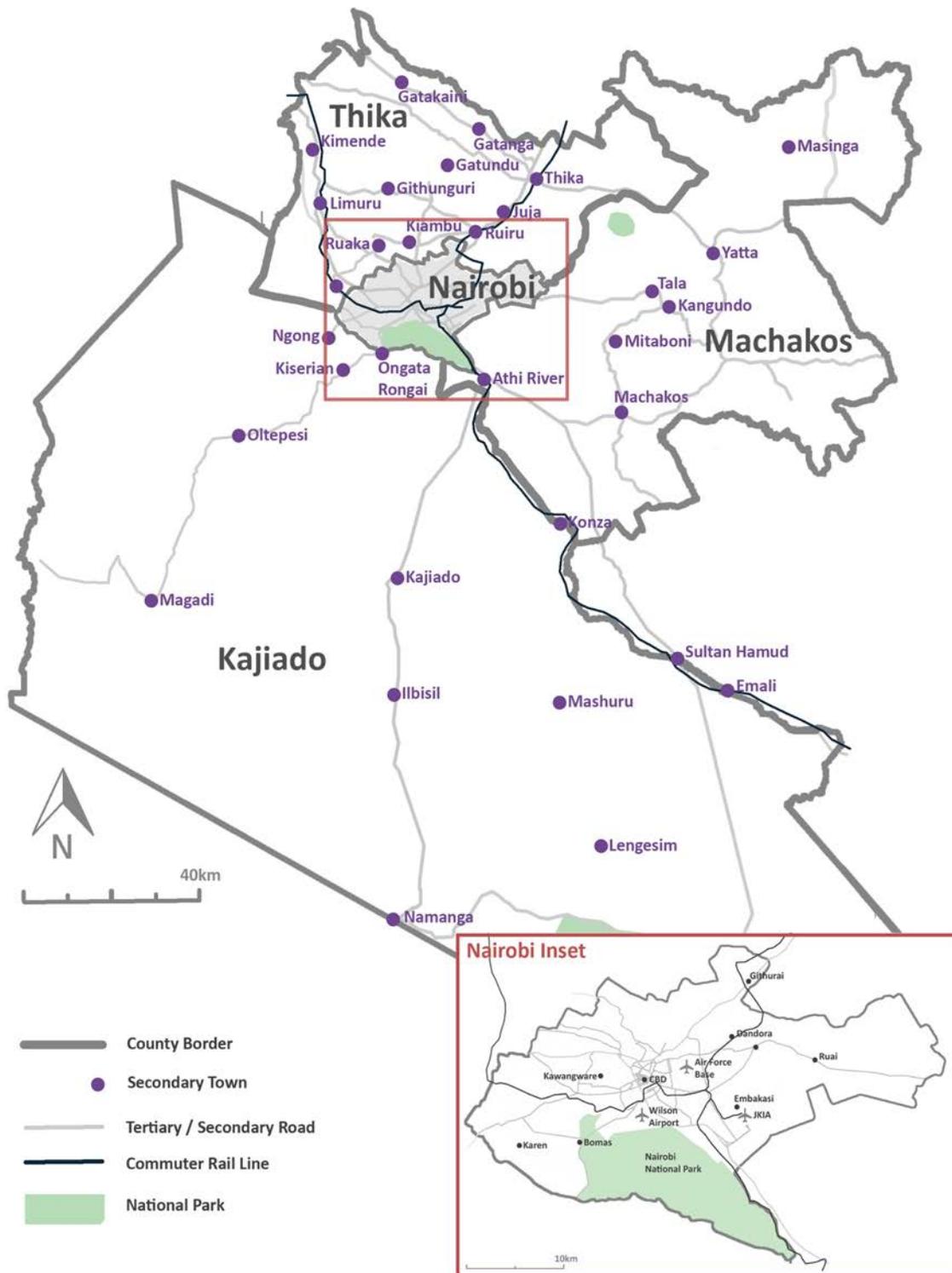
To develop and apply such a framework, this dissertation first explores the concepts of equity and accessibility in public transport planning that, when combined, reveal the need for integrated transport and land-use planning as a key method of responding to the accessibility needs of the urban poor, particularly in terms of improving access to and quality of livelihoods. Structural pressures influencing public transport planning globally are then analyzed, particularly the risk that economic efficiency is often prioritized over poverty reduction, with public transport serving primarily as a means of attracting foreign investment, thereby resulting in distributive impacts that are largely regressive for the urban poor. The utilization and adaption of a livelihoods framework is subsequently proposed as a key method of both identifying the specific accessibility needs of the urban poor in Nairobi, as well as to evaluate whether Nairobi’s spatial and transport plans meet such needs. The application of the framework includes an historic situational analysis of the urban poor in Nairobi, as well as an analysis of contemporary accessibility statuses and needs. Following this situational analysis, this dissertation undertakes a structural analysis of spatial and transport planning in Nairobi, along with an analysis of the potential distributive impacts on the urban poor arising from such plans. The dissertation concludes with potential policy alternatives resulting from the findings.

7 Republic of Kenya, *Integrated National Transport Policy: Moving a Working Nation* (Nairobi: Ministry of Transport, 2009), v.

8 D. Bejakovic, “The share of transport and communications in total investment”, *Journal of Transport Economic Policy* 4, no. 3 (1970), 337-43, quoted in Walter Hook, *Transport and the Millennium Development Goals* (Background Paper to the Task Force on Slum Dwellers of the Millennium Project, July 2005), 11.

9 Muhammad Sohail, “Sustaining Livelihoods by Improving Urban Public Transport”, *Engineering Sustainability* 158, Issue ESI (2004), 9.

Figure 1.1: Nairobi Metropolitan Region (NMR) Map¹⁰



10 Map adapted from: Consulting Engineering Services, *Development of a Spatial Planning Concept for Nairobi Metropolitan Region: Draft Plan* (Nairobi: Ministry of Nairobi Metropolitan Development, April 2011), 9.20.

Opportunities and Risks of Public Transport Planning

This chapter explores the tensions that exist within public transport planning in the contemporary era, particularly in cities of the developing world. Specifically, this chapter explores the potential for public transport aiding livelihoods and contributing to poverty reduction and examines the influence of whether global structural pressures on the prioritization urban economic efficiency and 'modern' urban imagery in public transport planning. The potential effects of the latter type of transport planning on the urban poor are then analyzed, along with a recognition that such planning should not be regarded as inevitable.

2.1 Equity and Accessibility as Guiding Concepts in Transport-supported Poverty Reduction

Hook warns that transport investments can “actually harm the development process and adversely impact the lives of the poor, unless the conditions under which they will lead to positive growth and poverty alleviation outcomes are carefully specified.”¹¹ The need for a greater understanding of how transport can contribute to poverty reduction is a particularly salient issue, given that as of 2007, planning for, or construction of Bus Rapid Transit (BRT) systems, for example, was occurring in 115 cities, including in locations as diverse as Lagos, Delhi, Rio de Janeiro and Hanoi.¹² While donor funding for urban public transport in the developing world has witnessed a resurgence since the late 1990s, the operationalization of transport as a means of poverty reduction have not yet been fully realized. The Millennium Development Goals, for example, did not make any specific reference to transport provision.

A critical first step in articulating how transport planning could aid poverty reduction is to define the concept of equity within the sector. In general terms, equity refers to “the distribution of impacts (benefits and costs)”, and whether this distribution is considered appropriate and fair.¹³ Given this dissertation’s focus on Nairobi—a city where 44 percent of the population lives below the poverty line¹⁴—vertical equity is seen as more relevant, in that the concept calls for transport systems that “favor economically and socially disadvantaged groups, therefore compensating for overall inequities” in society.^{15,16}

In terms of outcomes, Gakenheimer suggests that equitable transport planning should result in the delivery of affordable accessibility.¹⁷ Geurs and van Wee, in their influential review of accessibility definitions and measures, define the concept as “the extent to which land-use and transport systems

11 Hook, “Transport and the Millennium Development Goals”, 11.

12 Institute for Transportation & Development Policy, *Bus Rapid Transit Planning Guide*, ed. Lloyd Wright (New York City: 2007), 15-16.

13 Todd Litman, *Evaluating Transportation Equity: Guidance for Incorporating Distributional Impacts in Transportation Planning* (Victoria, Canada: Victoria Transport Policy Institute, 2011), 2.

14 Republic of Kenya, *City of Nairobi Environment Outlook* (Nairobi, Nairobi City Council, 2007), 16.

15 Litman, “Evaluating Transportation”, 3.

16 E. Eric Boschmann and Mei-Po Kwan, “Toward Socially Sustainable Urban Transportation: Progress and Potentials”, *International Journal of Sustainable Transportation* 2, no. 3 (2008), 143.

17 Ralph Gakenheimer, “Land Use and Transport in Rapidly Motorizing Cities: Contexts of Controversy” in *Urban Transport in the Developing World: A Handbook of Policy and Practice*, ed. Harry T. Dimitriou and Ralph Gakenheimer (Edward Elgar Publishing: Cheltenham, UK and Northampton, MA, USA, 2011), 59.

enable (groups of) individuals to reach activities or destinations by means of a (combination of) transport mode(s).¹⁸ Within this definition are four key components:

1. Land-use: The amount, quality and spatial distribution of opportunities available at each destination and the demand for these opportunities at origin (residential) locations.
2. Transport: The supply and demand differentials in transport services, including time, cost and effort to access the service, and transport system characteristics (e.g. travel speed, costs and scheduling).
3. Temporal: The time when opportunities are available, and the time available for individuals to participate in these opportunities.
4. Individual: The needs, abilities, and resources of individuals, all of which influence access to transport services and the spatial distribution of opportunities.

Each of the above components affects accessibility. Land-use, for example, influences travel demand and can introduce time restrictions, thereby impacting access to services and livelihood opportunities.¹⁹ Individual needs, abilities and resources influence the “types of relevant activities and the times in which one engages in specific activities”, thereby affecting all other components of accessibility. Increased accessibility itself impacts livelihood and residential locational decisions, thereby influencing travel demand, people’s access to opportunities and the “time needed to carry out activities.” Related, Petersen notes that while transport planning routinely acknowledges the influence of spatial structures on transport demand, it rarely recognizes nor plans for the effects of transport on spatial development.²⁰ The following section explores how this complex conception of accessibility—which extends far beyond transport system design—relates to poverty reduction.

Links between Accessibility and Poverty

Gannon and Liu note that “the process through which the benefits of transport investments and policies lead to improvements in the standard of living of low-income groups often involves many links”, with outcomes and associated benefits “very difficult to predict.”²¹ While it may be difficult to predict or measure transport’s impact on poverty reduction, the aforementioned comprehensive definition of accessibility allows for an examination of the inverse relationship between transport deprivation and poverty.

Hook argues that limited mobility affects the poor in developing countries through the imposition of a significant time and cost burden,²² with Brown and Lloyd-Jones similarly stating that “money and time lost in travel represent an often unrecognized cost for the poor.”²³ In Sao Paulo, for example, the urban poor living on the periphery of the city spend an average of 3 hours 15 minutes per day commuting between work and home.²⁴ In terms of cost, transport is generally considered affordable for the urban poor when mobility expenses do not account for more than 6 to 10 percent of monthly

18 Karst T. Geurs and Bert van Wee, “Accessibility evaluation of land-use and transport strategies: review and research directions”, *Journal of Transport Geography* 12 (2004), 128.

19 Ibid., 128.

20 Rudolf Petersen, “Module 2a: Land Use Planning and Urban Transport” in *Sustainable Transport: A Sourcebook for Policy-Makers in Developing Cities* (Eschborn: GTZ, 2002), 20.

21 Colin A. Gannon and Zhi Liu, *Poverty and Transport: Discussion Paper* (Washington, DC: World Bank, 1997), 4.

22 Hook, “Transport and the Millennium”, 32.

23 Alison Brown and Tony Lloyd-Jones, “Spatial Planning, Access and Infrastructure”, in *Urban Livelihoods: A People-centred Approach to Reducing Poverty*, eds. Carole Rakodi and Tony Lloyd-Jones (London and Virginia, USA: Earthscan Publications Ltd, 2002), 188.

24 Paul Barter, *Linkages between Transport and Housing for the Urban Poor: Policy Implications and Alternatives* (UN-Habitat: Nairobi, 2001), 15.

income or expenditures.²⁵ Studies in many cities of the developing world, however, show that the poor often spend beyond this range, such as in Bogota (18 percent)²⁶ and amongst informal traders in Dar es Salaam (1 to 29 percent).²⁷ Additionally, the poorest often cannot afford any form of motorized transport, and therefore rely primarily on non-motorized transport (i.e. walking) to access services and livelihood opportunities,²⁸ which can contribute to time and cost burdens when there are large distances between residential locations and livelihoods, effectively turning “geographical marginalization into deeper social exclusion.”²⁹

Recent research has focused on the aforementioned link between location, transport and livelihoods of the urban poor. In Wigle’s (2008) analysis of two low-income neighborhoods of Mexico City, for example, it was noted that incomes from home-based micro-enterprises in central locations were 21 percent higher than those on the periphery of the city, due to differences in access to income-diverse customers.³⁰ Given the transport-related time and cost restraints of accessing other sales areas in a city, this location factor appears to be important throughout the developing world, such as in Bangkok, where one study found that most of the self-employed poor operate a business within 5km of their place of residence,³¹ and in Delhi, where low-income women were also found to be constrained to livelihood opportunities within a 5km radius of their home.³²

These findings on the relationship between transport deprivation and poverty correspond with Gannon and Liu’s more generalized conclusions, in which they note that “the lack of affordable access deprives [the poor] of ability to take advantage of job opportunities and even of very basic social services”, and that “high moving costs and a lack of affordable [residential] locations” constrains the ability of the poor to access employment and education.³³ For transport planning (integrated with land-use planning) to achieve vertical equity and contribute to poverty reduction, it must therefore incorporate how accessibility needs of the urban poor will be met, many of which are dominated by livelihood concerns. There is evidence, however, that renewed public transport planning in the developing world often forgoes such an objective.

2.2 Risks of Splintering Urbanism in Public Transport Planning

Gannon and Liu argue that urban poor accessibility needs are often overlooked due to the contemporary positioning of transport planning, in which “economic efficiency is widely accepted as the primary objective”, without sufficient consideration for poverty reduction objectives.³⁴ This

25 Nicolás Estupiñán, Andrés Gómez-Lobo, Ramon Muñoz-Raskin and Tomás Serebrisky, “Affordability and Subsidies in Public Urban Transport: What do we Mean, What can be Done?”, *Policy Research Working Paper* 4440 (Washington, DC: The World Bank, 2007). 10.

26 Ramon Muñoz-Raskin, “Walking Accessibility to Bus Rapid Transit: Does it Affect Property values? The Case of Bogotá, Colombia”, *Transport Policy* 17 (2010), 72.

27 Sohail, “Sustaining Livelihoods”, 13.

28 Gannon and Liu, “Poverty and Transport”, 33.

29 Peter Brand and Julio D. Dávila, “Mobility Innovation at the Urban Margins: Medellín’s *Metrocables*”, forthcoming in *City* (2011).

30 Jill Wigle, “Shelter, Location and Livelihoods: Exploring the Linkages in Mexico City”, *International Planning Studies* 13, no. 3 (2008), 212.

31 C. Hongladarom and W. Isarankura, “Increasing the absorptive capacity of the urban economy: The case of Bangkok”, *Regional Development Dialogue* 9, no. 4 (1988), quoted in Brown and Lloyd-Jones, “Spatial Planning”, 189.

32 Anita Anand and Geetam Tiwari, “A Gendered Perspective of the Shelter–Transport–Livelihood Link: The Case of Poor Women in Delhi”, *Transport Reviews* 26, no. 1 (2006), 72.

33 Gannon and Liu, “Poverty and Transport”, 12.

34 *Ibid.*, 23.

prioritization of economic efficiency results in a bias against the poor through transport planning that is “oriented away from projects serving poorer areas [and/or away from] alternatives that service more lower-income individuals than higher-income individuals”,³⁵ as well as a lack of consideration of the spatial impacts that expanded systems could have on the urban poor. In this way, transport systems become regressive, rather than progressive, when measured against the goals of vertical equity and poverty reduction.

Graham and Marvin use the term ‘splintering urbanism’ to describe the prioritization of economic efficiency over poverty reduction in network infrastructure planning.³⁶ In particular, they note that infrastructure in the era of globalization often reinforces exclusionary processes and spatial fragmentation, in that “new patterns ... are emerging as infrastructure networks link up ‘cherry-picked’, favored spaces ... whilst excluding and bypassing intervening spaces deemed to be less profitable.”³⁷ Drawing on the work of Brenner, they argue that countries have abandoned the ideal of equitable network infrastructure provision, and instead are focused on attracting capital accumulation through targeted infrastructure development.³⁸ Related, urban planning is seen as undertaking an entrepreneurial role in order to situate and project cities “into internationalizing circuits of exchange”, including through the provision of infrastructure to customized spaces where global capital will invest,³⁹ a competitively-driven process that Watson notes leads to the social and spatial exclusion of the poor.⁴⁰

The discourse of splintering urbanism follows from a larger critique on the inequities associated with capitalist development. Marx argued that capitalism produces “chronic crises of overaccumulation”, in which a lack of opportunities for profitable investment of capital surplus results in processes of ‘primitive accumulation’ that create new investment opportunities, to the detriment of the working class.⁴¹ Harvey argues that “capitalism has been experiencing a chronic difficulty of overaccumulation since 1973”, resulting in a fine-tuning of primitive accumulation into what he terms as ‘accumulation by dispossession’, which entails processes such as: speculative financialization; depletion of global environmental resources; privatization of public assets; and the diminishing of regulatory frameworks previously designed to protect labor rights.⁴² In the continual search for new areas for investment, such processes often accompany the “opening up of new territories to capitalist development and to capitalist forms of market behavior.” Harvey further suggests that this opening of territories to investment results in the altering of space relations “through technological and organizational shifts”, particularly in the use of network infrastructure that differentiates “new

35 Ibid., 25.

36 Stephen Graham and Simon Marvin, *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition* (New York and London: Routledge, 2001), 382.

37 Ibid., 307.

38 N. Brenner, “Between fixity and motion: accumulation, territorial organization and the historical geography of spatial scales”, *Environment and Planning D: Society and Space* 16 (1998), quoted in Graham and Marvin, “Splintering Urbanism”, 309.

39 Graham and Marvin, “Splintering Urbanism”, 309.

40 Vanessa Watson, “Urban Planning and Twenty-First Century Cities: Can It Meet the Challenge?”, in *Global Urban Poverty: Setting the Agenda*, eds. Allison M. Garland, Mejgan Massoumi and Blair A. Ruble (Woodrow Wilson International Center for Scholars: Washington, D.C., 2007), 209.

41 David Harvey, *The New Imperialism* (Oxford: Oxford University Press, 2003), 144-145.

42 Ibid., 149-156.

networks of places” from their surroundings in terms of resource extraction and market activities,⁴³ thus alluding to the fragmentary nature of splintering urbanism.

As part of the technological and organizational shifts associated with splintering urbanism, urban authorities compete to position their cities as concentrated sites of control for transnational corporations, otherwise known as ‘world cities’.⁴⁴ Keeling argues that efficient transport systems are integral to attainment of world city status,⁴⁵ due to their ability to enhance urban economic efficiency. Public transport, specifically, has been found to reduce vehicle congestion, thereby allowing for more rapid movement of goods, while also improving worker productivity.⁴⁶ Conversely, an economically inefficient urban transport system can lead to increased transaction costs and reductions in market sizes, thereby inhibiting the potential for business expansion,⁴⁷ which reduces competitiveness in attracting Foreign Direct Investment (FDI).⁴⁸ Beyond enhancing economic efficiency, Siemiatycki argues that mass rapid transit projects are often undertaken as “a catalyst towards the development of a modern city”, particularly through the projection of imagery synonymous with world cities.⁴⁹

The resurgence of public transport investments in the developing world since the late 1990s, often without substantive links to poverty reduction, therefore takes on a different context when analyzing the global competition for capital investment flows. Public transport planning risks becoming dominated by this competition,⁵⁰ functioning primarily as a means to improve urban efficiency and enhance the ‘modern’ image of cities, with comparatively little focus on poverty reduction, which can result in further accumulation by dispossession. The risk of splintering urbanism is magnified in primate cities such as Nairobi, given that such cities generate a substantial proportion of the national GDP, and therefore are more susceptible to structural pressures associated with globalization.

Impacts of Splintering Urbanism on the Urban Poor

As Cervero notes, “transit investments can powerfully shape cities and regions” including through the redistribution of economic development into specific corridors or nodes, which in congested urban areas can result in net economic growth.⁵¹ This growth, which can be viewed as concentrated capitalist accumulation, is often regarded as a positive in terms of urban development, in that it confers formal-sector employment growth and, with the right regulatory framework, increased revenues for urban administrations (as well as profits for property developers). Yet this concentrated capitalist accumulation can also lead to splintering urbanism.

43 David Harvey, “From Space to Place and Back Again: Reflections on the Condition of Post-Modernity”, in *Mapping the Futures: Local Cultures, Global Change*, eds. Jon Bird, Barry Curtis, Tim Putnam and George Robertson (London and New York: Routledge, 1993), 5.

44 Carole Rakodi, “Globalization trends and sub-Saharan African Cities”, in *Globalization and the World of Large Cities*, eds. Fu-Chen Lo and Yue-man Yeung (Tokyo: United Nations University Press, 1998), 329.

45 David J. Keeling, “Transport and the world city paradigm”, in *World Cities in a World-System*, eds. Paul L. Knox and Peter J. Taylor (New York: Cambridge University Press, 1995), 117.

46 Todd Litman, *Evaluating Public Transit Benefits and Costs: Best Practices Guidebook* (Victoria, Canada: Victoria Transport Policy Institute, 2011).

47 Kenya Institute for Public Policy Research and Analysis, “Organising Urban Road”, 5.

48 Carole Rakodi and Emmanuel Nkurunziza, “Globalization and Urban Centres in Africa”, *Human Settlements Global Dialogue Series*, no. 1 (Nairobi: UN-HABITAT, 2007), 16.

49 Matti Siemiatycki, “Message in a Metro: Building Urban Rail Infrastructure and Image in Delhi, India”, *International Journal of Urban and Regional Research* 30, no. 2 (2006), 278-81.

50 Keeling, “Transport and the world city paradigm”, 117.

51 Robert Cervero, *Urban Development on Railway-Served Land: Lessons and Opportunities for the Developing World – Working Paper* (Berkeley: UC Berkeley Center for Future Urban Transport, 2009), 1-13.

Low-income settlements tend to be located on linear portions of land targeted for transport improvements, such as road and railway reserves, with these settlements often identified as low-cost and easily cleared.^{52,53} Resettlement sites, when offered, are often inaccessible to jobs, services, public facilities and public transport.⁵⁴ As Cervero notes, “accessibility gets capitalized into the price of land”,⁵⁵ which can result in development pressures that displace poor households located along transport corridors or nodes.⁵⁶ Fare prices, which are not always attuned to the purchasing power of low-income households can act as another exclusionary mechanism,⁵⁷ as can travel schedules not attuned to the needs of those employed in the informal sector.

The combination of these processes is clear in Bangkok, where the elevated rail system, *SkyTrain*, excludes the urban poor through: fares priced beyond the purchasing power of low-income users;⁵⁸ the system’s focus on linking together privileged spaces of shopping and leisure above the congested city;⁵⁹ and its related instigation of commercial and real estate development that has displaced over 50,000 low-income residents to the urban periphery, where they are poorly served by public transport.⁶⁰ Similarly in Delhi, the metro system was constructed primarily with the aim of reducing traffic congestion and pollution, and enhancing the “cosmopolitan” image of the city.⁶¹ With little consideration of the accessibility needs of the urban poor, it is perhaps unsurprising that slums and informal markets were displaced along metro corridors,⁶² and that 87 percent of the population surveyed in two slums near the metro were found to have never used the completed system.⁶³ The implication, therefore, is that transport infrastructure can be a blunt, network-based manifestation of broader structural influences that are dispossessing the urban poor while positioning spaces for capital investment.

52 Paul Barter, “Transport and Housing Security in the Klang Valley, Malaysia”, *Singapore Journal of Tropical Geography* 23, no. 3 (2002), 271.

53 Gannon and Liu, “Poverty and Transport”, 25.

54 R. Keivani and E. Werna, “Modes of Housing Provision in Developing Countries”, *Progress in Planning* 55, no. 2 (2001), quoted in Barter, “Transport and Housing Security”, 272.

55 Cervero, “Urban Development” 1.

56 Barter, “Transport and Housing Security”, 272.

57 Gannon and Liu, “Poverty and Transport”, 33.

58 Wanpen Charoentrakulpeeti and Willi Zimmermann, “Staunchly Middle-Class Travel Behaviour: Bangkok’s Struggle to Achieve a Successful Transport System”, in *World Cities and Urban Form: Fragmented, Polycentric, Sustainable?*, eds. Mike Jenks, Daniel Kozak and Pattaranan Takkanon (London and New York: Routledge, 2008), 308.

59 Tim Richardson and Ole B. Jensen, “How Mobility Systems Produce Inequality: Making Mobile Subject Types on the Bangkok Sky Train”, *Built Environment* 34, no. 2 (2008), 223-225.

60 Graham and Marvin, “Splintering Urbanism”, 328.

61 Sandeep Joshi, “Delhi Metro is Quake Proof”, *The Hindu Online Edition* (4 February 2001), quoted in Siemiatycki, “Message in a Metro”, 287.

62 Siemiatycki, “Message in a Metro”, 281.

63 A. Arora and G. Tiwari, *A Handbook for Socio-economic Impact Assessment (SEIA) of Future Urban Transport (FUT) Projects* (2007), www.cleanairinitiative.org/portal/system/files/articles-72151_handbook.pdf [accessed 18 August 2011].

Figure 2.1: Medellín's Metrocables⁶⁴



2.3 Challenging the Splintering Urbanism Discourse

Splintering urbanism as a result of contemporary public transport planning should not, however, be seen as a foregone conclusion. In Medellín, the city's innovative "urban aerial cable-car public transport system", dubbed *Metrocables* (Figure 2.1), initiated in 2004, provides improved transit access to two of the poorest sections of the city, reducing travel times from hillside communities to the valley, and integrating with the city's metro system through a single fare structure.⁶⁵ Through this modal integration, there are cost and time savings for long journeys in the city originating from these hillside communities. The system is not perfect in addressing the poor's accessibility needs; it provides little cost or time savings (when accounting for walking and queuing) for travel to the city center, and goods transport is not allowed on the cars, which precludes its use by some informal sector participants.⁶⁶ Nonetheless, the provision of infrastructure specifically designed to enhance the mobility of the urban poor illustrates that transport planning can run counter to the discourse of splintering urbanism.

Related, Low and Barnett warn that 'globalization' has become a "highly politicized discourse of prediction and projection which works to drastically foreclose the realm of choice, decision, responsibility and strategy", thereby leading to its establishment as "a grand narrative which justifies the end of all other narratives of social change."⁶⁷ Harrison adds that "the understanding of contingent outcomes is important as it challenges a notion implicit in much globalization discourse, namely that the emergent spatial order is an inevitable, natural outcomes of macro-forces."⁶⁸ Local stakeholders, including government, civil society and communities, must therefore be recognized as agents that have the potential to influence development processes, both positively and negatively, with the associated potential to resist planning that results in splintering urbanism. Contrasting Bangkok's *SkyTrain* and Delhi's metro with Medellín's *Metrocables*, for example, clearly shows that differing equity outcomes stemming from contemporary transport planning are possible. What is crucially needed is a framework both to identify the specific accessibility needs of the urban poor, that can similarly be used to inform and evaluate the vertical equity of transport and land-use planning processes.

64 CCA Course 3, *Medellín* (<http://ccacourse3.blogspot.com/2010/07/medellin.html>) [accessed 30 August 2011]

65 Brand and Dávila, "Mobility Innovation".

66 Ibid.

67 M. Low and C. Barnett, "After Globalization", *Environment and Planning D: Society and Space* 18, no. 1 (2000), 55.

68 Philip Harrison, "Fragmentation and Globalisation as the New Meta-Narrative", in *Confronting Fragmentation: Housing and Urban Development in a Democratising Society*, eds. Philip Harrison, Marie Huchzermeyer and Mzwanele Mayekiso (Cape Town: University of Cape Town Press, 2003), 17.

Chapter 3

Livelihoods Framework for Equitable Transport & Land-use Planning

For integrated transport and land-use planning to contribute to poverty reduction, there must be substantial incorporation of how such planning can serve to improve livelihoods of the urban poor, particularly in terms of associated accessibility needs. Such planning, when it occurs, should also be recognized as utilizing a paradigm not wholly focused on the creation of ‘world cities’ and attracting FDI. Related, Rakodi and Nkurunziza note that in Africa, “economic development has been held back ... not only by limited Foreign Direct Investment inflows, but also by capital flight and low-levels of domestic savings and investment,” and suggest that emphasis should be placed on supporting clusters and networks of small firms through the creation of “an environment conducive to enterprise, involving investment in infrastructure and human capital, as well as the development of an appropriate regulatory environment.”⁶⁹

This dissertation proposes the utilization and adaptation of a livelihoods framework—detailed in the current chapter—to identify the specific accessibility needs of the urban poor in Nairobi, particularly those participating in informal micro and small enterprise (MSE) sectors, and to determine whether proposed transport investments and land-use plans will create an environment conducive for such enterprises, or whether there is a risk of splintering urbanism.

3.1 Utilization of a Livelihoods Framework – Potentials and Constraints

Urban poverty research in the developing world in the 1990s resulted in the adaptation of rural livelihood development frameworks to urban settings, particularly through the adaptation of the Sustainable Livelihoods Approach (SLA).⁷⁰ SLA, as Rakodi notes, is a particularly powerful tool for “understanding and managing the complexity of livelihoods, enabling complementarities and trade-offs between alternative supporting activities to be assessed and providing a basis for identifying policy objectives and interventions.”⁷¹ Within such a framework, a livelihood is defined as comprising “the capabilities, assets (including both material and social resources) and activities required for a means of living.”⁷² A livelihood is considered sustainable “when it can cope and recover from stresses and shocks and maintain or enhance capabilities and assets both now and in the future”,⁷³ without “compromising the ability of future generations to meet their own needs”,⁷⁴ a broad conception which includes considerations for ecological, social and administrative sustainability.

In urban settings, households “construct their livelihoods both on the basis of the assets [Table 3.1] which are available to them”, within the broader socio-economic and spatial context.⁷⁵ Collectively, it is argued that these assets improve the well-being of a household directly by enhancing livelihood

69 Rakodi and Nkurunziza, “Globalization and Urban Centres”, 19-49.

70 Carole Rakodi, “A Livelihoods Approach – Conceptual Issues and Definition”, in *Urban Livelihoods: A People-centred Approach to Reducing Poverty*, eds. Carole Rakodi and Tony Lloyd-Jones (London and Virginia, USA: Earthscan Publications Ltd, 2002), 3.

71 Ibid., 4.

72 D. Carney, “Implementing the sustainable rural livelihoods approach”, in *Sustainable Rural Livelihoods: What Contribution can we Make?*, ed. D. Carney (London: Department for International Development, 1998), 4, quoted in Rakodi, “A Livelihoods Approach”, 3.

73 Caroline Moser and Andy Norton, *To Claim our Rights: Livelihood Security, Human Rights and Sustainable Development* (London: Overseas Development Institute, 2001), 5.

74 Carole Rakodi, “A Livelihoods Approach”, 17.

75 Ibid., 8.

security, and indirectly by increasing the ability of households and communities to influence the policies and institutions that “govern access to assets and define livelihood options.”⁷⁶ Use of a livelihoods framework also requires a situational analysis (often termed a vulnerability analysis) that examines the context that these assets exist within, including the structures and processes that define livelihood options.⁷⁷

Table 3.1: Capital Assets in a Livelihoods Framework⁷⁸

| Asset Type | Description |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Human capital | Labor resources available to households, including the number of household members and their available time, as well as their education and skill levels and health status. |
| Social and Political Capital | Social resources available to households, including networks, groups, relationships of trust and reciprocity, and institutional support. |
| Physical Capital | Basic infrastructure, including transport, shelter, water, energy and communications, and the production equipment and means that enable pursuit of livelihoods. |
| Natural capital | Resource flows derived from natural resources that are useful to livelihoods, including land, water and other environmental resources. |
| Financial Capital | Financial resources, including savings, credit, remittances and pensions, which support different livelihood options. |

The use of SLA is not without drawbacks. Critics have noted that the approach focuses on “the technical nature of development” while overlooking “issues of politics, power and voice, and rights and empowerment.”⁷⁹ This critique has been addressed, to a degree, through the integration of a rights-based approach into the framework, particularly the key normative principles of: human freedom; equality; the multi-dimensional character of well-being; transparency, participation and empowerment; responsibility and accountability; and sustainability.⁸⁰ At the analytical level, Moser and Norton suggest that the livelihoods framework should incorporate how structures of power and authority influence the poor's livelihoods capabilities, particularly in terms of whether such structures enable the aforementioned normative principles.⁸¹ While structures of power extend beyond institutional frameworks (to include informal structures as well), Moser and Norton argue that the fulfillment of the poor’s economic and social rights occurs most substantially when regulatory frameworks recognize their obligations to all citizens, and particularly when such frameworks are operationalized through local institutions supportive of citizens claiming their rights.

With appreciation of rights-based inputs, and in recognition of the multidisciplinary strength of the livelihoods framework, the following section will focus on its adaptation for the purposes of this dissertation.

3.2 Adaptation of Livelihoods Framework

There are few published articles or guides on the adaptation of a livelihoods framework to integrated public transport and land-use planning. The principles for its use in generalized transport planning

76 Ibid., 11.

77 Moser and Norton, “To Claim our Rights”, 6.

78 Carney, “Implementing the sustainable”, 4, quoted in Rakodi, “A Livelihoods Approach”, 11.

79 Caroline Moser, “Assets and Livelihoods: A Framework for Asset-Based Social Policy”, in *Assets, Livelihoods, and Social Policy*, edited by Caroline Moser and Anis A. Dani (Washington, DC: The World Bank, 2008), 55.

80 Moser and Norton, “To Claim our Rights”, 20.

81 Ibid., 21-25.

described by Booth et al⁸² and Sohail⁸³ are, however, important contributions, as are the inputs from Payne⁸⁴ and Brown et al⁸⁵ on the impacts of tenure, shelter and spatial planning (all of which affect location) on urban livelihoods.

In terms of capital assets, affordable public transport (as a physical asset) allows the poor to access livelihood opportunities, as well as other assets that support improved livelihood strategies, such as schools and clinics (supporting human assets), financial institutions (financial assets),⁸⁶ and social networks and institutions of influence (social and political assets).⁸⁷ Less considered, but also important is public transport's role, as a physical asset, in directly employing individuals in its operations, transporting goods for informal enterprises and improving accessibility to spaces for informal trading.^{88,89} Efficient public transport (that is locationally accessible and affordable for the urban poor) also allows individuals and households more time (a human asset) for engaging in productive activities.⁹⁰

In terms of land-use considerations, residential location functions as an important physical asset, particularly when residences are near to livelihood opportunities or near to affordable and efficient public transport that provides access to livelihoods and other capital assets.⁹¹ Shelter itself can also function as a site for livelihoods, with the quality of such livelihoods often dependent on where shelter is located.⁹² Reflecting the importance of enterprise clustering, Brown et al note that "economic activities in urban areas benefit from the spatial proximity of large markets, economies of scale and the aggregation economies that ensure plentiful supplies of labor, services and finance",⁹³ suggesting that livelihood locations function as an important physical asset for access to other assets, including social capital.

Within the word limitations of this study, it is not possible to utilize the livelihoods framework in its broadest conception, as outlined above. To focus its use, this dissertation focuses only on public transport users (actual or potential), and not on those employed in the transport sector. There is also the assumption that an accessible, affordable and efficient public transport system would provide improved physical access to a range of services within a city. While individuals' specific abilities and resources to utilize these services and institutions vary, the potential for integrated transport and land-use planning to address such constraints is minimal in comparison to the need for inclusivity in social, educational and financial policies and practices; such an analysis, though part of the definition of accessibility, is beyond the remit of this dissertation.

82 David Booth, Lucia Hanmer and Elizabeth Lovell, "Poverty and Transport", *report prepared for the World Bank in collaboration with DFID* (London: Overseas Development Institute, 2000).

83 Sohail, "Sustaining Livelihoods".

84 Geoffrey Payne, "Tenure and Shelter in Urban Livelihoods", in *Urban Livelihoods: A People-centred Approach to Reducing Poverty*, eds. Carole Rakodi and Tony Lloyd-Jones (London and Virginia, USA: Earthscan Publications Ltd, 2002).

85 Brown and Lloyd-Jones, "Spatial Planning".

86 Booth, et al, "Poverty and Transport", 16.

87 Sohail, "Sustaining Livelihoods", 12.

88 Brown and Lloyd-Jones, "Spatial Planning", 197-198.

89 Sohail, "Sustaining Livelihoods", 13.

90 Brown and Lloyd-Jones, "Spatial Planning", 188.

91 Ibid., 191.

92 Payne, "Tenure and Shelter", 151.

93 Brown and Lloyd-Jones, "Spatial Planning", 191.

The use of a livelihoods framework is therefore adapted in Table 3.2 for use in examining those needs related to public transport, and livelihood and residential locations. In this framework, which will be applied to the case of Nairobi, considerations for rights will focus on whether transport and land-use planning in the city has sought to substantively identify and incorporate the accessibility needs of the urban poor and whether the poor have direct input into planning processes. The four key components of accessibility are still integrated to varying degrees within the framework, as evidenced in the adaptation of the framework below.

Table 3.2: Adaptation of Livelihoods Framework to the Livelihoods-related Accessibility Needs of the Urban Poor

| Asset Type | Description |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Human capital | Productivity time available to individuals and households, particularly in terms of time saved in traveling (either because of residential proximity to livelihood opportunities, or due to the availability of accessible, affordable and efficient public transport). |
| Social and Political Capital | Social resources supportive to MSEs, particularly in terms of land-uses that support cluster-based enterprise formation, and public transport systems that support networking of MSEs. |
| Physical Capital | Public transport, and secure shelter and livelihood locations that enable pursuit of improved livelihoods, particularly when delivered through integrated public transport and land-use planning. |
| Natural capital | Accessible land that is supportive of urban agriculture. |
| Financial Capital | Access to financial services is not analyzed specifically within this dissertation. |

Situational Analysis of the Urban Poor in Nairobi

As noted, the application of a livelihoods framework in a particular context requires a situational analysis of the urban poor, including how structures influence access to livelihoods and related assets. Simon argues that to understand Nairobi, or any other primate city in Africa, it is necessary to form an understanding of its political economy over time, as structural influences have been key to shaping spatial and economic development,⁹⁴ both of which substantially influence livelihood options and assets. This chapter therefore examines the structural influences that have influenced Nairobi's spatial form and livelihood base, with a particular focus on impacts affecting the urban poor from evolutionary processes spanning the colonial era to the contemporary period.

4.1 Unequal Development during the Colonial and Post-Independence Eras

Colonial cities of sub-Saharan Africa were typically designed with the aim of facilitating business and maintaining the lifestyles of European residents, with land-use planning employed specifically for this purpose to the detriment of the indigenous population,^{95,96} thus marking the onset of accumulation by dispossession. Nairobi's colonial history matched such a characterization. The city was established following the decision by the Ugandan Railways Company to relocate its headquarters from Mombasa to the current site of Nairobi in 1899, resulting in the settlement's growth as a commercial and business hub.⁹⁷ The 1899 town plan only considered the land-use and housing needs of Europeans and of Asian traders, setting into motion early segregation and exclusion, particularly of Africans.⁹⁸ Matched with European-led land expropriation in areas close to Nairobi there was a concomitant early growth of informal settlements in the city.⁹⁹

Nairobi's 1948 Master Plan formalized the emerging segregated spatial form of the city. Racial zoning was justified as a means to "achieve a disease free environment with a minimum of public expenditure",¹⁰⁰ with official segregated designations for African, Asian and European residential areas (Figure 4.1). The livelihood base was similarly segregated, with Europeans controlling Nairobi's administrative and industrial resources,^{101,102} the Asian population primarily concentrated in trading

94 David Simon, *Cities, Capital and Development: African Cities in the World Economy* (London: Bellhaven Press, 1992), 4.

95 Carole Rakodi, "Globalization trends", 322.

96 David Harvey, "The Right to the City", *New Left Review* 53 (2008), 33-34.

97 O.A. K'Akumu, W.H.A. Olima, "The Dynamics and Implications of Residential Segregation in Nairobi", *Habitat International* 31 (2007), 90.

98 Tom Anyamba, "Informal Urbanism in Nairobi", *Built Environment* 37, no. 1 (2011), 57.

99 M.M. Majale, "Origins of Nairobi's Informal Settlements", *Vijijini Newsletter – Nairobi* (2000), 4, quoted in Rose Gatabaki-Kamau and Sarah Karirah-Gitau, "Actors and Interests: The Development of an Informal Settlements in Nairobi, Kenya", in *Reconsidering Informality: Perspectives from Urban Africa*, eds. Karen Tranberg Hansen and Mariken Vaa (Spain: Grafilur Artes Graficas, 2004), 162.

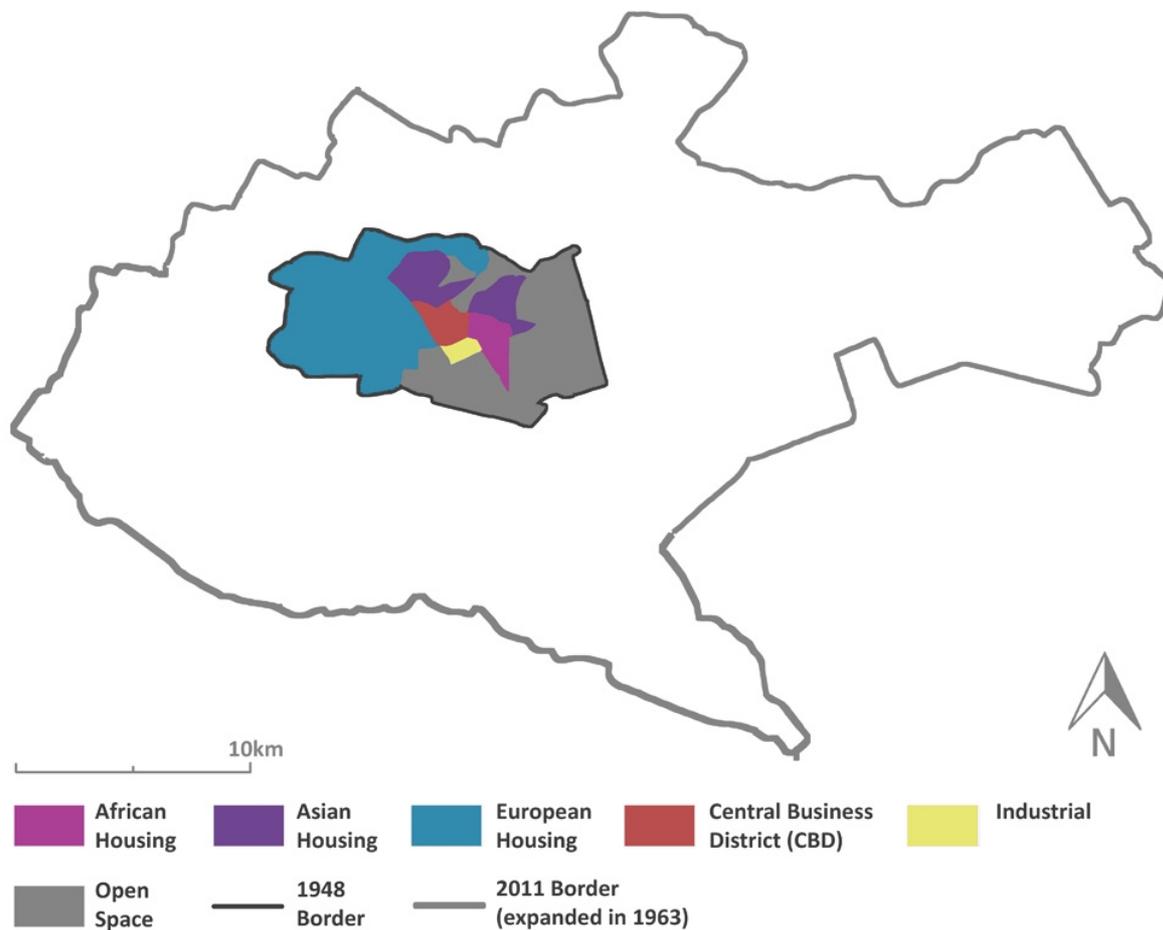
100 Gatabaki-Kamau and Karirah-Gitau, "Actors and Interests", 159.

101 Kefa M. Otiso and George Owusu, "Comparative Urbanization in Ghana and Kenya in Time and Space", *GeoJournal* 71 (2008), 148.

102 Bethuel Kinyanjui Kinuthia, "FDI Determinants and its Impact on Economic Growth: A Comparative Study Between Kenya and Malaysia", in *Proceedings of the International Conference on International Business*, ed. Vasileios A. Vlachos (Thessaloniki, Greece: 22-23 May, 2010), 149.

and primary processing,¹⁰³ while the African population was “mostly relegated to domestic, menial and clerical jobs”, with their residence in the city considered temporary.¹⁰⁴

Figure 4.1: Racial Segregation in Nairobi's 1948 Master Plan¹⁰⁵



Public housing provision for Africans, which was inadequate in numbers, focused on delivery of one-room “bachelor bed spaces” for men, primarily in Eastern Nairobi.¹⁰⁶ With the African population rising 174 percent between 1948 and 1962,¹⁰⁷ largely due to continued rural land expropriations,¹⁰⁸ there was the continuation of informal settlement establishment and densification in areas close to employment opportunities, particularly the Central Business District and industrial area, as well as at the periphery of European residential areas.¹⁰⁹

103 Dorothy McCormick, Mary Njeri Kinyanjui and Grace Ongile, “Growth and Barriers to Growth Among Nairobi’s Small and Medium-Sized Garment Producers”, *World Development* 25, no. 7 (1997), 1096.

104 Otiso and Owusu, “Comparative Urbanization”, 148.

105 Adapted from a sketch in the 1948 Master Plan, as shown in: Pamoja Trust, *An Inventory of Nairobi Slums* (Nairobi: Pamoja Trust, 2006).

106 Laban U. Shihembetsa and Washington H.A. Olima, “The rationalisation of residential densities in an inner city area of Nairobi”, *Habitat International* 25 (2001), 293.

107 *Ibid.*, 293.

108 A. Hake, *African Metropolis: Nairobi’s Self-help City* (London: Chatto and Windus, 1997), 53, quoted in Anyamba, “Informal Urbanism”, 57.

109 Philip Amis, “Urban Poverty in East Africa: Nairobi and Kampala’s Comparative Trajectories”, in *African Urban Economies: Viability, Vitality or Vitiating?*, eds. Deborah Fahy Bryceson and Deborah Potts (New

When Kenya achieved independence in 1963, accumulation by dispossession did not end, given that decolonization was marked by co-optation in order to ensure that the new elite were able to govern in-line with inherited colonial political structures and systems.¹¹⁰ Racial residential zoning, for example, was replaced by socio-economic segregation, with the elite continuing to have preferential access to land and housing, including when the city's borders were expanded greatly from 82km² to 690km² at independence.^{111,112} The continuation of land and housing inequalities was significant, given that with the lifting of migration restrictions to urban areas, Nairobi's population more than doubled from 345,000 in 1963 to 800,000 in 1979.¹¹³

Population growth accompanied economic expansion, with Nairobi remaining dominant nationally and regionally in industrial intensification and diversification.¹¹⁴ The city's primate status and mono-centric urban form were therefore solidified, with growing employment in the civil society, commerce, service and industrial sectors concentrated within or close to Nairobi's CBD.^{115,116} To direct further industrial growth, Nairobi enacted the *Metropolitan Growth Strategy of 1973*, a master plan that focused on decentralizing industrial growth through the creation of satellite centers. The plan was largely ineffective, due to "poor articulation of the statutory rules and regulations governing planning systems and plan implementation" as well as inadequate financial resources.¹¹⁷

Otisu and Owusu also note that planning frameworks were focused specifically on promoting 'modern development', and therefore unresponsive to the needs of the growing urban poor population.¹¹⁸ With continued inequalities in land and housing delivery, slums consequently expanded,¹¹⁹ as did slum evictions and demolitions, given that such settlements were not aligned with the 'modern' image of Nairobi that city authorities were attempting to project.¹²⁰ By the late 1970s, authorities began to recognize the limits of such actions, and site-and-service housing schemes and estates became more common,¹²¹ though such developments were generally poorly targeted, with significant 'leakage' to the middle class.¹²² Informal settlement dwellings therefore continued to increase rapidly, multiplying from 22,000 in 1972 to 111,000 in 1979.¹²³

York: Palgrave Macmillan, 2006), 172.

110 Nicky Nzioki, Catherine Kariuku and Jennifer Murigo, "Implementing Land Reform Policies in Eastern African Countries: The Case Study of Kenya", *Property Management* 27, No. 4 (2009), 270.

111 Gatabaki-Kamau and Karirah-Gitau, "Actors and Interests", 159.

112 Shihembetsa and Olima, "The rationalization", 293.

113 Ibid., 294.

114 Simon, "Cities, Capital and Development", 95.

115 R. A. Obudho, "Nairobi: National Capital and Regional Hub", in *The Urban Challenge in Africa: Growth and Management of its Large Cities*, ed. Carole Rakodi (Tokyo: United Nations University, 1997), 323.

116 Maurci Onyango Oyugi and Owiti A.K'Akumu, "Land Use Management Challenges for the City of Nairobi", *Urban Forum* 18, no. 1 (2007), 101.

117 Ibid.

118 Otiso and Owusu, "Comparative Urbanization", 145.

119 P.M. Ngau, *Informal Settlements in Nairobi: A Baseline survey of slums and informal settlements and inventory of NGOs and CBO activities: Technical Report 2* (1995), quoted in K'Akumu and Olima, "The Dynamics and Implications", 92.

120 Elizabeth Riley and Patrick Wakely, *Communication for Sustainable Urban Livelihoods: Final Research Report* (London: University College London – Development Planning Unit, 2003), 19.

121 Ibid., 19.

122 Ellen M. Bassett and Harvey M. Jacobs, "Community-based Tenure Reform in Urban Africa: The Community Land Trust Experiment in Voi, Kenya", *Land Use Policy* 14, no. 3 (1997), 217.

123 P.M. Ngau, "Informal Settlements", quoted in *Informal Settlements in Nairobi: A Baseline survey of slums and informal settlements and inventory of NGOs and CBO activities: Technical Report 2*, quoted in K'Akumu and Olima, "The Dynamics and Implications", 92.

Though Nairobi's economy expanded following independence, the formal livelihood sector was unable to absorb the rapidly growing population, resulting in expansion of the informal livelihood sector (estimated to have employed 20 percent of the city's labor force by 1972).¹²⁴ Given that planning operated with the assumption that 'modern' economic development should replace informal modes of production,¹²⁵ such livelihoods were also treated with antagonism, resulting in the demolition of sites where clusters of MSEs operated.¹²⁶

By the late 1970s, Kenya's economy endured several shocks, including declining global commodity prices beginning in 1976; the disbanding of the East African Community (EAC) common market in 1977 (which had given Kenyan firms preferential access to regional markets); and the global oil price shock of 1979.¹²⁷ Together, these shocks introduced a new era in Nairobi in which urban development became more intricately influenced by global structural processes.

4.2 Global-era Informalization

Zeleza argues that during the "prolonged periods of crisis in the capitalist world economy [of the late 1970s] ... [there were] intense social and spatial struggles ... over the reorganization of the disintegrating growth model and who [was] to bear the costs of constructing a new one."¹²⁸ The disintegrating growth model—Keynesian and state-centered economic development frameworks—were replaced by the current neo-liberal discourse, with a focus on privatization and market liberalization.¹²⁹ Structural Adjustment Programs (SAPs)—which consisted of a package of macroeconomic reforms to reduce government involvement in the economy, liberalize trade and currency markets, and encourage domestic and foreign investment¹³⁰—were implemented throughout the developing world in the 1980s, a process Zeleza argues shifted significant costs of the economic crisis to the politically and economically weak.¹³¹ Harvey argues that such measures, beyond just shifting costs, were also focused on opening new territories to global capital investment.¹³²

Beginning in 1979, Kenya entered into its first phase of SAP,¹³³ which resulted in high inflation and wage freezes in the formal sector, straining the ability of households to survive and sustain their standard of living.^{134,135} The enactment of the last phase of SAP reforms in the 1990s led to further formal sector retrenchments,¹³⁶ with some industrial sectors (such as the formal garment sector)

124 Kimuthia Macharia, "Tensions Created by the Formal and Informal use of Urban Space: The Case of Nairobi, Kenya", *Journal of Third World Studies* 24, no. 2 (2007).

125 Njeri Kinyanjui, "The Kamukunji Metalwork Cluster in Kenya", in *Knowledge Technology, and Cluster-Based Growth in Africa*, edited by Douglas Zihua Zeng (Washington, DC: World Bank Institute, 2008), 26.

126 Ibid., 26.

127 Damiano Kulundu Manda and Kunal Sen, "The Labour Market Effects of Globalization in Kenya", *Journal of International Development* 16 (2004), 30.

128 Paul Tiyaambe Zeleza, "The Spatial Economy of Structural Adjustment in African Cities", in *Sacred Spaces and Public Quarrels: African Cultural and Economic Landscapes*, eds. Paul Tiyaambe Zeleza and Ezekiel Kalipeni (Trenton, NJ and Asmara: Africa World Press, Inc., 1999), 45.

129 Harvey, "The New Imperialism", 157-158.

130 John Briggs and Davis Mwamfupe, "Peri-Urban Development in an Area of Structural Adjustment in Africa: The City of Dar es Salaam, Tanzania", *Urban Studies* 37, no. 4 (2000), 797-800.

131 Zeleza, "The Spatial Economy", 45.

132 Harvey, "The New Imperialism", 156.

133 Manda and Sen, "The Labour Market", 31.

134 Petronella W.K. Muraya, "Urban Planning and Small-Scale Enterprises in Nairobi, Kenya", *Habitat International* 30 (2006), 129.

135 Amis, "Urban Poverty", 170.

136 Obudho, "Nairobi", 309.

experiencing near elimination due to trade liberalization.¹³⁷ While the formal industrial sector began to recover after 2000, partially due to international trade agreements, such as the African Growth and Opportunity Act that allow duty-free imports to the developed world for some sectors,¹³⁸ the industrial sector has tended to hire a greater proportion of part-time and casual workers as a cost-reduction measure.¹³⁹

Reflecting a decoupling of population growth with economic growth, Nairobi's population expanded rapidly even with the onset of economic hardships, rising from approximately 828,000 in 1979 to 2.75 million in 2005,¹⁴⁰ with most of the growth occurring due to net in-migration.^{141,142} The population, post-2005, continued to increase at approximately 4 percent per annum.¹⁴³ With the formal sector unable to absorb any significant percentage of the increasing population, the urban poverty rate rose from 29 percent in 1992 to 49 percent in 1997, even as rural poverty rates stayed at a near constant during the same period.¹⁴⁴

Planning systems in Nairobi were unable to respond to the rapidly changing socio-economic environment. The City Council was abolished for nearly a decade (1983-1992) by then President Moi, who appointed a City Commission under presidential authority.¹⁴⁵ Linehan argues that this top-down governance structure in the city "opened the floodgates to economic liberalization and accelerated the collapse of the orderly planning and development."¹⁴⁶ Infrastructure deteriorated significantly due to the imposition of increased population densities, economic activities (including MSE operations) and traffic congestion on public systems that received little investment.¹⁴⁷

Growth of the Informal Livelihoods Sector and Slum Densification

The urban poor's adaptation strategies to economic stagnation and a lack of wage employment opportunities focused on increased smallholder urban agriculture production and MSE sectoral participation. By the late 1990s, approximately 150,000 households were involved in urban farming, often as a subsistence activity for the poorest residents.^{148,149} More striking, the informal MSE sector employed an estimated 80 percent of the labor force in 2009, and produced 90 percent of new jobs

137 Steve Daniels, *Making Do: Innovation in Kenya's Informal Economy* (San Francisco: Creative Commons, 2010), 18.

138 Bon Hendriks, "Urban Livelihoods and Institutions: Towards Matching Institutions for the Poor in Nairobi's Informal Settlements", *International Development Planning Review* 33, no. 2 (2011), 138.

139 Manda and Sen, "The Labour Market", 39.

140 W.H.A. Olima, "Dynamics and Implications of Sustaining Urban Spatial Segregation in Kenya – Experiences from Nairobi Metropolis", paper presented at the *International Seminar on Segregation in the City* (Cambridge, MA: Lincoln Institute of Land Policy, 25-28 July, 2001), 3, quoted in Republic of Kenya, "City of Nairobi", 9.

141 Bob Hendriks, "Urban Livelihoods", 120.

142 Republic of Kenya, "City of Nairobi", 8.

143 C.N. Mundia and M. Aniya, "Analysis of Land Use/Cover Changes and Urban Expansion of Nairobi City Using Remote Sensing and GIS", *International Journal of Remote Sensing* 26, no. 13 (2005), 2844.

144 World Bank, *Kenya – Inside Informality: Poverty, Jobs, Housing and Services in Nairobi's Slums* (Washington D.C.: World Bank, 2006), 14.

145 Denis Linehan, "Re-ordering the Urban Archipelago: Kenya Vision 2030, Street Trade and the Battle for Nairobi City Centre", *Aurora Journal* 2 (2008), 26-27.

146 *Ibid.*, 27.

147 John Howe and Deborah Bryceson, *Poverty and Urban Transport in East Africa: Review of Research and Dutch Donor Experience* (Washington D.C.: World Bank, 2000), 28.

148 D. Foeken and A.M Mwangi, "Farming in the City of Nairobi", *ASC Working Paper* 30 (Leiden, Netherlands: African Studies Center, 1998), quoted in Republic of Kenya, "City of Nairobi", 27.

149 Republic of Kenya, "City of Nairobi", 27.

annually,¹⁵⁰ underscoring its critical importance to the vast majority of Nairobi's residents in the global era.

The Government of Kenya increasingly recognized the importance of the informal sector, noting in its 1986 Sessional Paper No. 1 that the "the bulk of the work force will have to be productively employed in these [informal] activities."¹⁵¹ As Kinyanjui argues, however, there was a "mismatch between policy and the political will to implement it."¹⁵² For example, while the government announced plans in the early 1990s to construct additional markets and worksites in Nairobi for the informal sector,¹⁵³ the funds for many of these new markets never emerged, with much of the land stolen by political elites through land-grabbing processes, particularly during the Moi administration (ending in 2002).¹⁵⁴ Of those spaces developed, many lacked critical infrastructure, such as electricity and water.¹⁵⁵ Following political changes in 2002, national regulatory frameworks increasingly re-emphasized the need to support the informal sector,¹⁵⁶ though the political will at the local level to implement such frameworks was still regarded as problematic. For example, while the Ministry of Local Government directed local authorities to establish vending sites for informal traders in 2003,¹⁵⁷ in Nairobi, this resulted in a prolonged period of attempts to remove street traders from the CBD to more peripheral markets lacking space for all displaced traders or proper infrastructure.^{158,159}

The spatial growth of the city, including land and housing provision, consisted of similar inequalities. Between 1971 and 1995 the number of slums in Nairobi increased from 50 to 133, with rapid densification occurring during the 1980s and 1990s.¹⁶⁰ In the Huruma tenement district, for instance, there were over 1,600 dwelling units per hectare in 2007,¹⁶¹ compared to an average of 25 and 15 units per hectare in middle-income and upper-income areas, respectively (see Figure 4.2 for residential density comparisons).¹⁶² The majority of slum dwellings (92 percent) are owned by individuals living outside such settlements, who have acquired the land via corrupt arrangements with local authorities, and build units as rental income properties.^{163,164}

150 Republic of Kenya, *Kenya Economic Survey 2009* (Nairobi: Kenya National Bureau of Statistics, 2009), quoted in Daniels, "Making Do", 20.

151 Kenneth King, *Jua Kali Kenya* (Athens, Ohio: Ohio State University Press, 1996), quoted in Daniels, "Making Do", 19.

152 Kinyanjui, "The Kamukunji", 34.

153 Muraya, "Urban Planning", 132.

154 Linehan, "Re-ordering", 31.

155 Eliud Moyi and Peter Njiraini, "Misallocation of Workspaces for MSEs in Kenya: Some Lessons and Models", *KIPPRA Discussion Paper*, no. 53 (2005), 41-45.

156 Hendriks, "Urban Livelihoods", 139.

157 Winnie V. Mitullah, "Working Draft: A Review of Street Trade in Africa", a review commissioned by the *Women in Informal Employment Globalizing and Organizing* (Boston: Harvard University – Kennedy School of Government, 2004), 23.

158 *Ibid.*, 16-17.

159 Linehan, "Re-ordering", 28-34.

160 Mundia and Aniya, "Analysis of Land Use/Cover", 2834.

161 Marie Huchzermeyer, "Tenement City: The Emergence of Multi-Storey Districts through Large-Scale Private Landlordism in Nairobi", *International Journal of Urban and Regional Research* 31, no. 4 (2007), 715.

162 K'Akumu and Olima, "The Dynamics and Implications", 95.

163 World Bank, "Kenya – Inside Informality", 36.

164 Centre on Housing Rights and Evictions (COHRE), *Kenya – Rights to Housing and Water* (Submission to the United Nations Committee on Economic, Social and Culture Rights, November 2007), 27.

Figure 4.2: Comparison of Residential Density in Nairobi by Income¹⁶⁵



Given that the majority of the urban poor rely on walking as their principle means of accessing livelihoods,¹⁶⁶ slums located close to livelihood opportunities are favored by residents, with locational advantages capitalized into rent prices, irrespective of residential quality.¹⁶⁷ Kibera, for example, attracts the highest rents amongst Nairobi's slums due to its close proximity to the Central Business District,¹⁶⁸ even though the high level of density often leaves no additional space for water and sanitation infrastructure, meaning a high proportion of the population has no toilet within or close to their home.¹⁶⁹ With such market demands and protection from local authorities, structure owners therefore have little incentive to improve slum infrastructure.¹⁷⁰ The result is that an estimated 55 percent of Nairobi's population now lives on only 5 percent of the city's land,¹⁷¹ with 78 and 81 percent of slum-based households lacking access to electricity and piped water, respectively, leading the World Bank to conclude that Nairobi has some of the worst slums in sub-Saharan Africa.¹⁷²

More positively, the new national housing policy (2004) emphasizes "the need for slum upgrading through the provision of security of tenure, basic infrastructure and services [and] the incremental improvement of housing", along with encouragement for community and civil-society participation, along with compensation for loss of assets in the event of relocation.¹⁷³ The policy, however, does

165 Compilation of images composed from: Google Earth, *Satellite Imagery* (2011) [accessed 30 August 2011]

166 K'Akumu and W.H.A. Olima, "The Dynamics and Implications", 94.

167 Amis, "Urban Poverty", 172.

168 Ibid., 177.

169 Republic of Kenya, "City of Nairobi", 48.

170 World Bank, "Kenya – Inside Informality", 35.

171 K'Akumu and Olima, "The Dynamics and Implications", 87.

172 World Bank, "Kenya – Inside Informality", 35.

173 Alfred Omenya and Marie Huchzermeyer, "Slum Upgrading in the Complex Context of Policy Change: The Case of Nairobi", in *Informal Settlements: A Perpetual Challenge*, eds. Marie Huchzermeyer and Aly Karem (UCT Press: Cape Town, 2006), 304.

not substantively engage with the tenancy challenge in Nairobi, which has hampered the potential for city-wide upgrading. An ongoing pilot government upgrading project in a section of Kibera, for example, has encountered significant difficulties over charges that tenure arrangements did not adequately deal with the issue of ownership, as well as a lack of substantive community and civil society participation.¹⁷⁴

Dispersed Residential Growth in the Mono-Centric City

While there is continued densification of existing slums, Nairobi is also undergoing rapid peri-urban growth, fueled largely by a speculative property market, which itself is influenced by a lack of middle-income housing delivery in Nairobi¹⁷⁵ and a Kenya diaspora that sends more than KSH5 billion (US\$55 million) in remittances home per month.^{176,177} Peri-urban expansion in Nairobi occurs along transport corridors, particularly road links emanating from the city's core, reflecting the ongoing mono-centric concentration of employment within, or near to the CBD.^{178,179,180}

Residential development along northern and western road corridors often takes place through the sale and subdivision of coffee farms and other agricultural land,¹⁸¹ altering the local livelihood base.¹⁸² Rapid residential expansion is also occurring southward,¹⁸³ with property prices in Athi River more than doubling between 2008 and 2011.¹⁸⁴ In this semi-arid southern region of NMR, there are market pressures on ranchers and pastoralists to sub-divide and sell their land to developers,¹⁸⁵ thereby also producing local livelihood impacts.¹⁸⁶ Mundia and Murayama predict this pattern of urban growth to continue, based on their predictive spatial modeling through 2030 (Figure 4.3). There is evidence of the proliferation of new slums occurring in the rapidly developing peri-urban regions. A 2004 UN-HABITAT study found, for example, that 37 percent of residents in Mavoko council (primarily consisting of Athi River) were living in slums near to industrial areas.¹⁸⁷

174 COHRE, "Kenya – Rights to Housing", 22-26.

175 Obudho, "Nairobi", 317.

176 Simon, "Cities, Capital and Development", 98.

177 Victor Juma, "Foreigners to Drive Country's New Trade-Centred Diplomacy", *Business Daily (Kenya)*, 12 July 2011.

178 C.N. Mundia and M. Aniya, "Modeling and Predicting Urban Growth of Nairobi City Using Cellular Automata with Geographical Information Systems", *Geographical Review of Japan* 80, no. 12 (2007), 786.

179 Ferdinand Mwangela, "Thika Town, the New Nairobi Suburb", *The Standard*, 20 May 2010.

180 UN-HABITAT, *The State of African Cities 2010: Governance, Inequality and Urban Land Markets* (Nairobi, 2010), 168.

181 Jacqueline M. Klopp, "Towards a Political Economy of Transportation Policy and Practice in Nairobi", *Urban Forum*, online edition (June 2011), 7.

182 A.D.M. Thuo, "Community and Social Responses to Land Use Transformations in the Nairobi Rural-Urban Fringe, Kenya", *Field Actions Science Report* (2010), 2.

183 Allan Olingo, "Kajiado Prepares for Property Boom", *The Standard (Kenya)*, 23 March 2011.

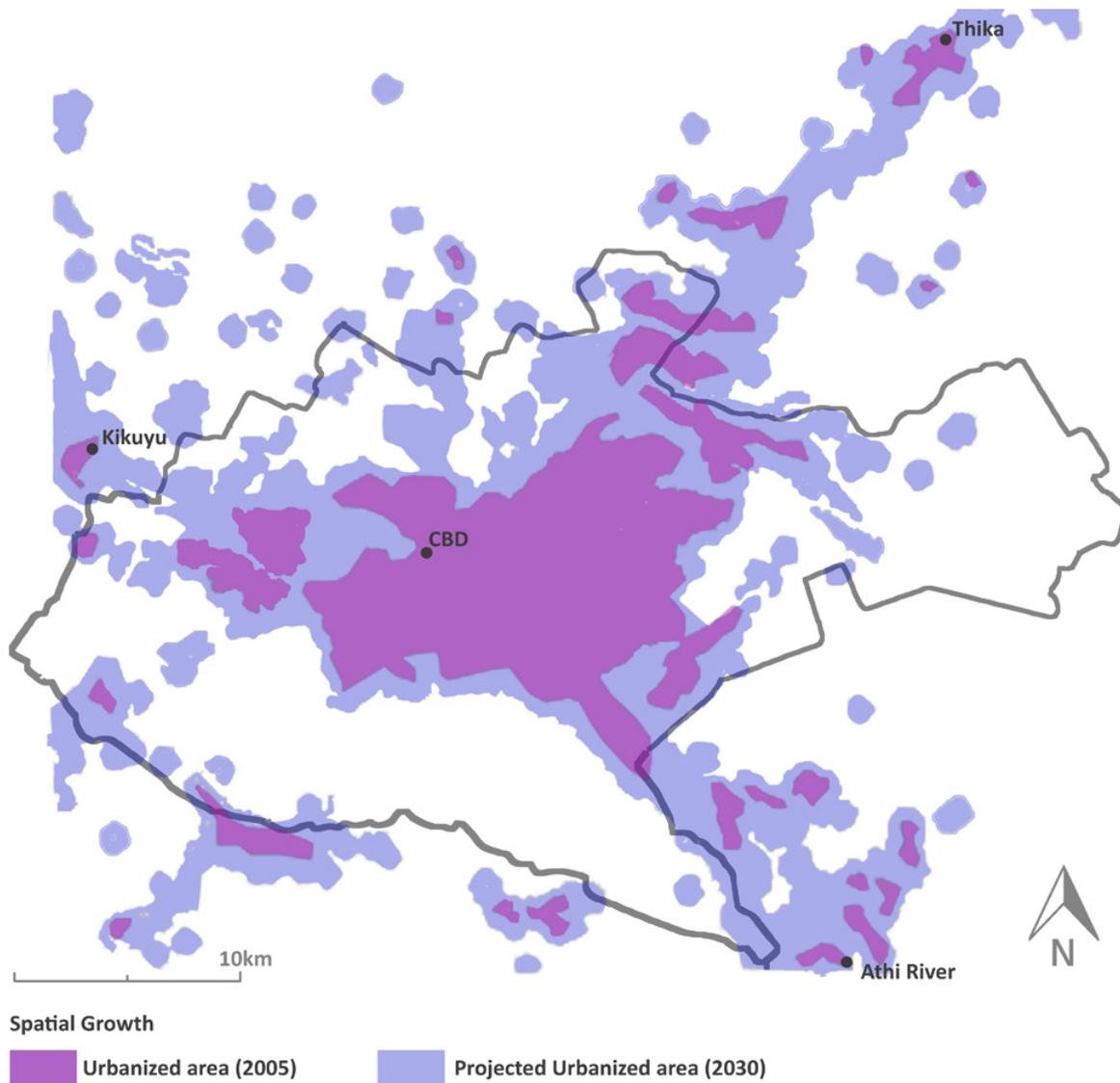
184 Ibid.

185 Kari Matu, "Kenya: Nairobi's Dilemma – Growing a Metropolis while Guarding Threatened Ecosystem", *Nairobi Star*, 6 July 2011.

186 Klopp, "Towards a Political Economy", 7.

187 UN-HABITAT, *Mavoko Urban Sector Profile* (Nairobi: UN-HABITAT - Rapid Urban Sector Profiling for Sustainability, 2006), 12.

Figure 4.3: Projected Spatial Growth of Nairobi¹⁸⁸



4.3 Urban Poor Situational Analysis Summary

What is clear from the above analysis of Nairobi is that economic and spatial development in the city has been associated with ongoing accumulation by dispossession processes, which began in the colonial era and continued post-independence, with planning and institutional frameworks continually prioritizing modernization objectives and the needs of the elite, to the detriment of the urban poor. With the onset of an economic recession in the late 1970s, the subsequent enactment of SAPs and a rapidly growing urban poor population, further informalization in the city became a near inevitable. Institutional frameworks during the global era, even when more responsive to the needs of the urban poor, were often not implemented fully, with corruption in the 1990s particularly impacting the equitable development of the city.

The growing urban poor population has increasingly turned to the informal livelihood sector as their key adaptation and survival strategy, while also increasingly residing in densifying slums that confer

188 Map adapted from information contained in: C.N. Mundia and Y. Murayama, "Modeling Spatial Processes of Urban Growth in African Cities", *Journal of Urban Geography* 31, no. 2 (2010), 268.

locational livelihood advantages, despite their significant quality-of-life deprivations. Institutional frameworks post-2002, while more responsive to the needs of the urban poor in theory, have often remained inadequate in practice, resulting in few large-scale measures to support improvements in the livelihoods or living conditions of the urban poor. In terms of assets, it is clear that the urban poor are constrained in all respects and generally unable to claim their rights through institutional frameworks. As the city continues to expand spatially, there is a real threat of the reproduction of accumulation by dispossession in peri-urban areas of NMR. The new 2010 Constitution and the reformation and renewal of urban planning frameworks therefore offer a key opportunity to address inequalities of the past and pursue more equitable development for the future, though such an outcome is not guaranteed.

Accessibility Status and Needs of the Urban Poor in Nairobi

The preceding urban poor situational analysis is extended in the current chapter to the urban poor's MSE-related accessibility status and needs. To conduct such an analysis, this chapter first provides a brief examination of existing public transport services in Nairobi. Following this, there is an identification of the primary livelihood typologies of the urban poor, with a subsequent evaluation of associated accessibility statuses and needs, concluding with appropriation of identified accessibility needs into a livelihoods framework.

5.1 Existing Public Transport Services

Economic stagnation in Nairobi during the 1980s and 1990s, inadequate planning, and public transport privatization combined with reduced infrastructure investments resulted in a public transport system that has little government control,¹⁸⁹ a significant occurrence given that 70 to 85 percent of all motorized trips in the city are undertaken on public transport.¹⁹⁰ Nairobi's public transport system currently consists of three privatized services: conventional passenger buses, operated by eight companies and carrying 17 percent of public transport passengers; paratransit buses (matatus), operated through a highly individualized ownership structure and carrying 82 percent of public transport passengers; and a very limited commuter rail service, operated through a private concession and carrying just 1.5 percent of public transport passengers.¹⁹¹

Matatus, while providing the majority of public transport services in the city, remain unaffordable to many of Nairobi's urban poor, particularly given that in 2004, 73 percent of slum residents were found to live on less than KSH106 (US\$1.40) per day.¹⁹² For urban poor households residing on the periphery of the city, however, matatus often function as a critical link to livelihoods.¹⁹³ The commuter rail line, though carrying a nominal number of passengers and offering only a limited schedule, has a flat fare of KSH20 (US\$0.22) per trip that makes it more cost-effective than matatus for those living in peripheral areas that have locational access to the system. Consequently, there is severe overcrowding on the limited number of trains (Figure 5.1).¹⁹⁴

Due to the overall inadequacy of public transport systems, many of the urban poor continue to reside in dense slums close to the CBD and industrial areas in NMR, where they can walk to access livelihood opportunities.¹⁹⁵ A World Bank survey of 4,375 individuals in Nairobi's slums found, for example, that 65 percent of the urban poor walk to work.¹⁹⁶ How the urban poor access and support the development of their livelihoods within such a context is explored further in the following sections, along with the identification of accessibility needs that could support improved livelihoods.

189 Howe and Bryceson, "Poverty and Urban Transport", 28.

190 A. Armstrong-Wright, "Public Transport in Third World Cities", *State of the Art Review* 10 (London: Department of Transport – Transport Research Laboratory, 1993), quoted in Howe and Bryceson, "Poverty and Urban Transport", 28.

191 African Development Fund, *Appraisal Report: Nairobi – Thika Highway Improvement Project* (Nairobi: African Development Bank, 2007), 7.

192 Deborah Salon and Sumila Gulyani, "Mobility, Poverty, and Gender: Travel 'Choices' of Slum Residents in Nairobi, Kenya", *Transport Reviews* 30, no. 5 (2010), 646.

193 *Ibid.*, 644.

194 African Development Fund, "Appraisal Report", 7.

195 Sclar, "Engaging complexity", 8.

196 Salon and Gulyani, "Mobility", 646.

Figure 5.1: Commuter Train from Embakasi to Nairobi Railway Station (NRS)¹⁹⁷



5.2 MSE-Related Accessibility Status & Needs

Primary Livelihood Typologies

In a 1999 baseline survey of MSEs in Kenya—which has not since been repeated—three primary urban MSE sector typologies were noted: 1) trading, comprising 67.4 percent of urban MSEs; 2) services, comprising 21 percent of urban MSEs; and 3) manufacturing, comprising 11.7 percent of MSEs.¹⁹⁸ The baseline survey’s MSE typology hierarchy corresponds to the findings in a more recent 2006 World Bank survey, in which it was found that: 74.5 percent of MSEs owned by slum-based households were involved in the trading and service sectors; 22 percent were involved in small manufacturing, construction or repair; and 0.9 percent were involved in farming and livestock (a fourth livelihood typology).¹⁹⁹ The Nairobi-specific data does not include data for other regions in NMR, where this dissertation has already noted there is substantial agricultural and livestock activity, as well as the establishment of new slums. The aforementioned survey data does indicate, however, the importance of considering the accessibility needs of these four MSE sector typologies (trading, services, manufacturing and agriculture) in NMR, as part of equitable and integrated public transport and land-use planning.

197 Photograph by Colin Hagans (2011).

198 CBS, ICEG and K-REP, *National MSE Baseline Survey 1999* (Nairobi: Central Bureau of Statistics, International Center of Economic Growth and Kenya Rural Enterprise Program, 1999), quoted in Moyi and Njiraini, “Misallocation of Workspaces”, 18.

199 World Bank, “Kenya – Inside Informality”, 31.

Urban Poor Accessibility Data

There is a scarcity of detailed data on the accessibility statuses and needs for participants in the four MSE sectoral typologies in Nairobi, a critical information gap that exists across the developing world due to inadequate travel survey methodology.²⁰⁰ This deficiency is also present in the travel survey contained within the Ministry of Transport-commissioned *Nairobi Mass Rapid Transit Feasibility Study* (detailed further in the following two chapters). While the study methodology notes the different socio-economic and livelihood compositions of respondents, it does not disaggregate survey findings based on these compositions (beyond linking income and willingness to pay), instead presenting only average values in terms of trip purpose and travel times,²⁰¹ indicating that planning in Nairobi has not sought to substantively identify the specific accessibility needs of the urban poor. Identification of such needs is therefore drawn from more fragmented and anecdotal evidence, with recognition of the limitations of such data.

MSE Spatial Distribution

As a first step in identifying the MSE-related accessibility needs of the urban poor in Nairobi, it is important to understand the spatial distribution of MSEs in the city. Gulyani and Talukdar, analyzing World Bank survey data, found that 59 percent of MSEs owned by slum-based households are operated outside the home (either in the same settlement, outside the settlement, or both), with 48 percent of MSEs selling in locations beyond the owner's settlement.²⁰² Such a split finding is clear from other surveys of MSEs in Nairobi. In Kibera slum, for example, a 1991 survey found that 80 percent of MSEs in the settlement were "found along paths and inside people's residences", with the remaining 20 percent located in markets.²⁰³ Meanwhile, there are an estimated 50,000 informal traders operating in, or near to Nairobi's CBD,²⁰⁴ indicating a large number of traders travel in and out of the city center each day. As described in the following sections, the specific accessibility needs for MSE sectors are generally related to location, while cross-cutting accessibility needs are more related to the availability of accessible, affordable and efficient public transport services.

Accessibility Needs Specific to the Trading, Services & Manufacturing MSE Sectors

Cluster-based manufacturing MSEs are often located beyond the homes of their owners, with many located near city and regional transport nodes in order to access a wider customer and market base, which reflects Gulyani and Talukdar's finding that MSEs whose owners operate outside their slum are less likely to be poor.²⁰⁵ For manufacturers in the dense Gikomba wholesale market, and in the Kamukunji metalwork cluster, their location close to the Machakos Country Bus Station—which serves locations throughout Kenya—allows their products to be distributed nationally.²⁰⁶ For example, an estimated 80 percent of wheelbarrows in Kenya are manufactured in the Kamukunji

200 P.R. Fouracre, M. Sohail, S. Cavill, "A Participatory Approach to Urban Transport Planning in Developing Countries", *Transportation Planning and Technology* 29, no. 4 (2006), 315.

201 Consulting Engineering Services, *Consultancy Services for Feasibility Study and Technical Assistance for Mass Rapid Transit System for the Nairobi Metropolitan Region: Final Report* (Nairobi: Republic of Kenya – Ministry of Transport, June 2011), 4.38 – 4.48.

202 Sumila Gulyani and Debrata Talukdar, "Inside Informality: The Links Between Poverty, Microenterprises, and Living Conditions in Nairobi's Slums", *World Development* 38, no. 12 (2010), 1713.

203 Joan C. Parker and C. Aleke-Dondo, "Kibera's small enterprise sector: baseline survey report", *K-REP Research Paper Series*, no. 1 (1991), quoted in Kenneth King, *Jua Kali Kenya: Change & Development in an Informal Economy – 1970-95* (Athens, Ohio: Ohio University Press, 1996), 50.

204 Winnie V. Mitullah, "Street Trade in Kenya: The Contribution of Research in Policy Dialogue and Response", paper presented at the *Urban Research Symposium on Urban Development for Economic Growth and Poverty Reduction* (Washington, DC: World Bank, 15-17 December 2003), 17.

205 Gulyani and Talukdar, "Inside Informality", 1721.

206 Daniels, "Making Do", 57.

metalwork cluster, which employs an estimated 5,000 artisans in 2,000 informal MSEs, on a site just over 10 hectares in size.^{207,208} The close proximity of MSE worksites to Nairobi’s formal industrial quarter also ensures the availability of raw materials needed for production.²⁰⁹

A number of trading markets are also located in close proximity to the Machakos Country Bus Station, which itself is in the same area as the central Nairobi Railway Station (NRS) and the main matatu terminal (Muthurwa) in the CBD (see Figure 5.3). King argues that “the notion that transport, population density, trade and production should be integrated is powerfully illustrated in this square mile of Nairobi”,²¹⁰ due to the intense spatial conglomeration of all these variables in one central location. The spatial clustering of MSEs also allows for inter-firm linkages between similar sectors, and between the trading, service and manufacturing sectors, with transport playing an important supportive role. McCormick, notes, for example, that amongst informal garment producers in Gikomba market, there are transporters with private trucks and handcarts “ready to be hired to take products to market or transport inputs from town.”²¹¹ Other markets in Nairobi are located along major transport routes (Figure 5.2), reflecting similar locational marketing advantages.

Figure 5.2: Existing Transport Routes and MSE Markets & Worksites²¹²



207 Kinyanjui, “The Kamukunji Metalwork”, 26-35.

208 Daniels, “Making Do”, 52.

209 Kinyanjui, “The Kamukunji Metalwork”, 33.

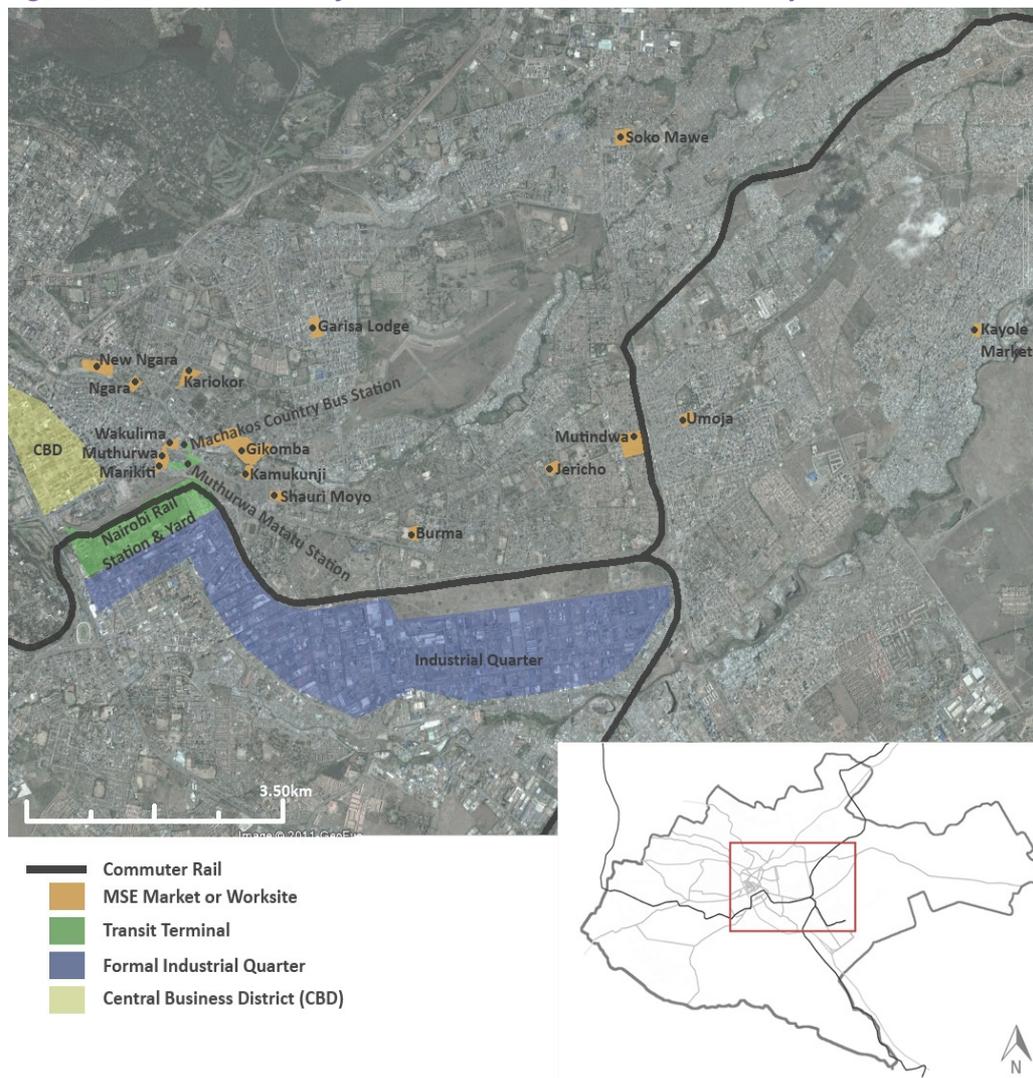
210 King, “Jua Kali Kenya”, 45.

211 Dorothy McCormick, “Enterprise Clusters in Africa: On the Way to Industrialisation?”, *Discussion Paper 366* (Nairobi: University of Nairobi - Institute of Development Studies, 1998), 13.

212 Map created with: 1) Railway line data from: Google Earth, “Satellite Imagery”; 2) Roads Data from: Spatial Information Design Lab, *Roads Nairobi* (New York, NY: Columbia University – Earth Institute, 2008); 3) List of Nairobi markets from: Mary Kinyanjui, “Social Relations and Associations in the Informal Sector in Kenya”, *Social Policy and Development Program Paper*, no. 43 (Geneva: United Nations Research Institute for Social Development, 2010), 13; 4) spatial data for market from wikimapia.org; and 5) visual confirmation for a sample of the sites.

There is intense competition for secure trading and production space in Nairobi (despite the general lack of supporting infrastructure in existing markets and worksites), resulting in severe overcrowding.²¹³ This overcrowding negates some of the benefits of enterprise clustering, by reducing protection of firm trade secrets.²¹⁴ Overall, 78 percent of urban MSEs in Kenya still have no access to a dedicated market stall or worksite outside their home,²¹⁵ indicating that provision of secure, serviced and adequately-sized markets and worksites in strategic locations (including close to transit nodes and formal industry) remains a critical need.

Figure 5.3: Concentration of Markets, Worksites, Transit, Industry & CBD²¹⁶



213 Eliud Moyi, Gloria Otieno, Irene Mumo and Eric Ronge, “Developing a Marketing Framework for Micro and Small Enterprises in Kenya”, *KIPPRA Discussion Paper*, no. 60 (Nairobi: Kenya Institute for Public Policy Research and Analysis, 2006), 8-9.

214 Kinyanjui, “The Kamukunji Metalwork”, 35.

215 Republic of Kenya, ICEG and K-REP, *National MSE Baseline Survey 1999* (Nairobi: Central Bureau of Statistics, International Center of Economic Growth and Kenya Rural Enterprise Program, 1999), quoted in Moyi and Njiraini, “Misallocation of Workspaces”, 50.

216 Map created with: 1) Railway data and satellite image from Google Earth, “Satellite Imagery”; 2) List of Nairobi markets from: Kinyanjui, “Social Relations”, 13; 3) spatial data for markets and transit terminals from wikimapia.org; and 4) visual confirmation for a sample of the sites.

Figure 5.4: Informal Agriculture, Informal Markets and Railway Land in Nairobi²¹⁷



Specific Accessibility Needs for the Smallholder Urban Agriculture Sector

Informal, smallholder urban agriculture in Nairobi generally takes place in “backyards, along roadsides, rivers and railways”²¹⁸ (see Figure 5.4). Housing conditions in most slums are far too dense to allow for urban agriculture, so slum-based households engaged in this sector rent plots on public land (informally) or on privately-owned land, often located far from

their settlement.²¹⁹ There are declining opportunities in this sector due to peri-urban land conversions,²²⁰ and most informal cultivation is technically illegal,²²¹ resulting in an absence of extension services and consequently low yields (further harming sustainability of the sector).²²² The government, however, developed the *Draft National Urban and Peri-Urban Agriculture and Livestock Policy* in 2010, with an aim to provide greater support.²²³

For the urban agriculture sector to move beyond functioning primarily as subsistence, survival strategy, critical accessibility needs include: 1) larger parcels of secure land, potentially comprised of sub-divided smallholder plots (providing easier access to limited extension services) and located close to transport corridors linked to residential and marketing areas; and 2) agricultural and livestock processing facilities and markets at key transport nodes, particularly peri-urban satellite centers.²²⁴

Cross-Cutting Accessibility Needs

Despite the recognized importance of production and marketing locations outside slums, residential location also remains important for MSEs. As Gulyani and Talukdar argue, “the neighborhood in

217 Photograph by Colin Hagans (2011).

218 A.M. Mwangi and D. Foeken, “Urban Agriculture, Food Security and Nutrition in Low-income Areas in Nairobi”, *African Urban Quarterly* 11 (2003), quoted in Republic of Kenya, “City of Nairobi”, 27.

219 D. Foeken and A.M. Mwangi, “The Impact of Urban Agriculture on the Household and Local Economies”, in *Growing Cities, Growing Food: Urban Agriculture on the Policy Agenda – A Reader on Urban Agriculture*, eds. N. Bakker, M. Dubbeling, S. Gundel, U. Sabel-Koschella, H. de Zeeuw (Feldafing, Germany: RUAF Foundation, 2000), 303.

220 Thuo, “Community and Social”, 4.

221 Republic of Kenya, “City of Nairobi”, 27.

222 Foeken and Mwangi, “The Impact of Urban Agriculture”, 309-311.

223 Republic of Kenya, *Draft National Urban and Peri-Urban Agriculture and Livestock Policy* (Nairobi: Ministry of Agriculture, 2010).

224 Obudho, “Nairobi”, 328.

which entrepreneurs reside determines the nature of their local customer base and their social and economic networks; and its location influences access to markets outside.”²²⁵ Related, residents living in slums that are more easily accessible, such as those close to the CBD (e.g. Kibera), have easier access to suppliers and a wider customer base, while those living in more peripheral locations are at a marketing disadvantage.²²⁶ Given the high rates of poverty in Nairobi, coupled with a poorly functioning and unaffordable transport system, residential location can therefore make a crucial difference to an MSE’s operations and profits. Related, there is an unwillingness of slum residents with insecure tenure to relocate to peri-urban areas, even when there is availability of secure tenure and improved infrastructure provision.²²⁷ These locational needs, combined with the historically and continuing inadequate infrastructure provision in Nairobi’s slums, therefore act as key constraints to the development of MSEs in Nairobi. Centrally-located residences could, however, potentially become less of a critical MSE-accessibility requirement if there was an accessible, affordable and efficient public transport system that would allow the urban poor to access livelihood opportunities further from their home, along with increased secure spaces for MSE trading and production in strategic locations.

Figure 5.5: Loading of Goods onto a Matatu in Nairobi²²⁸



Beyond providing access to livelihood opportunities, transport also facilitates the movement of resources and goods necessary for livelihood activities. Goods from wholesale markets, for example, are often transported via passenger matatus to markets and home-based MSEs (Figure 5.5).²²⁹ While sellers of agricultural produce generally utilize intermediary traders that have private transport, the sellers complain of high-costs of transport,^{230,231} which could potentially be reduced if there was less traffic congestion on major road corridors that connect markets with peri-urban production areas.

In terms of scheduling, transport of goods occurs at all times of the day, though transport of goods from wholesale markets to trading markets is generally heaviest early in the morning (5-6am), when road traffic is lightest,²³² which also corresponds with the daily start of the city’s trading activities.²³³

Therefore, there is a specific need for affordable transport services that allows for the movement of both traders and goods, particularly early in the morning, when markets open, and at night, when many markets close. As Sohail notes, increased informal sector livelihood participation throughout much of the developing world has also resulted in “[livelihood] diversification to reduce the risk of

225 Gulyani and Talukdar, “Inside Informality”, 1722.

226 Ibid., 1722.

227 Bob Hendricks, “The Social and Economic Impacts of Peri-Urban Access to Land and Secure Tenure for the Poor: The Case of Nairobi, Kenya”, *International Development Planning Review* 30, no. 1 (2008), 41.

228 Photograph taken by Colin Hagans (2011)

229 Nairobi Informal Trader, *Personal Interview* (28 July 2011).

230 Muraya, “Urban Planning”, 138.

231 Republic of Kenya, “Draft National” 6.

232 Nairobi Informal Trader, *Personal Interview* (28 July 2011).

233 Mitullah, “A Review of Street Trade”, 8.

loss of income from one source.”²³⁴ There is a need, therefore for public transport infrastructure and an accompanying fare structure that allows for affordable movements between multiple livelihood activities in differing locations, often within the same day.

5.3 Appropriation of Accessibility Findings into a Livelihoods Framework

Utilizing findings from the urban poor situational analysis, as well as the accessibility analysis, the critical MSE-related accessibility needs of the urban poor are organized into the livelihoods framework below (Table 5.1). Given the scope of this dissertation, and the complex definition of accessibility, the identified needs are diverse. Some needs may be more important than others, in terms of their potential progressive impact on the urban poor, though to determine the exact relationship would require a cost-benefit analysis that is beyond the scope of this dissertation. Importantly, what the livelihoods framework does allow for is a subsequent comparison of the urban poor’s accessibility needs with the potential distributive impacts of Nairobi’s proposed public transport and land-use plans (Chapter 7), in order to determine whether poverty reduction objectives have been substantially incorporated, or whether there is the risk of splintering urbanism.

Table 5.1: Livelihoods Framework – Nairobi Urban Poor Accessibility Needs Analysis

| Asset | Accessibility Needs |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Human Capital | <ul style="list-style-type: none"> • Accessible, affordable and efficient public transport services linking residential areas where the urban poor live (or could live), with livelihood opportunities, thereby allowing more time for productive activities. • Public transport schedules and fare structures attuned to the travel behavior and needs of the urban poor, including facilitating multiple trips per day. |
| Social & Political Capital | <ul style="list-style-type: none"> • Secure MSE marketing and production sites, with adequate space to allow for enterprise clustering, without overcrowding. • Clustered urban agriculture plots, with security of tenure and provision of extension. |
| Physical Capital | <ul style="list-style-type: none"> • Improved security of tenure at residential locations, with improved infrastructure provision. • Increased number of secure spaces for MSE trading and production, in strategic and accessible locations (including near formal industry and transit nodes), with improved infrastructure provision. • Accessible, affordable and efficient transport services, which accommodates movement of certain goods. |
| Natural Capital | <ul style="list-style-type: none"> • Improved security of tenure for urban agriculture and livestock cultivation/production spaces, to protect against land speculation as peri-urban areas become more accessible. • Improved land delivery mechanisms for urban agriculture in accessible locations. |
| Financial Capital | <ul style="list-style-type: none"> • Access to financial capital not examined specifically in this dissertation |

²³⁴ Sohail, “Sustaining Livelihoods”, 13.

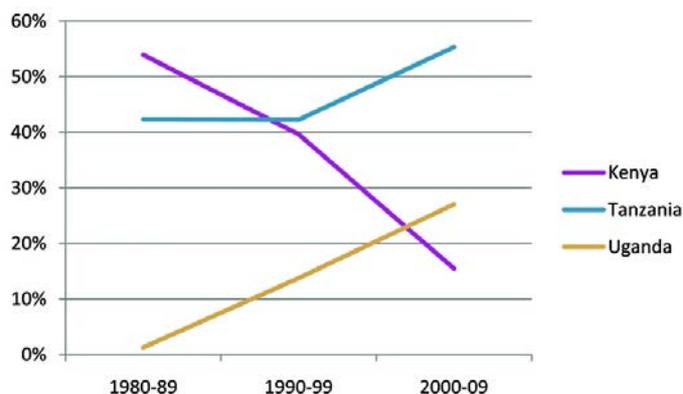
Identification of Key Objectives in Nairobi's Urban Planning

While Kenya's new constitution and reformation of planning frameworks in the country present a unique opportunity to better address the identified accessibility needs of the urban poor, such an outcome is not a given. There is a need for a fuller analysis of the extent of globalization's structural influences on Nairobi's planning processes, in order to determine what paradigm spatial and transport planning in the city is occurring under. To conduct such an analysis, the status of FDI in Eastern Africa and Kenya is examined, followed by an identification of the links between Nairobi's transport system and national economic competitiveness. Subsequently, there is an analysis of whether Nairobi's transport planning objectives are primarily focused on attracting FDI through enhancing urban efficiency and promoting 'world city' imagery, or whether there is also substantive incorporation of poverty reduction objectives in order to ensure vertical equity.

6.1 Increased Competition for FDI in East Africa

Nairobi is considered a regional city in the global city hierarchy, given its function as the "commercial, industrial, financial, educational and communication hub for Eastern and Central Africa."²³⁵ Regional cities have similar functions as world cities, but within a more restricted geographic region.²³⁶ Nairobi also hosts the global headquarters of the United Nations Environment Program and the United Nations Human Settlement Program, enabling Nairobi to "amass one of the highest concentrations of secretariats of international organizations in Africa, if not the world."²³⁷ Writing in 1992, Simon argued that "without this international administrative element and the associated business service sector ... Nairobi would have no potential at all to emerge as a future world city."²³⁸

Figure 6.1: FDI Inflows to Kenya, Tanzania and Uganda (as % of decade totals to EAC)



In the new millennium, however, even Nairobi's regional city status appears to be eroding. FDI inflows to Kenya, as a percentage of inflows to the East African Community (EAC)²³⁹ have fallen significantly over the past three decades, declining from a total of 54 percent between 1980 and 1989, to just 15 percent between 2000 and 2009.²⁴⁰ Both Uganda and Tanzania have overtaken Kenya in attracting regional FDI inflows, particularly in the last decade (Figure 6.1),²⁴¹ with Kenyan firms

"increasingly relocating to Uganda and Tanzania, implying that Kenya is losing its competitiveness to

235 Otiso and Owusu, "Comparative Urbanization", 153.

236 Rakodi, "Globalization trends", 329.

237 Otiso and Owusu, "Comparative Urbanization", 153.

238 Simon, "Cities, Capital and Development", 89.

239 The EAC, resurrected in 2000, consists of Burundi, Kenya, Rwanda, Tanzania and Uganda.

240 United Nations Conference on Trade and Development (UNCTAD), *UNCTADstat*

(<http://unctadstat.unctad.org>) [accessed 29 June 2011].

241 Ibid.

neighboring countries.”²⁴² If Kenya had maintained the same regional dominance as it did during the 1980s, it would have received US\$4.55 billion in FDI inflows between 2000 and 2009, a difference of US\$3.22 billion against actual figures, signifying the financial incentive Kenya has to reclaim its regional economic dominance.

Reclamation of regional dominance in attracting FDI is a particularly strong policy driver, considering opportunities associated with new African trade blocks that have the potential for attracting investment from firms aiming to serve regional African markets.²⁴³ The EAC common market protocol, signed in July 2010, will allow for free movement of goods, capital, labor and services across member states,²⁴⁴ while the planned free trade zone between the EAC, the Southern African Development Community (SADC) and the Common Market for Eastern and Southern Africa (COMESA), signifies an acceleration of regional trade and market opportunities.²⁴⁵ There is the risk, however, that new investment opportunities will be lost to regional competitors, unless Kenya can re-establish its competitive advantage.

6.2 Link between Kenya’s Reduced Competitiveness and Inadequate Public Transport

Inadequate public transport has emerged as one of the key factors reducing Nairobi’s, and therefore Kenya’s, regional competitiveness. In a 2006 Kenyan industry survey, for example, it was found that amongst the most important factors negatively impacting competitiveness—which included political instability, corruption, and an ineffective bureaucracy—was a lack of adequate infrastructure (including public transport).²⁴⁶ Related, a 2010 survey of 56 firms operating in NMR found that unreliable infrastructure (including transport) was one key reason for low FDI inflows.²⁴⁷

The perception of Nairobi’s inadequate transport systems hindering the country’s economic development appears to be grounded in reality, primarily due to increasing traffic congestion as a result of the inefficiency of the matatu transport system,²⁴⁸ and the continued concentration of economic activities in central Nairobi along with increasing peri-urban residential growth and private motorization that causes congestion along main road corridors.²⁴⁹ The Government of Kenya estimates that the economic impacts of traffic congestion in Nairobi, measured in the costs of petrol alone, amount to KSH75 million (US\$833,000) per day.²⁵⁰ In a review 16 major intersections in Nairobi conducted by the Kenya Institute for Public Policy Research and Analysis, it was found that traffic congestion at such intersections reduces Kenya’s annual GDP by 1.79 percent.²⁵¹

Time devoted to daily commuting, estimated at an average of 90 minutes per day for Nairobi residents,²⁵² and 2.5 hours per day specifically for matatu users,²⁵³ is predicted to worsen further if existing conditions are not changed, with peak morning traffic flows into the CBD projected to fall

242 Kenya Institute for Public Policy Research and Analysis, “Attracting Foreign Direct Investment into Kenya”, *Policy Brief* 15 (2006), 1.

243 Victor Juma, “Foreign companies triple investment in key industries”, *Business Daily (Kenya)*, 15 July 2011.

244 Allan Olingo, “East Africa Region’s Real Estate Prospects Beckon”, *The Standard (Kenya)*, 13 July 2011.

245 Mail and Guardian, “Southern, Eastern Africa Move to Free Trade Zone”, *Mail and Guardian (South Africa)*, 11 June 2011.

246 Kenya Institute for Public Policy Research and Analysis, “Attracting Foreign Direct Investment”, 2.

247 Kinuthia, “FDI Determinants”, 163-168.

248 Sclar, “Engaging complexity”, 8.

249 African Development Fund, “Appraisal Report”, 7.

250 Republic of Kenya, “City of Nairobi”, 42.

251 Kenya Institute for Public Policy Research and Analysis, “Organising Urban Road”, 5.

252 *Ibid.*, 4.

253 Howe and Bryceson, “Poverty and Urban Transport”, 63.

from an already low 8.3km per hour to only 2.1km per hour in 2025.²⁵⁴ Related, the Government of Kenya suggests that Nairobi's ascent into a "World Class African Metropolis" will not occur "unless traffic congestion is arrested",²⁵⁵ signaling that the 'world city' paradigm has substantial influence on Nairobi's spatial and transport planning processes.

6.3 Impact of Competition for FDI on Kenya's Planning Frameworks

In 2007, the Government of Kenya released *Kenya Vision 2030*, a visioning framework to guide future social, economic and spatial planning in the country, with a goal of generating 10 percent annual growth in GDP.²⁵⁶ In 2008, the Ministry of Nairobi Metropolitan Development (MoNMD) was established, which subsequently released a specific visioning document for the city (in line with *Kenya Vision 2030*), entitled *Nairobi Metro 2030: A World Class African Metropolis*.^{257,258} The quest to attain world city status in Nairobi is unsurprising, given the competition for FDI inflows noted earlier. In 2010, MoNMD contracted Consulting Engineering Services (CES), an India-based firm, to develop a new spatial plan for Nairobi, which will replace the 1973 Master Plan that lapsed in 2000. The Ministry of Transport had previously chosen CES (in 2009) to undertake the *Mass Rapid Transit Feasibility Study* for Nairobi, thereby underscoring the importance of improved transport provision in Nairobi's new planning frameworks.

In April 2011, MoNMD released the CES-prepared *Nairobi Draft Spatial Plan*. With Nairobi continuing its primate status in Kenya, the plan predicts that the "NMR economy will have to be stimulated to grow by 15 percent per year" in order for Kenya to achieve GDP growth rates of 10 percent per year.²⁵⁹ To achieve this growth, the draft proposes that Nairobi be developed as a "world class city in facilities and convenience", including through the development of "world class" physical and social infrastructure that will enable the city to be competitive with other international cities in attracting investment.²⁶⁰ New transport infrastructure and public transport systems form a substantial portion of the plan, and are regarded as crucial for "ensuring efficient functioning of the economy."²⁶¹ Transport planning, including planning for new public transport systems, is therefore inextricably linked to the objective of transforming Nairobi into a competitive, efficient and world-class city.

Upgraded and expanded transport is also determined necessary for supporting the future spatial structure of NMR, which is proposed as a decongested, polycentric urban form, with industrial activities shifted to sub-regional centers in NMR, and Nairobi functioning as an administrative zone supported by "specialized and world class facilities."²⁶² The plan therefore calls for the development of a multimodal transport system in NMR connecting these various centers, including through an expanded road network, and a 170km mass rapid transit (MRT) system consisting of Bus Rapid

254 Eric J. Gonzales, Celese Chavis, Yuwei Li, and Carlos F. Daganzo, *Working Paper: Multimodal Transport Modeling for Nairobi, Kenya: Insights and Recommendations with an Evidence-based Model* (Berkeley, CA: UC Berkeley Center for Future Urban Transport, 2009), 19.

255 Republic of Kenya, *The Nairobi Metropolitan Region (NMR) Traffic Decongestion Program* (Nairobi: Republic of Kenya, 2010), 2.

256 Daniels, "Making Do", 20.

257 Sclar, "Engaging complexity", 9.

258 Republic of Kenya, *Nairobi Metro 2030: A World Class Metropolis* (Nairobi: Ministry of Nairobi Metropolitan Development), cover page.

259 Consulting Engineering Services, *Development of a Spatial Planning Concept for Nairobi Metropolitan Region: Draft Plan* (Nairobi: Ministry of Nairobi Metropolitan Development, April 2011), 3.5.

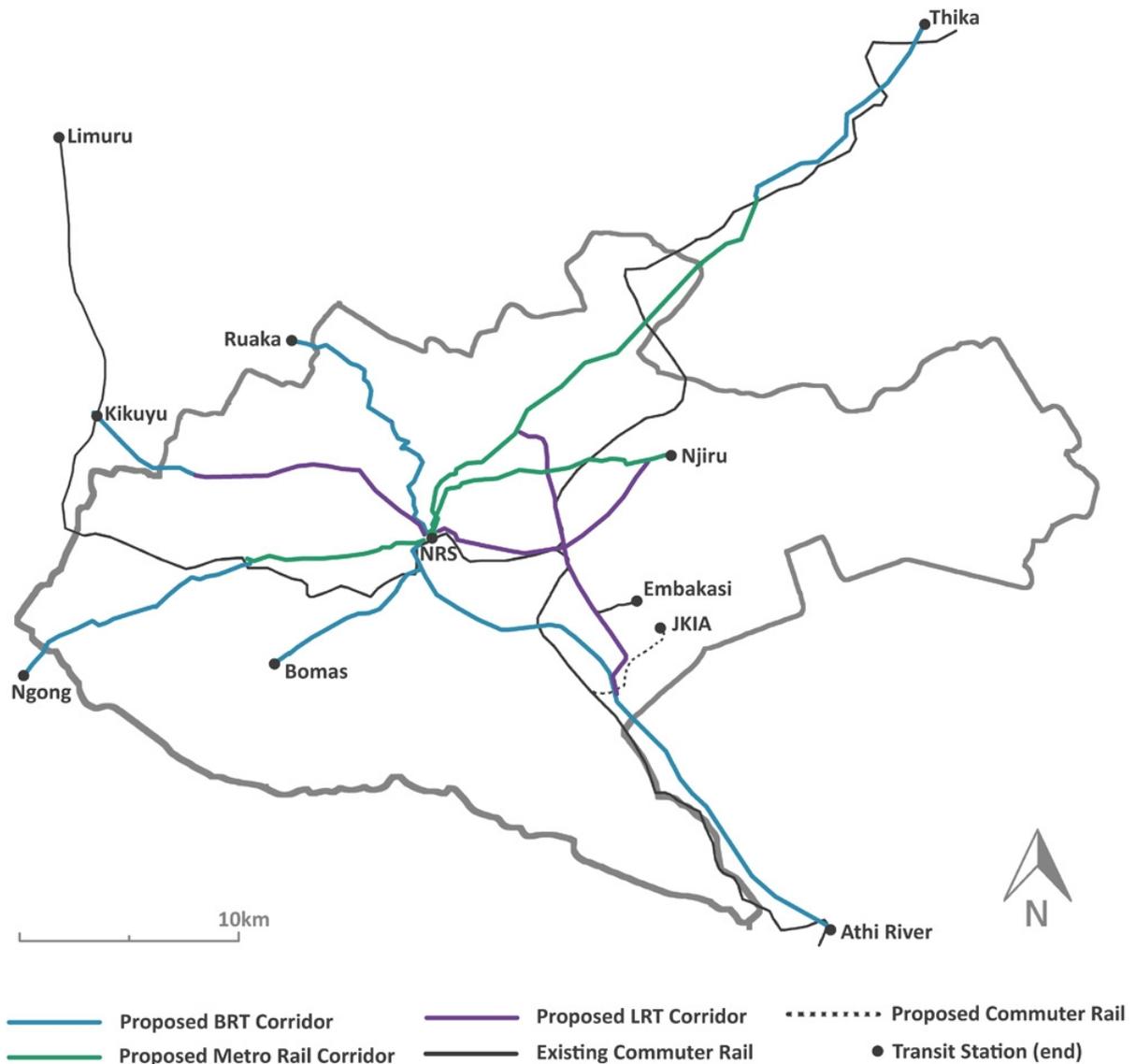
260 Ibid., 2.8.

261 Ibid., 7.9.

262 Ibid., 8.8.

Transit (BRT), Light Rail Transit (LRT), (heavy) metro rail, and an upgraded and expanded commuter rail line (Figure 6.2).²⁶³

Figure 6.2: Proposed Mass Rapid Transit (MRT) System²⁶⁴



In the quest to achieve world city status, the visioning frameworks and spatial plan have focused comparatively little attention on the needs of the informal sector. The Society for International Development notes, for example, that *Kenya Vision 2030* expects nearly all informal sector growth to be formalized, without providing a “credible process or a set of reasons” of why such a shift would occur,²⁶⁵ particularly given that, as mentioned, the informal sector currently produces 90 percent of all new jobs annually in Nairobi. The *Nairobi Metro 2030* vision operates with a similar paradigm,

263 Consulting Engineering Services, “Consultancy Services for Feasibility Study”, 7.1.

264 Map adapted from information contained in: Consulting Engineering Services, “Consultancy Services for Feasibility Study”.

265 Society for International Development, *Kenya’s Vision 2030: An Audit from an Income and Gender Inequalities Perspective* (Nairobi: SID Regional Office, 2010), 13.

stating that “*Vision 2030* aims to raise earnings by giving the large informal sector opportunities to transform itself into a part of the formal sector that is efficient, multi-tiered, diversified in product range and innovative”,²⁶⁶ without an accompanying recognition of the innovative and efficient processes that the informal sector in Nairobi already possesses. The *Nairobi Draft Spatial Plan*, informed by the visioning frameworks, therefore states that the number of formally-registered MSEs in the city should increase by at least 25 percent per annum.²⁶⁷

Substantive input from residents, including from the urban poor, in Nairobi's planning processes can be considered weak. The *MRT Feasibility Study*, as already noted, failed to substantively identify accessibility needs specific to the urban poor in its travel survey. The *Nairobi Draft Spatial Plan* notes that 65 stakeholders were interviewed, with 22 stakeholder organizations completing a questionnaire. The list of stakeholders consulted is dominated by ministries, parastatals, financial institutions and local authorities.²⁶⁸ While input from urban authorities is important, conspicuously absent are civil society and community-based organizations that work with, or are comprised of, the urban poor, such as Pamoja Trust (supports community-led slum upgrading), Muungano wa Wanavijiji (a national community-based savings federation), the National Cooperative Housing Union (NACHU - a national not-for-profit microfinance institution supporting housing delivery for the urban poor through cooperative societies), or MSE associations, such as the Kenya National Alliance of Street Vendors and Informal Traders. The lack of participation from and input of the urban poor suggests that institutional mechanisms to improve access to livelihood assets, as a result of planning in Nairobi, will be inadequate.

The focus on creating a world-class and decongested city through infrastructure-supported polycentric development, along with an emphasis on formalization of MSEs and a lack of participation from the urban poor, echoes elements of the 1973 Master Plan that resulted in regressive equity impacts. In particular, there is the risk that prioritization of developing ‘world class’ infrastructure will result in splintering urbanism, by not incorporating the accessibility needs of the majority of the city's residents, and by not recognizing the regressive impacts public transport can have on the urban poor and their livelihoods (particularly in terms of displacements). With this recognized risk, a more detailed examination of potential distributive impacts associated with spatial and transport planning in Nairobi is necessary.

266 Republic of Kenya, *Nairobi Metro 2030: A World Class Metropolis* (Nairobi: Ministry of Nairobi Metropolitan Development), 48.

267 Consulting Engineering Services, “Development of a Spatial Planning Concept”, 7.16.

268 Consulting Engineering Services, “Development of a Spatial Planning Concept”, Annex 4.1

Potential Distributive Impacts of Nairobi's Planning on Urban Poor Accessibility Needs

Utilizing information from the *Nairobi Draft Spatial Plan* and the final *Mass Rapid Transit (MRT) Feasibility Study*, this chapter will explore the potential distributive impacts of proposed transport and land-use plans on the urban poor in Nairobi. Informed by the adapted livelihoods framework (Chapter 3), along with the identified accessibility needs of the urban poor in Nairobi (Chapter 5), the analysis of distributive impacts will focus specifically on: 1) the extent to which land, livelihood space and housing delivery responsive to the accessibility needs of the urban poor is incorporated into Nairobi's planning; 2) the potential impacts associated both with increased locational accessibility as a result of expanded MRT, and with MRT-related construction; and 3) the urban poor's potential to access proposed MRT systems in Nairobi. Following this examination, the potential distributive impacts of MRT and land-use planning will be compared and contrasted against the accessibility needs of the urban poor that would support improved livelihoods and poverty reduction, to determine whether the plans will produce vertical equity, or splintering urbanism.

7.1 Land, Livelihood Space and Housing Delivery Framework

As described in Chapter 4, current housing conditions for the urban poor in Nairobi are characterized by severe deprivations, which are being compounded by continued population growth. By 2030, NMR's population is anticipated to increase from 6.65 million to 10-15 million, necessitating approximately one million new dwellings.²⁶⁹ For land and housing delivery to be more responsive to the needs of the urban poor in the city, both the World Bank and the Center on Housing Rights and Evictions stress the need for a negotiated, city-wide settlement that significantly reduces or eliminates control of slum housing by absentee structure owners.^{270,271} Subsequent improvements in living conditions requires the need for simultaneous slum upgrading and institution-building,²⁷² as well as frameworks for the delivery of land and housing for the increasing urban poor population. Important to such a process would be the substantive support and involvement of civil society in scaling-up community-based slum upgrading and housing delivery.

Judged on the above criteria, the *Nairobi Draft Spatial Plan* is inadequate as a guiding framework. The plan, for example, does not mention the significant and complex challenge of absentee structure owners in slums, or how planning could respond to such a challenge. In general, the framework shows a tension between bottom-up and top-down approaches. In terms of housing financing, the plan suggests that micro-finance and self-help groups could play a key role, along with government subsidies, while in other sections it stipulates that "the concept of land as a resource should be adopted to develop such accommodation with private sector participation and investment", and that FDI in the sector should be encouraged.²⁷³ Similarly, the plan notes that government, civil society and community-based organizations should collaborate in slum upgrading and housing delivery, while in other instances it stipulates that housing for the urban poor should move from horizontal to

269 Ibid., 12.2.

270 World Bank, "Kenya – Inside Informality", 71

271 COHRE, "Kenya – Rights to Housing", 26.

272 Sumila Gulyani and Ellen Bassett, "Retrieving the Baby from the Bathwater: Slum Upgrading in Sub-Saharan Africa", *Environment and Planning C: Government and Policy* 25 (2007), 487.

273 Consulting Engineering Services, "Development of a Spatial Planning Concept", 12.13 – 12.18.

vertical development,²⁷⁴ going as far to suggest housing templates and floorplans for upgraded slums and for low-income housing estates controlled by Nairobi City Council, without specifying how communities and households could be involved in housing design processes. The suggested designs make no mention of spaces for MSEs (Figure 7.1), overlooking evidence from estates such as Buru Buru, where the master planned development was significantly altered by residents after mortgages were paid (and they received full title), through the addition of MSE structures (Figure 7.2).

Figure 7.1: Sample Housing Typology in Spatial Plan for Upgrading of Low-Income Estates²⁷⁵

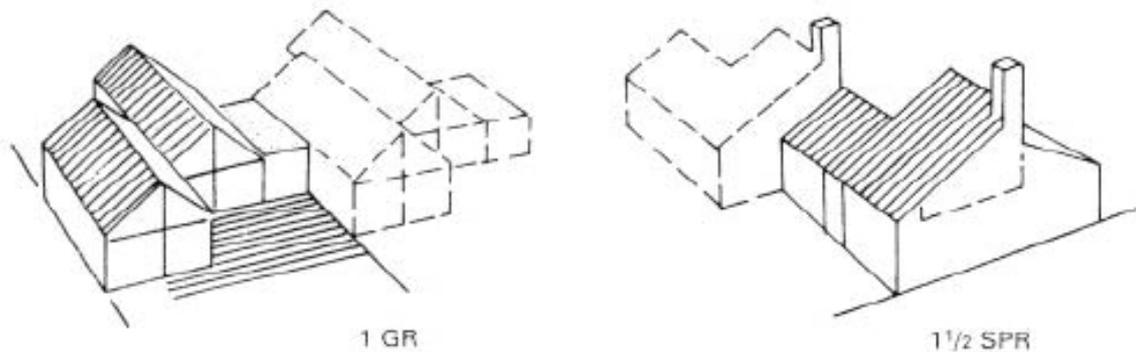


Figure 7.2: 1978 Template for Buru Buru Estate (without MSE structures) & Current Reality of MSE Structural Additions (foreground in photo)²⁷⁶



The lack of consideration of delivery of land and structures for MSEs (home-based or clustered) is predominant throughout the document. There is no mention, for example, of the importance of existing trading and wholesale markets or clustered worksites in the city, such as Gikomba or Kamukunji, the important link between MSE trading, production and transport, or how such market structures could be upgraded and replicated as part of the planning process. Consequently, the plan does not suggest provision of new market spaces or worksites in the city, or in secondary industrial centers, a major oversight considering the historically inadequate delivery of such spaces in Nairobi.

274 Ibid., 12.6 – 12.13.

275 Consulting Engineering Services, “Development of a Spatial Planning Concept”, 12.10.

276 Housing Sections: Tom Anyamba, “Informal Urbanism in Nairobi”, *Built Environment* 37, no. 1 (2011), 70.

Photograph of Buru Buru MSE additions taken by Colin Hagans (2011).

Similarly, with regards to agriculture, while the plan notes that “rich agricultural land is being used for urban development”,²⁷⁷ it only specifically mentions coffee and tea plantations,²⁷⁸ with no recognition of the importance of small-scale agriculture to a substantial number of the urban poor in NMR, or how such livelihood strategies could be protected and supported.

With projected increased spatial growth in NMR accompanied by economic and infrastructural development, the impact of an inadequate land and housing delivery framework for the urban poor can be considered regressive, in that the mechanisms to protect the poor from continued exploitation by structure owners, increased land speculation, or construction-related displacements are lacking. Additionally, the lack of consideration for the location and infrastructural needs of MSEs in the city’s proposed new master plan is also regressive, in that it risks continuing historic exclusionary processes at the expense of promoting ‘modern’ development. With the risk of these regressive impacts, the next section explores the potential impacts resulting from increased locational accessibility as a result of expanded public transport, as well as potential constructed-related impacts.

7.2 Potential Impacts from Increased Locational Accessibility & MRT Construction

The *MRT Feasibility Study* devotes only one sentence to the risk of land speculation as a result of increased accessibility.²⁷⁹ Even this limited recognition, however, does not mention impacts specific to the urban poor, nor are more generalized mitigation measures suggested. While it is not possible within the word limits of this dissertation to examine in detail the potential distributive impacts on the urban poor for all locations in NMR, the following section will instead analyze the administrative divisions of Embakasi, Korogocho, Madakara and Pumwani (generally referred to as Eastlands) as a demonstrative example of accessibility and constructed-related impacts.

Potential Accessibility-related Distributive Impacts in Eastlands

Though the western portion of Eastlands is in close proximity to the CBD and the industrial quarter, it has some of the highest poverty and population density rates in Nairobi,^{280,281} reflecting the need for the urban poor to live close to livelihood opportunities due to inadequate and unaffordable public transport, combined with historic processes of racial and socio-economic segregation that resulted in many of the city’s poor settling in this area. The MRT system is proposed to pass through, and encircle sections of Eastlands that contain the majority of Nairobi’s formally recognized MSE markets and worksites, as well as a concentration of slums and low to middle-income housing estates (Figure 7.3).

277 Consulting Engineering Services, “Development of a Spatial Planning Concept”, 4.21.

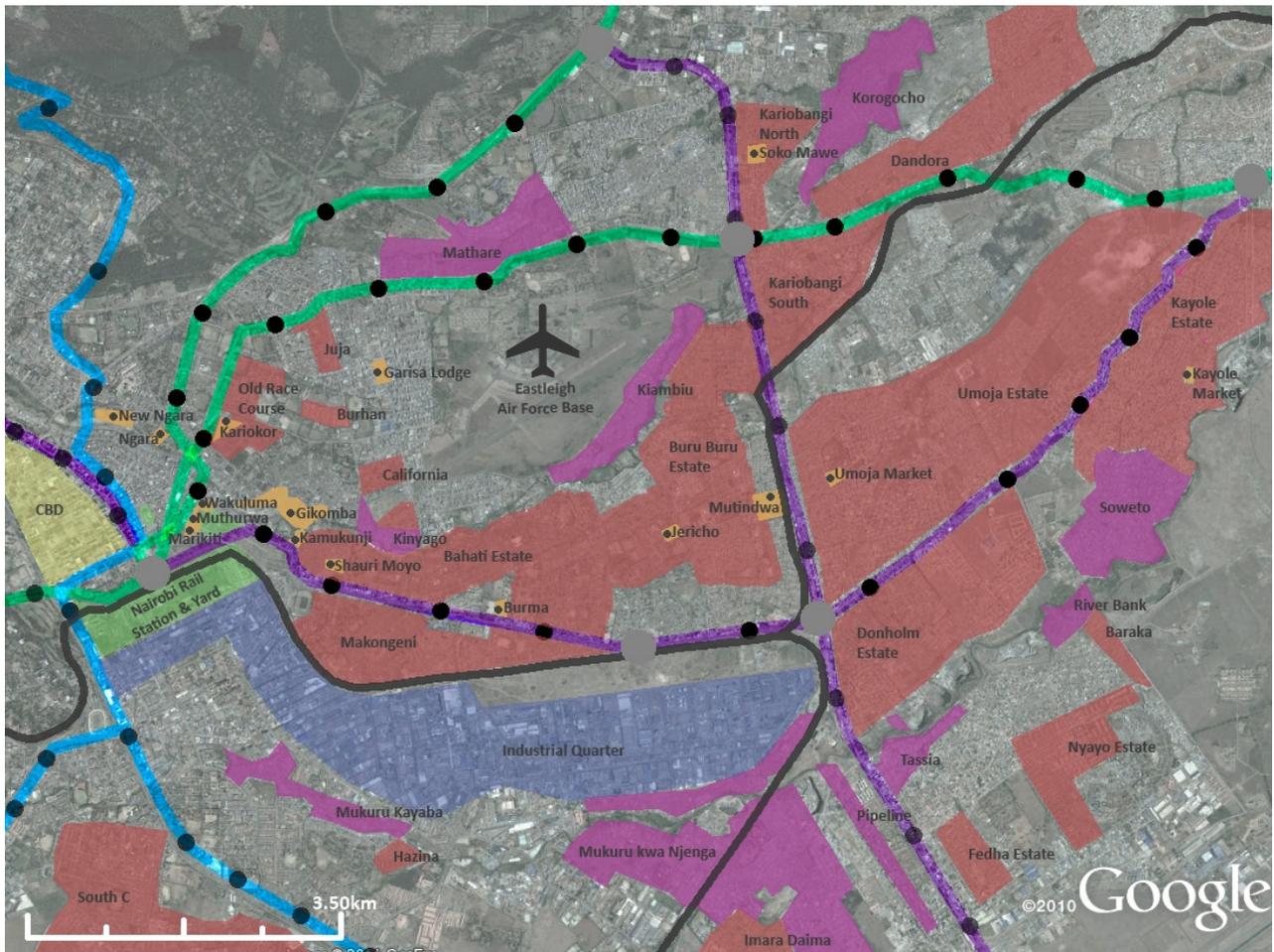
278 Ibid., 14.9.

279 Consulting Engineering Services, “Consultancy Services for Feasibility Study”, 9.36.

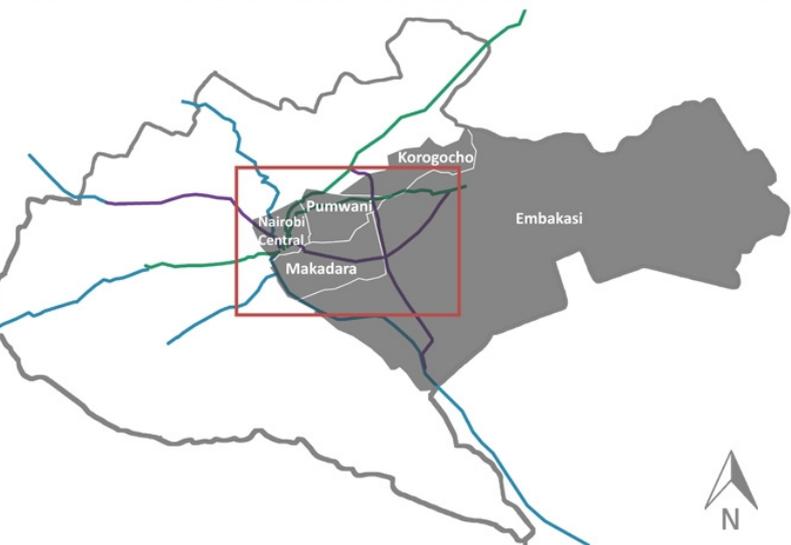
280 Government of Kenya, “City of Nairobi”, 14.

281 G. Ndeg’e, C. Opiyo, J. Mistiaen, P. Kristjanson, *Geographic Dimensions of Well-Being in Kenya: Where are the Poor? From Districts to Locations (Volume 1)* (Nairobi: Ministry of Planning and National Development - Central Bureau of Statistics, Republic of Kenya, 2003), 63.

Figure 7.3: Key Existing Land-Uses and Proposed Transit Corridors (Eastlands)²⁸²

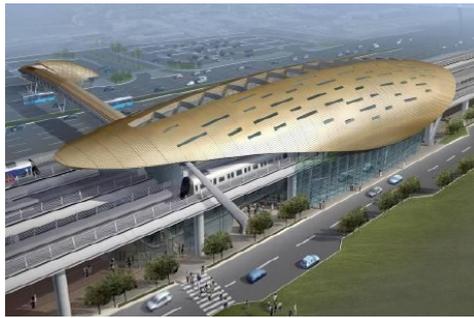


-  Existing Commuter Rail
-  Proposed BRT Corridor
-  Proposed LRT Corridor
-  Proposed Metro Rail Corridor
-  Proposed Transit Station
-  Proposed Interchange Station
-  MSE Market or Worksite
-  Slum
-  Low & Middle-Income Housing Estate
-  Existing Transit Terminal
-  Formal Industrial Quarter
-  Central Business District (CBD)
-  Eastleigh Air Force Base



282 Map created with: 1) Railway data and imagery from Google Earth Satellite; 2) List of Nairobi markets from: Kinyanjui, "Social Relations", 13; 3) proposed MRT data from: Consulting Engineering Services, "Consultancy Services for Feasibility Study."; 4) spatial data for existing markets, transit terminals, slums and housing estates from wikimapia.org; and 5) visual confirmation for a sample of the sites.

Figure 7.4: Dubai Transit Station Precedent Used in Nairobi Spatial Plan²⁸³



The threat of splintering urbanism, in the form of gentrification and displacement, is high in Eastlands, given that the spatial plan calls for significantly redeveloping sections of the area, with the objective of extending the CBD, as well as the larger goal of redeveloping Nairobi as a ‘world class’ administrative center. Public transport is regarded as a potential catalyst for the aforementioned development, with the *MRT Feasibility Study* calling for “redevelopment plans for all land areas up to one kilometer on either side of the corridors/lines, especially around the proposed nodal terminals and rail stations.”²⁸⁴ Related, the *Draft Spatial Plan* suggests that interchange terminals should receive “special design intervention” that promotes “urban density and use intensity [for] people to work, live, shop and enjoy themselves ... [and] economic vitality and competitiveness, consisting of significant development potential and strong economic anchors”, with accompanying imagery of transit stations from Dubai (Figure 7.4).²⁸⁵ There is no mention of how such redevelopment could be beneficial to the urban poor, such as through the incorporation of additional secure spaces for MSEs in close proximity to transit terminals, or through redevelopment plans also functioning as a catalyst for inclusive upgrading of nearby slums, suggesting that informal livelihoods and low-income settlements may not fit within planned redevelopment imagery.

As part of suggested redevelopment in the area, Nairobi Railway Station (NRS) is proposed to be transformed into the city’s central MRT terminal, with accompanying real estate that consists of “high value commercial activities like shops, malls, supermarkets, offices, hotels, information technology parks, international business centers and cultural institutions.” (Figure 7.5).²⁸⁶ It is further proposed that adjoining areas be redeveloped into a “high-intensity commercial cum office-use zone”,²⁸⁷ with no mention of where trading markets (Muthurwa and Marikiti), the Muthurwa Matatu Station and sections of the formal industrial quarter will be relocated to (Figure 7.6).

A similar disregard for the accessibility needs of the urban poor is replicated in the accompanying plans to redevelop the Eastleigh Airforce Base and areas adjacent to Nairobi River (where slums, low-income estates and the Gikomba wholesale market are located), with accompanying imagery that seems to exclude any form of informality. Plans for the river front redevelopment are geared particularly towards investment, with the spatial plan suggesting that “a renewed waterfront offers investors a promising return on capital.”²⁸⁸ Private investment is also proposed as key for the redevelopment of low-income housing estates in Eastlands. The Nairobi City Council announced plans in March 2011 to demolish 25 city-run estates in the area (not indicated in Figure 7.6, as the exact housing estates were not announced) through a “private-sector driven upgrade plan” estimated to cost between KSH60 and KSH80 billion (US\$627 – US\$888 million).²⁸⁹ Together, this information illustrates the risk that residential and livelihood patterns that do not conform to private sector-led ‘world class’ development will be increasingly excluded and displaced from sections of Eastlands.

283 Consulting Engineering Services, “Development of a Spatial Planning Concept”, 17.17.

284 Consulting Engineering Services, “Consultancy Services for Feasibility Study”, 5.24.

285 Consulting Engineering Services, “Development of a Spatial Planning Concept”, 17.14.

286 Consulting Engineering Services, “Consultancy Services for Feasibility Study”, 5.18.

287 Ibid.

288 Consulting Engineering Services, “Development of a Spatial Planning Concept”, 17.30.

289 Victor Juma, “Council Turns to Private Capital in Estates Facelift”, *Business Daily (Kenya)*, 22 March 2011.

Figure 7.5: Published Plans for CBD Expansion & Nairobi River Redevelopment (Eastlands)²⁹⁰

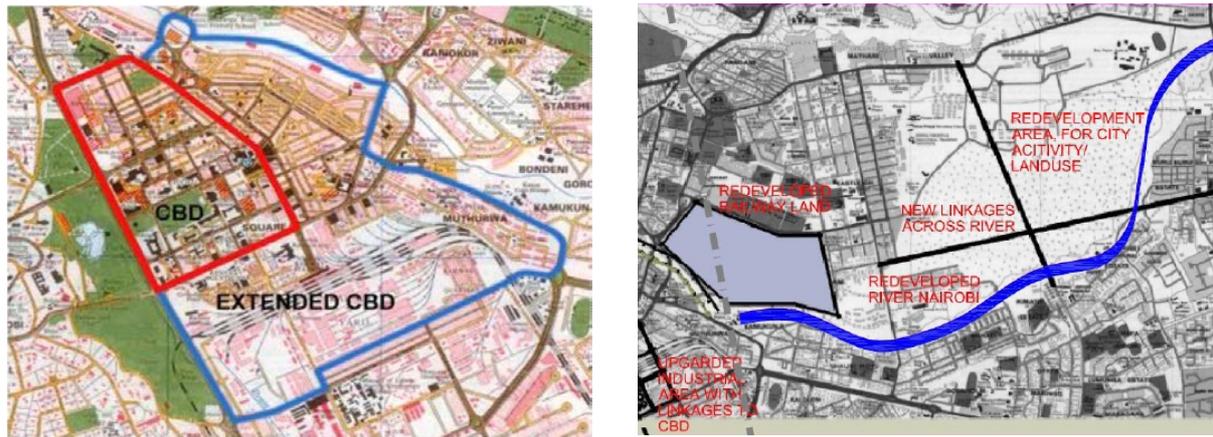
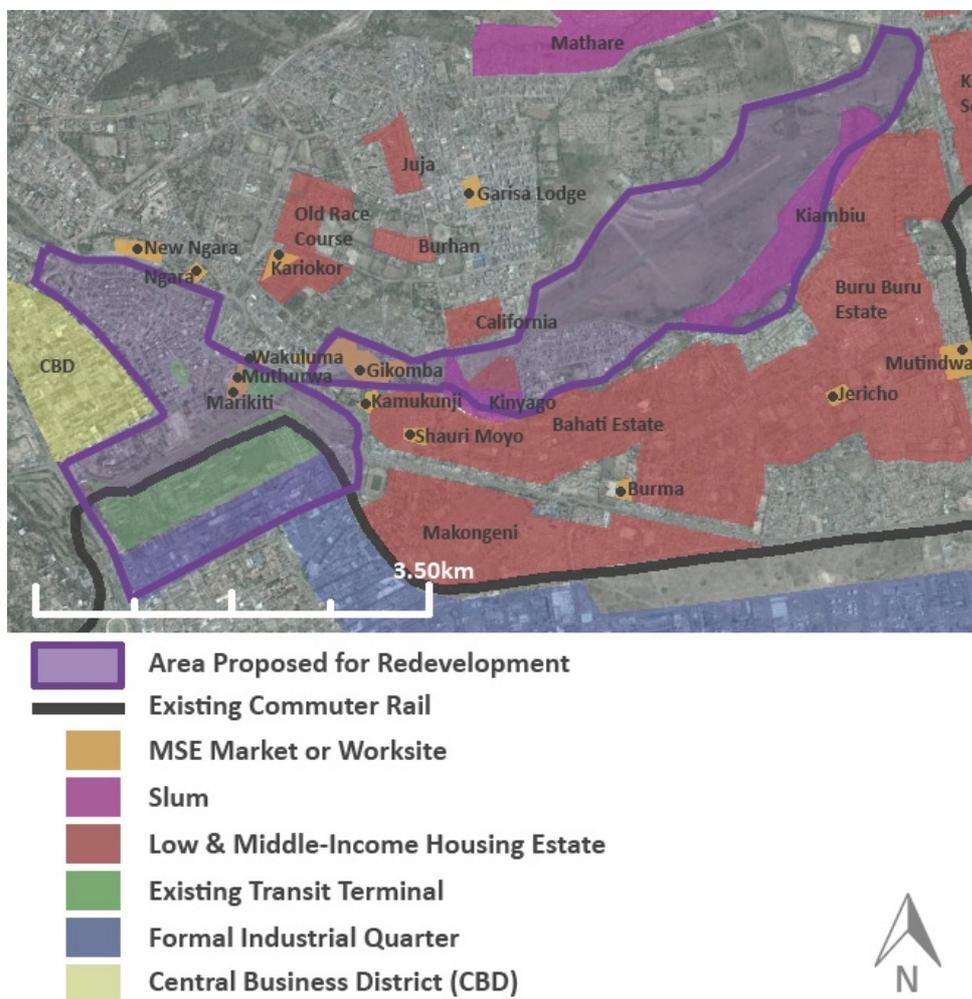


Figure 7.6: Proposed Plans & Present Livelihood and Residential Locations (Eastlands)²⁹¹



290 Consulting Engineering Services, “Development of a Spatial Planning Concept”, 17.19 – 17.23.

291 Map created with: 1) Railway data and satellite image from Google Earth, “Satellite Imagery”; 2) List of Nairobi markets from: Kinyanjui, “Social Relations”, 13; 3) proposed redevelopment plans from Consulting Engineering Services, “Development of a Spatial Planning Concept”, 17.19 – 17.23; 4) spatial data for existing markets, transit terminals, slums and housing estates from wikimapia.org; and 5) visual confirmation for a sample of the sites.

Potential Construction-related Distributive Impacts in Eastlands

The *MRT Feasibility Study* notes that there are significant land-use constraints in Nairobi that would hinder introduction of at-grade public transport services; therefore, BRT, LRT and metro transit are proposed primarily as elevated corridors over existing roads, in order to reduce the need for widespread road expansion.²⁹² Similarly, the initial commuter rail upgrade plans prioritizes improving services on existing lines (with the exception of the new rail link to JKIA) over the construction of new lines. While efforts to limit road expansion are commendable (even if they are based solely on costs associated with land acquisition),²⁹³ there are, nonetheless, potential construction-related regressive impacts associated with proposed plans.

In the aforementioned highlighted area of Eastlands, major road expansion associated with MRT construction is proposed for three locations: a new road from NRS to Landies Road; and expansion of Juja and Spine roads from two lanes to four lanes (Figure 7.7).²⁹⁴ Road expansion could potentially impact a number of locations important for the urban poor. For example, the new transit line linking NRS to Landies Road could displace markets and a matatu transit terminal (this area, as already mentioned, is also targeted for commercial redevelopment). Along Juja Road, there is the potential for displacement of residences in Mathare slum, unless the land for Eastleigh Airforce Base is used for road expansion. While detailed plans for the commuter rail upgrade are not publically available, residents living in slums along railway reserves (30 meters on each side of the railway line)²⁹⁵ throughout the city have already been requested to move in order to allow for upgrading to commence.²⁹⁶ Clearing of railway reserves would necessitate the demolition of portions of Mutindwa Market, as well as residences in Mukuru kwa Njenga slum. Given the high population density in Nairobi's slums, clearing of railway reserves will displace a large number of residents, with estimates in Kibera alone ranging from 10,000²⁹⁷ to 108,000.²⁹⁸

While justifications could be made for transport-related displacements based on economic efficiency criteria, vertically equitable transport planning would nonetheless incorporate substantial mitigation measures, as well as substantial incorporation of location and livelihood considerations in resettlement plans, along with compensation not based solely on possession of legal title. Unfortunately, such measures are seemingly lacking in Nairobi's planning. While the MRT feasibility study notes that displacement of businesses "would cause negative impacts on the livelihoods of people",²⁹⁹ it offers no mitigation measures, nor does it mention livelihood impacts associated with residential displacements. With regards to clearing of commuter rail reserves, the Ministry of Transport has indicated in announcements that only 'genuine' residents will be compensated,³⁰⁰ a worrying sign given that the vast majority of slum-dwellers in Nairobi lack secure tenure. Together, this information indicates that there are significant risks that construction-related displacements of the poor may occur without substantive consideration of livelihood accessibility needs or adequate compensation.

292 Consulting Engineering Services, "Consultancy Services for Feasibility Study", 7.6.

293 Ibid.

294 Ibid., 8.50 – 8.55.

295 Republic of Kenya, "City of Nairobi", 38.

296 Nation Reporter, "Encroachers asked to vacate railways land", *Daily Nation (Kenya)*, 22 June 2011.

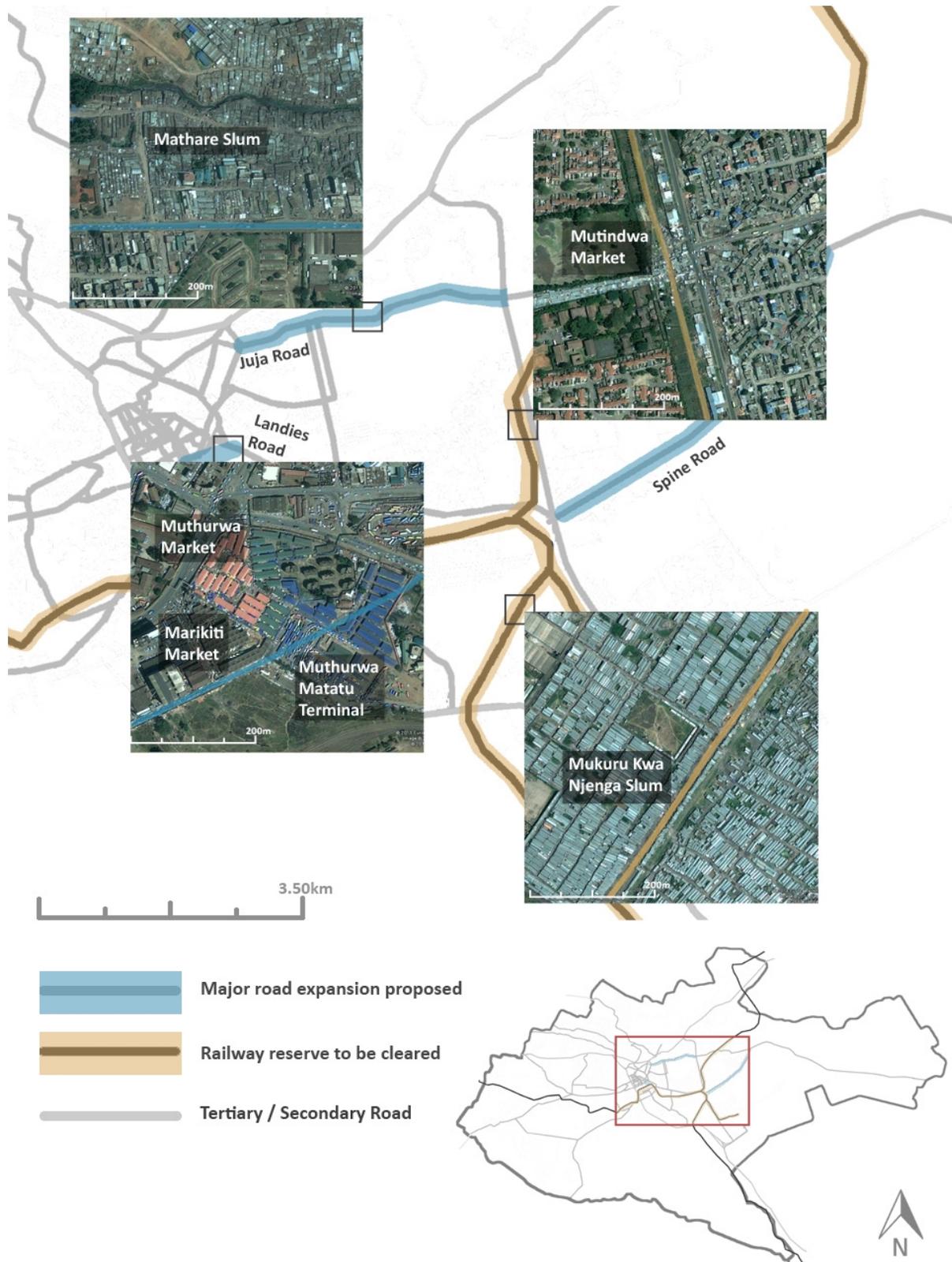
297 Cornelius Mwau, "Kibera Residents to be Re-located to Pave for Railway Expansion", *Nairobi Star*, 3 August 2011.

298 Republic of Kenya, "City of Nairobi", 38.

299 Consulting Engineering Services, "Consultancy Services for Feasibility Study", 9.32.

300 Cornelius Mwau, "Kibera Residents".

Figure 7.7: Potential Areas of Eastlands at Risk of Displacement from MRT Construction³⁰¹

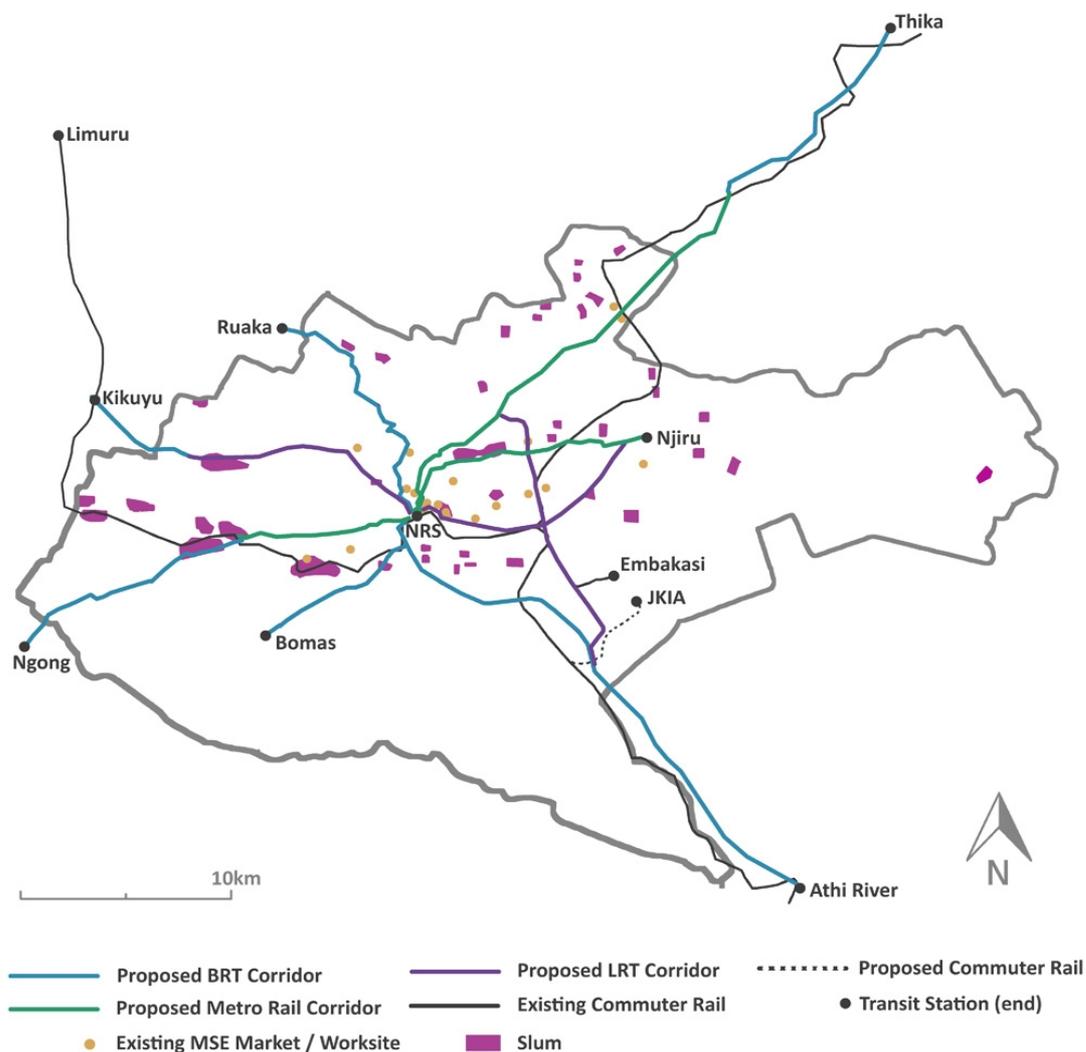


301 Map created with: 1) Railway line data and imagery from: Google Earth, "Satellite Imagery"; 2) Roads Data from: Spatial Information Design Lab, "Roads Nairobi"; 3) Proposed MRT-related road expansion data: Consulting Engineering Services, "Consultancy Services for Feasibility Study", 8.39 – 8.65.

Potential Impacts beyond Eastlands

While there is great risk of regressive impacts in Eastlands due to the concentration of the urban poor in a central location of Nairobi targeted for redevelopment, the risks are similar in other areas of Nairobi, with the MRT system passing in close proximity (or in some cases directly through) slums and informal markets (Figure 7.8). Improved accessibility along these corridors will also likely result in land value rises, putting pressure on land owners to redevelop or sell plots that may be important residential and/or livelihood locations for the urban poor. Similarly, increased locational accessibility in peri-urban NMR may also further stimulate speculative development, thereby leading to greater exclusion of the poor and disruption of local livelihoods, particularly if there is no substantive pro-poor land and housing delivery framework at the metropolitan level.

Figure 7.8: Proposed MRT Corridors & Existing Slums and MSE Trading/Production Sites³⁰²



302 Map created with: 1) Railway data from Google Earth, "Satellite Imagery"; 2) MRT corridor data from: Consulting Engineering Services, "Consultancy Services for Feasibility Study"; 3) Nairobi slum data from: Republic of Kenya, "City of Nairobi", 37.; 4) MSE Market/Worksite data from: Kinyanjui, "Social Relations", 13; 5) spatial data for existing markets from wikimapia.org; and 4) visual confirmation for a sample of the sites.

Splintering urbanism, however, is not only related to displacements, but also the linking of privileged spaces through network infrastructure that results in further socio-economic fragmentation within a specific spatial context. Such risks are evident in Nairobi, with property specialists and land economists anticipating that due to the introduction of MRT, “rents will increase in satellite towns where more people will flock for residential and commercial purposes”, with the greatest potential for profits in construction of residential “middle-market villas.”³⁰³ The development of public transport systems therefore seems particularly beneficial to middle-income residents, with the system linking expanding peripheral residential developments to Nairobi’s CBD that is increasingly geared toward ‘world city’ administrative economic functions. An analysis is therefore needed of whether the urban poor are also at risk for exclusion from the proposed MRT system.

7.3 Assessment of Urban Poor’s Access to the Proposed MRT System

As noted, an accessible, affordable and efficient public transport system would be beneficial to the urban poor in Nairobi, by reducing travel time and costs, thereby allowing more time for productive activities and the ability to access livelihoods further from households. Related, equitable public transport could allow the poor to move further from congested, unhealthy and poorly-serviced slums to other locations in NMR, while maintaining access to livelihood opportunities and assets. The *MRT Feasibility Study* notes the need to balance the need for a high-quality service that would promote modal shifts (from personal vehicle use to public transport), while also providing affordable services to low-income users.³⁰⁴ To determine whether this balance has been sufficiently met, the following section examines whether: 1) the proposed service is accessible to locations where the urban poor live or could live; 2) the service has a fare structure affordable for the urban poor; and 3) the service schedules and goods transport policy is attuned to the urban poor’s livelihood needs.

Physical Access to Proposed Public Transport

To determine whether the proposed public transport system is locationally accessible to the urban poor, the MRT corridors are overlaid onto a ward-level poverty incidence map of Nairobi in Figure 7.9. While a poverty map of NMR would have been more useful for a metropolitan-wide analysis, spatial data is unavailable at such a level. Due to the historical processes of racial and socio-economic segregation in Nairobi, the wards with the highest levels of poverty are located in Eastern Nairobi, as well as slums in Western Nairobi (at the periphery of areas zoned for European residences during the colonial period). What is clear immediately is that a large portion of Eastern Nairobi remains unserved by MRT, with potential extension to Ruai only “if the traffic justifies.”³⁰⁵ The building density map (Figure 7.10) shows low levels of built environment in peripheral Eastern Nairobi, indicating that there could be a strategic opportunity for integrated pro-poor land delivery and public transport planning that has been overlooked in Nairobi’s spatial planning processes.

Nonetheless, the system does serve other areas where the urban poor are concentrated in Nairobi, including the central area to a large extent, as well as the aforementioned slums in Western Nairobi, particularly when accounting for planned feeder bus services that are to bring transit users from residential locations to MRT corridors.³⁰⁶ The proposed MRT corridors also appear to reach sections of Nairobi where there is the highest population density (based on building density), while also improving public transport provision to areas of NMR anticipated to undergo further urbanization (Figure 7.11).

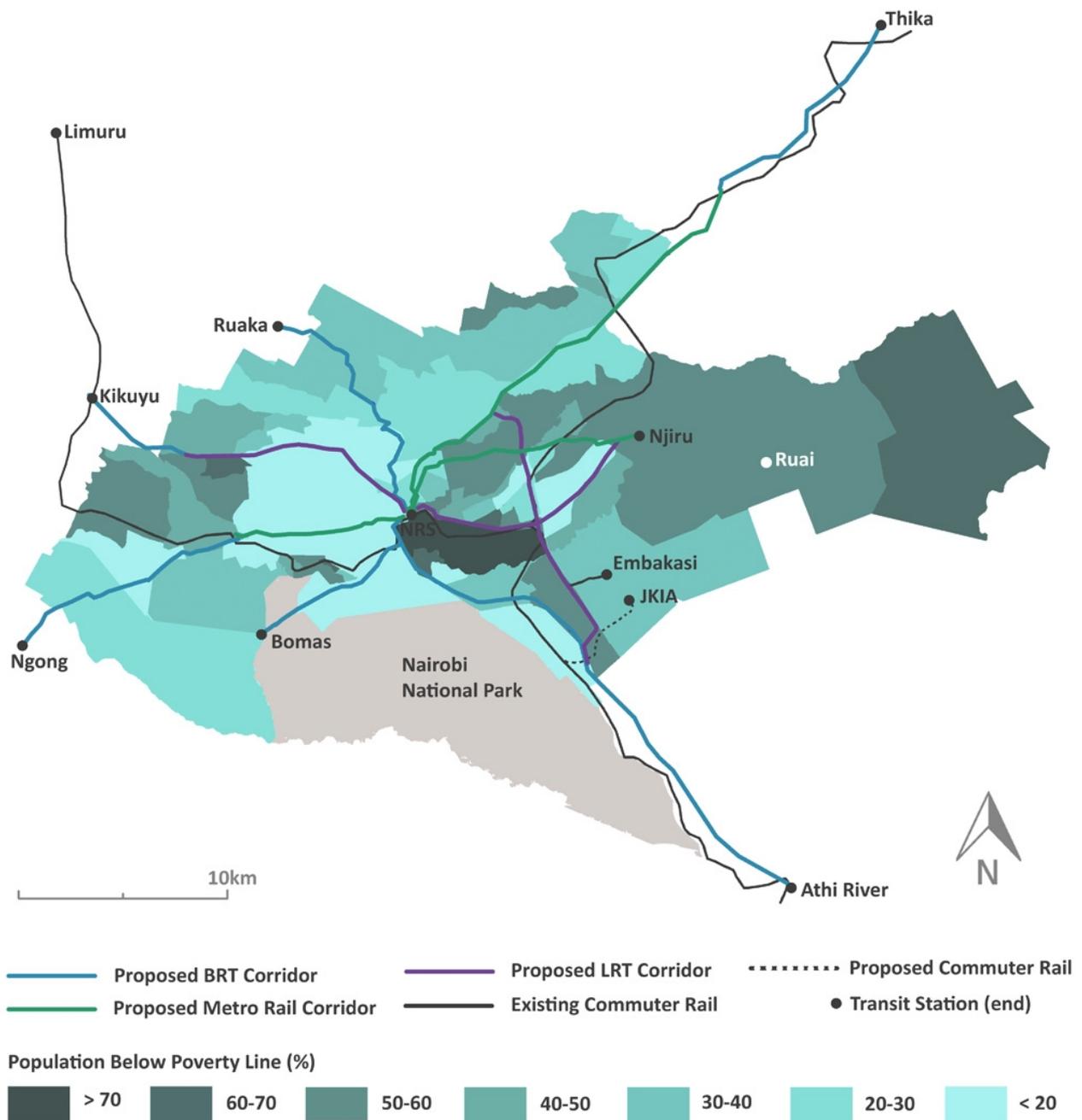
303 Mwaniki Wahome, “Modern transport plan set to shake up city property market”, *Daily Nation (Kenya)*, 2 July 2011.

304 Consulting Engineering Services, “Consultancy Services for Feasibility Study”, 7.2.

305 Ibid., 8.52.

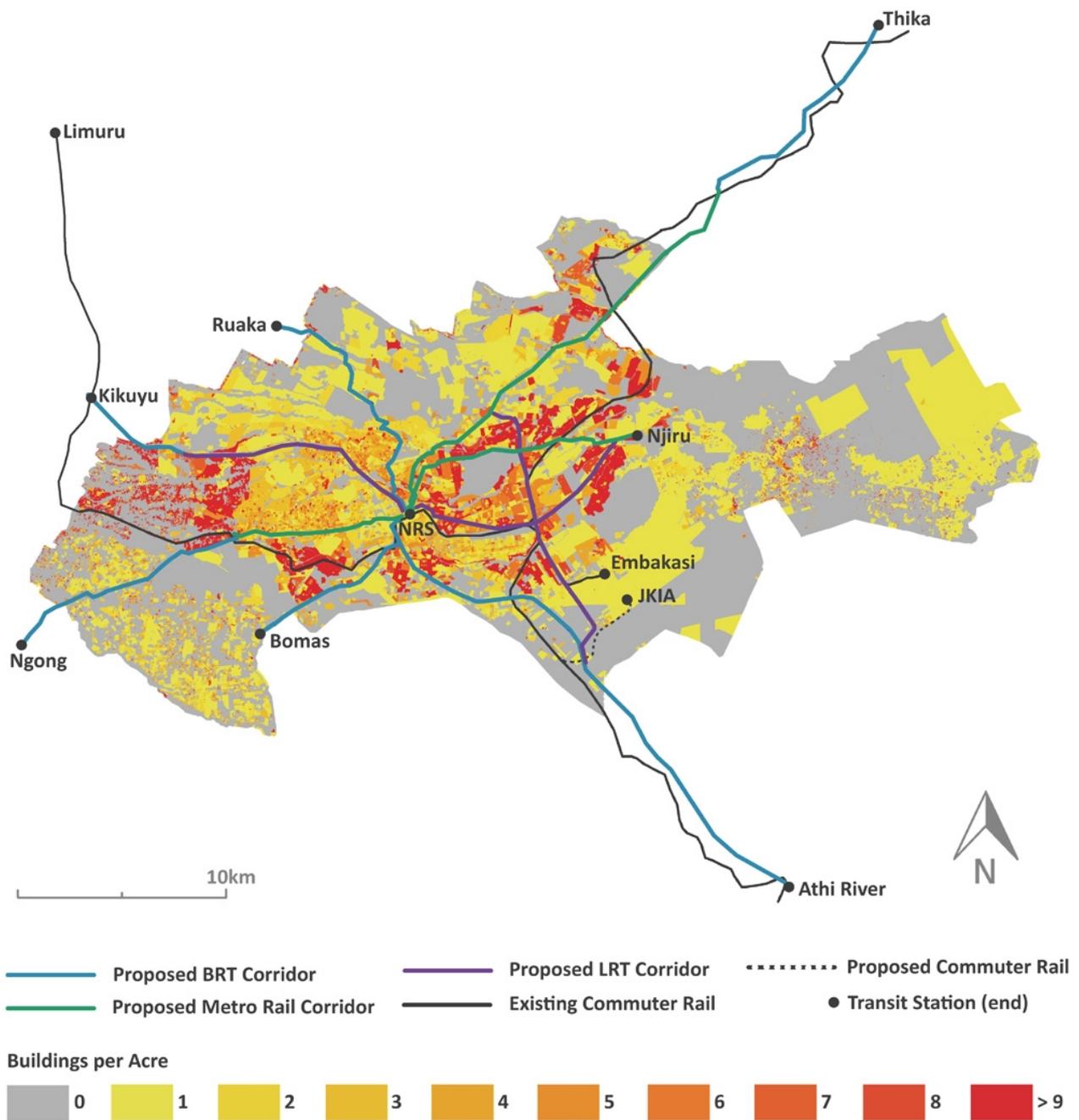
306 Ibid., 7-24.

Figure 7.9: MRT Corridors and Ward-Level Poverty Incidence³⁰⁷



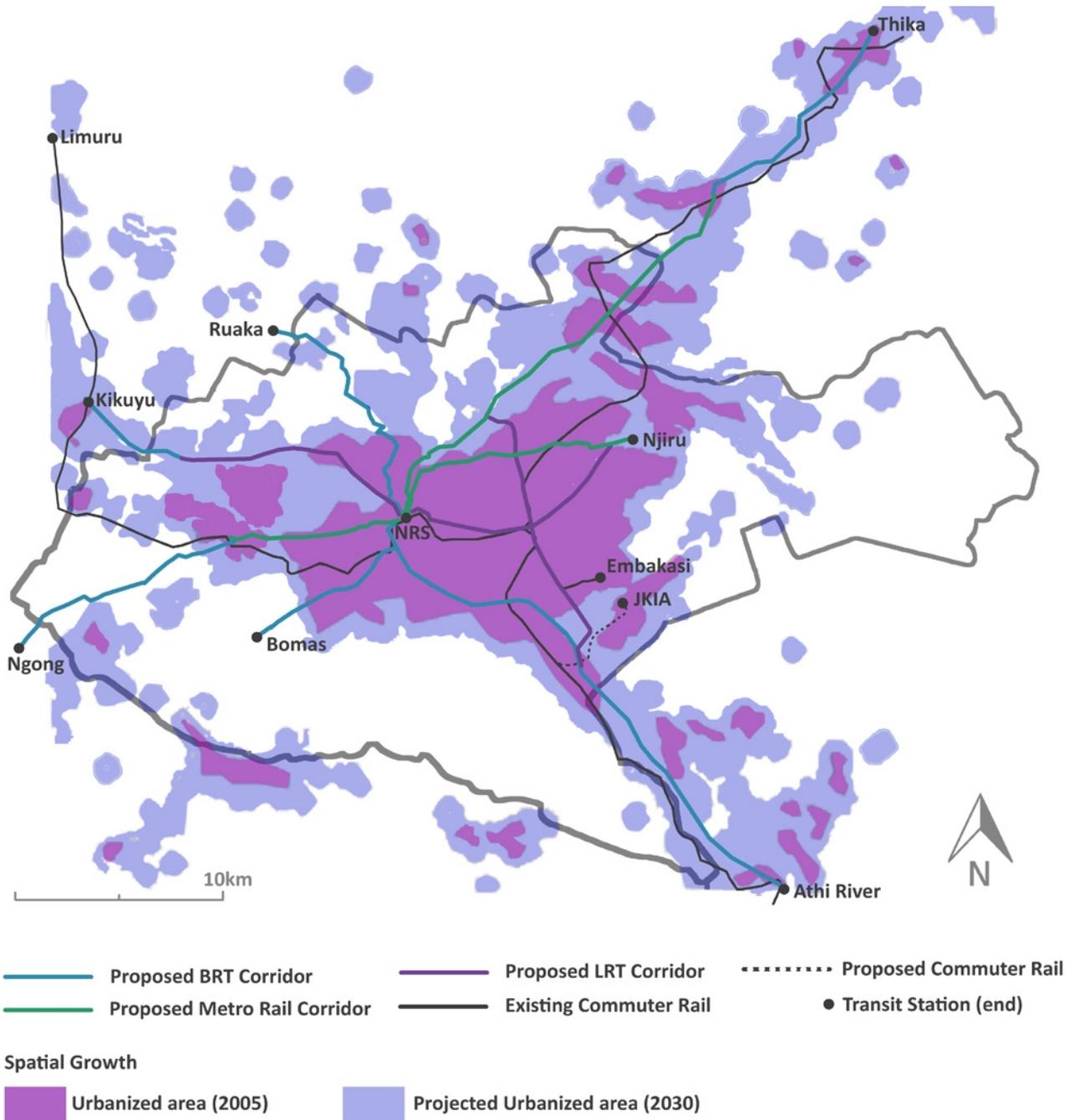
307 Map created with: 1) Railway data from Google Earth, "Satellite Imagery"; 2) MRT corridor data from: Consulting Engineering Services, "Consultancy Services for Feasibility Study"; and 3) Adaptation of ward-level poverty map from: G. Ndeg'e, et al, "Geographic Dimensions", 63.

Figure 7.10: MRT Corridors and Nairobi Building Density³⁰⁸



308 Map created with: 1) Railway data from Google Earth, "Satellite Imagery"; 2) MRT corridor data from: Consulting Engineering Services, "Consultancy Services for Feasibility Study"; and 3) Building density data/map from: Spatial Information Design Lab, *Building Density Nairobi* (New York, NY: Columbia University – Earth Institute, 2008).

Figure 7.11: MRT Corridors and Projected Spatial Growth of Nairobi³⁰⁹



309 Map created with: 1) Railway data from Google Earth, "Satellite Imagery"; 2) MRT corridor data from: Consulting Engineering Services, "Consultancy Services for Feasibility Study"; and 3) Mundia and Murayama, "Modeling Spatial Processes", 268.

Fare Structure

With recognition that the proposed MRT corridors are locationally accessible to the areas where the majority of the urban poor currently live, an analysis of the proposed fare structure is necessary to determine whether the poor could actually utilize such services, and whether they offer savings when compared against current public transport options. With limited regulation of matatu services, average fare rates are difficult to determine. There are reports, for example, that matatus from the CBD to Eastleigh charge KSH50 for the four kilometer trip, while fares to Kitengela (30 kilometers from the CBD) charge KSH70,³¹⁰ a small fare increase for a trip more than six times the distance. Matatu fares also change depending on the time of day, with fares from Kawangware to the CBD ranging from KSH20 to KSH60 depending on whether a passenger is traveling during peak or off-peak hours.³¹¹ Peak fares are also directionally targeted, with peak morning fares from CBD to Githurai only KSH10, while peak morning fares from Githurai to CBD are KSH100.³¹²

The *MRT Feasibility Study's* proposed fare target of KSH2 to KSH2.5 per kilometer³¹³ would therefore likely provide more affordable public transport service to Nairobi's residents. Based on such a target, the 11.5 kilometer trip from Kawangware to the CBD would have a consistent fare of KSH23 to KSH28, while the 17 kilometer trip from Githurai to the CBD would have a consistent fare of KSH34 to KSH43, both of which would offer significant savings over peak fares charged by matatus in 2011. However, with seventy-three percent of slum residents living on less than KSH106 per day,³¹⁴ such fares targets are still beyond the purchasing power of many of Nairobi's residents. The fare structure may also remain prohibitive for livelihood strategies that require multiple trips per day to different locations (as is common with livelihoods in the informal sector), which would necessitate the need for subsidized day passes (as an example) in order to promote vertical equity in public transport.

The proposed MRT system, however, fails to meet the aforementioned fare target in many locations, due to its choice of transit technology. As shown in Figure 7.09, areas of Nairobi with the highest poverty rates are primarily served by LRT and metro rail services, and partially by commuter rail. Commuter rail fares, currently set at KSH20 per trip,³¹⁵ are likely to rise following upgrading and the targeting of services towards private vehicle owners, though the new fare structure is not detailed in the *MRT Feasibility Study*. LRT and metro rail services, however, are proposed to have a fare of KSH4 per kilometer, while BRT services are proposed to have the KSH2.5 per kilometer target fare. The LRT and metro fare structure would therefore make the MRT system inaccessible to an increased number of residents in Nairobi (particularly for those travelling to central Nairobi), and would represent a significant increase over current off-peak matatu fares. There is also no discussion of whether a single fare would cover integrated feeder bus services and MRT trips; if not, fares to destinations beyond MRT corridors could rise beyond the level of current peak matatu fares.

The justification for the selection of metro and LRT is based on projected passengers per hour per direction (PPHPD) by 2030, with ranges of 15,000 to 43,000 on corridors selected for the aforementioned MRT technology.³¹⁶ The *MRT Feasibility Study* indicates that BRT can accommodate a maximum of 20,000 PPHPD,³¹⁷ which overlooks advances that have been made in cities such as Bogota and Guangzhou that have BRT systems accommodating 45,000 and 27,000 PPHPD,

310 Lillian Aluanga, "Fluctuating matatu fares dent commuter budgets", *The Standard (Kenya)*, 5 March 2011.

311 Ibid.

312 Ibid.

313 Consulting Engineering Services, "Consultancy Services for Feasibility Study", 7.34.

314 Salon and Gulyani, "Mobility", 646.

315 Consulting Engineering Services, "Consultancy Services for Feasibility Study", 4.7.

316 Ibid., 8.2.

317 Ibid., 7.5.

respectively,^{318,319} as well as the portion of demand that the commuter rail will accommodate. Given that BRT systems in Nairobi are designed primarily as elevated systems that can be upgraded in the future to LRT or metro,³²⁰ it seems a better option would be to construct elevated BRT systems throughout the city with higher PPHPD capacities and with the proposed target fare, along with greater consideration for targeted subsidies, if the system aims to promote poverty reduction through transport.

Service Schedules and Allowance of Goods Transport

The MRT feasibility study does not indicate proposed service schedules, or whether transport of certain goods will be allowed via MRT services. Given the evidence that planning in Nairobi has been designed to project a 'modern' image of the city that excludes informality, there is a risk that transportation of goods from wholesale markets to trading markets, for example, will not be allowed.

7.4 Summary: Transport and Land-use Planning & Urban Poor Accessibility Needs

While transport and land-use planning have the potential to address the accessibility needs of the urban poor, with a broader objective of improving livelihoods and reducing poverty, it is clear from the analysis of Nairobi's planning frameworks that there has been comparatively little incorporation of such an objective. As shown in the livelihoods framework (Annex A), the distributive impacts of the proposed plans in Nairobi are largely regressive, when measured against the urban poor's accessibility needs for each capital asset category.

Under Human Capital, the proposed MRT system would likely result in a more efficient public transport system that would, in general, reduce commuting times in Nairobi and would be locationally accessible to the greatest concentrations of population in the city. Such benefits and access to the system, however, would largely exclude the urban poor, given that fares would remain unaffordable for many, both through a system design that prioritizes more expensive MRT modes for much of the city, and the lack of substantive consideration for fare subsidies or fare structures attuned to multiple daily trip demands common for MSE participants.

The potential benefits of clustered and networked MSEs, situated under Social Capital, remain unaddressed in the spatial planning frameworks, with almost no mention of the spatial needs of MSEs, either in terms of: cluster-based trading and production sites; secure and accessible residential locations supportive of home-based MSEs; or in the provision of accessible and clustered smallholder agricultural plots.

Physical capital needs, in terms of accessible and secure residential locations well-served by infrastructure; accessible, serviced, secure and appropriately-sized MSE trading and production sites; and an accessible, affordable and efficient public transport system that allows for the transport of certain goods, all remain inadequately addressed or overlooked in the planning frameworks. As mentioned, many of the distributive impacts of proposed plans would in fact potentially reduce access to the aforementioned physical capital, including through redevelopment and resettlement plans that are not inclusive of existing livelihood and residential locations and patterns important to the urban poor. Further, there is oversight of the potential for pro-poor land and housing delivery integrated with forward-planning public transport, such as in peripheral areas of Eastern Nairobi.

318 Dario Hidalgo and Aileen Carrigan, "BRT in Latin America – High capacity and Performance, Rapid Implementation and Low Cost", *Built Environment* 36, no. 3 (2010), 286.

319 Karl Fjellstrom, "Bus Rapid Transit in China", *Built Environment* 36, no. 3 (2010), 364-374.

320 Consulting Engineering Services, "Consultancy Services for Feasibility Study", 7.6.

Related, protection of and support to Natural Capital, particularly with regards to smallholder agricultural plots in accessible locations, remains unaddressed in the planning frameworks, replicating a general oversight of MSE-sector accessibility needs in planning documents.

Taken together, public transport and land-use planning in Nairobi displays substantial risk of producing splintering urbanism that is particularly detrimental to the urban poor, in the context of a city with an already long history of exclusionary and fragmentary planning processes. Such planning shows little incorporation of substantive inputs from the urban poor, either in the influence of planning outputs, or in the establishment of further institutional structures where the poor could continue to influence implementation, which heightens the risk of regressive impacts occurring in each of the capital asset categories.

Conclusion and Planning Alternatives

As a primate city in a country struggling to regain regional economic competitiveness and achieve dramatic GDP increases, Nairobi's transport and spatial planning processes appear to have become almost entirely dominated by the 'world city' paradigm, resulting in planning frameworks developed specifically for transforming Nairobi into a 'world-class' city with 'world-class' public transport infrastructure, with the aim of decongesting roads and promoting urban efficiency to attract international investment, effectively turning planning into an entrepreneurial exercise. There is comparatively little focus of responding to the key challenges in the city that, if resolved, would contribute to poverty reduction efforts. The risk, therefore, is that investments in infrastructure will not be targeted towards the needs of the urban poor nor mitigate the regressive impacts that such infrastructure may produce, furthering the process of splintering urbanism in an already socio-economically fragmented city.

While the positioning, terminology and imagery in Nairobi's new urban planning alludes to the risk of splintering urbanism, this dissertation's adaptation of a livelihoods framework to public transport planning, in order to identify accessibility needs specific to the urban poor that could contribute to poverty reduction, allows for a more substantive analysis of the potential distributive impacts of transport and land-use plans. Comparing and contrasting identified urban poor accessibility needs with proposed transport and spatial plans reveals potential impacts that are predominately regressive, and which are in accordance with the more generalized risks associated with public transport-induced splintering urbanism. In Nairobi, such potential impacts include accessibility and construction-related livelihood and residential displacements, and exclusion of the urban poor from upgraded and expanded MRT systems, both of which are underpinned by an inadequate framework for the delivery of land, livelihood spaces and housing critical to the urban poor, and inadequate input from the urban poor and civil-society in planning processes.

Renewed planning in Nairobi, however, is occurring in the context of a country that has reformed, and continues to reform, a number of key institutions, policies and frameworks in order to ensure governance systems are better able to respond to the needs of all Kenyans, explicitly including those needs specific to the poor. Further, there is a strong civil society active in Nairobi that can be drawn on in vertically equitable transport and land-use planning. With the recognition that such planning could improve the accessibility needs of the urban poor and contribute to poverty reduction, there is an urgent need to bridge the disconnect between the macro-level reformations occurring in the country and a civil society that is further enabled through such reformations, and the renewed transport and spatial planning occurring in Nairobi that has not sought to critically address the needs of the urban poor.

8.1 Transport and Spatial Planning Alternatives

Reimagining Nairobi's transport and spatial planning as producing vertically equitable outcomes does not require that formal business interests be completely sidelined, but rather that the specific challenges that the urban poor face, including unmet accessibility needs, receive substantive analysis and responses.

As a first step, there is a need for a more thorough analysis of the specific accessibility needs of the urban poor, utilizing a broad conception of the term that includes considerations for not only transport, but also for how such systems interact with and influence land-uses, individual needs and

abilities and temporal components. Such an analysis must be undertaken with the participation of the urban poor, including through utilizing mechanisms to ensure the participation for those demographics that may be particularly mobility constrained, such as poor women, or those often excluded from travel surveys, such as the very poor and illiterate.

While the aforementioned analysis is crucial, this dissertation's use of admittedly more fragmentary data reveals critical accessibility needs that should be, and can be, addressed in Nairobi's transport and spatial planning. Planning could be integrated, for example, with opportunities arising from the Kenya Informal Settlements Improvement Project (KISIP), which has over US\$100 million in donor funding and which aims to enhance continuums of tenure security and services for the urban poor through partnerships and communities and civil society.³²¹ Planning's coordination with KISIP could ensure that the urban poor most at risk from accessibility-related displacements are able to access mechanisms delivering improved tenure security.

Similarly, planning for public transport could coordinate with NACHU to promote pro-poor land and housing delivery combined with improved public transport accessibility in areas of Nairobi and NMR where there is available land. NACHU's efforts, in fact, could be supported financially by transport authorities, through the integration of a real estate department within the authority that has a mandate for promoting vertical equity; property development profits accruing to the transport authority could, for example, subsidize pro-poor land delivery programs operated by NACHU. Property rezoning along transport corridors that allows for higher densities could also be linked to the delivery of land for low-income housing or for livelihood spaces through the transfer of development rights contingent on making such spaces and/or infrastructure available.³²² Similarly, transport authorities could ensure property developments at new transport stations and terminals include spaces for MSEs. In such a way, private-sector development and improved urban poor accessibility would not have to be regarded as mutually exclusive.

In terms of MRT subsidies, it is recognized that, as Estupiñán et al found, "targeting subsidies to reach the poor is very difficult and perfect or near perfect targeting is impossible", with often significant 'leakage' of subsidies to higher-income system users.³²³ Nonetheless, through transport modeling developed through incorporating accessibility needs specific to the urban poor, certain flat fare subsidies could be developed (such as single fare integration between feeder buses and MRT corridors), along with development of 'smart cards' that allow users to purchase subsidized day passes to facilitate multiple daily journeys at a reduced fare. Transport planning could also explore developing specific MRT services operating early in the morning and in the evening that allow for the transport of bulk goods by traders, which corresponds with the opening and closing of the city's markets.

Such aforementioned approaches, however, require a planning framework in which poverty reduction is prioritized as a key objective, and in which the public, including the urban poor, are regarded as key partners in planning and implementation processes. Until such a shift occurs in Nairobi's transport and spatial planning, the substantial risk of splintering urbanism will remain.

321 World Bank, "Project Information Document", 8-10.

322 Paul Barter, *Linkages Between Transport and Housing for the Urban Poor: Policy Implications and Alternatives* (UN-Habitat: Nairobi, 2001), 23.

323 Estupiñán et al, "Affordability and Subsidies", 21.

ANNEX A

Livelihoods Framework: Urban Poor Accessibility Needs and Potential Distributive Impacts of Proposed Transport and Land-use Plans in Nairobi

| Asset | Accessibility Needs | Distributive Impacts of Proposed Transport and Land-use Plans |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Human Capital | Accessible, affordable and efficient public transport services linking residential areas where the urban poor live (or could live), with livelihood opportunities, thereby allowing more time for productive activities. | The proposed system will likely be efficient, and it is locationally accessible to the greatest concentrations of population in Nairobi. However, the system, as designed, would be unaffordable to many of the urban poor, indicating unequal benefits to improvements in travel efficiency in the city. Further, the system is not locationally accessible to much of Eastern Nairobi, where it could potentially be integrated with pro-poor land delivery processes. |
| | Public transport schedules and fare structures attuned to the travel behavior and needs of the urban poor, including facilitating multiple trips per day. | Transport schedules are not detailed in published plans. The fare structure proposed is a flat fare, which may be more affordable than matatus (depending on modal technology), but would still be prohibitive for informal livelihoods that require multiple trips per day. There is no substantive discussion of subsidies targeting the urban poor, or design of fare structures that would allow for multiple, affordable trips per day. |
| Social & Political Capital | Secure MSE marketing and production sites, with adequate space to allow for enterprise clustering, without overcrowding. | There is no mention of provision of additional MSE marketing and production sites, and some existing sites (particularly those close to the CBD) are proposed for redevelopment. |
| | Accessible clustered urban agriculture plots, with security of tenure and provision of extension. | There is no framework in the spatial plan for delivering new smallholder agricultural plots. |
| Physical Capital | Improved security of tenure at residential locations, with improved infrastructure provision. | There is a lack of substantive consideration or planning for housing for the urban poor, particularly in addressing critical sectoral challenges. While the plan does make some positive statements about involvement of civil society and communities, such statements are contradicted through top-down suggestions, such as the articulation of specific housing designs for the urban poor. |
| | Increased number of secure spaces for MSE trading and production, in strategic and accessible locations (including near formal industry and transit nodes), with improved infrastructure provision. | There is no mention of provision of additional MSE marketing and production sites, and some existing sites (particularly those close to the CBD) are proposed for redevelopment. The deconcentration of industry to secondary cities is not accompanied with an analysis of how MSEs (particularly those in the production sector) could be spatially concentrated with formal sector firms, to encourage linkages. Similarly, the development of new transit nodes and terminals throughout the city is not accompanied with proposals for integration of new MSE trading facilities at such locations. |

| | | |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Accessible, affordable and efficient transport services, which accommodates movement of certain goods. | While the proposed system will likely be efficient, it is not locationally accessible to much of Eastern Nairobi, the proposed services remain unaffordable for many of the urban poor, and there is a risk that transport of goods will not be allowed. |
| Natural Capital | Improved security of tenure for accessible urban agriculture and livestock cultivation/production spaces, to protect against land speculation as peri-urban areas become more accessible. | There is no framework in the spatial plan for protecting existing smallholder agricultural plots. |
| | Improved land delivery mechanisms for urban agriculture in accessible locations. | There is no framework in the spatial plan for delivering new smallholder agricultural plots. |
| Financial Capital | Access to financial capital not examined specifically in this dissertation | Access to financial capital not examined specifically in this dissertation |

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