



INTERNATIONAL DEVELOPMENT IN FOCUS

# Connecting the Dots

People, Jobs, and Social Services  
in Urban Ghana

Fatima Arroyo-Arroyo



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WORLD BANK GROUP

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# Executive Summary

This report analyzes factors constraining accessibility to jobs and services in Ghanaian cities and proposes a path to more inclusive and sustainable growth. The report focuses on three urban areas of Ghana: Accra, Kumasi, and Tamale. These areas, located in different regions and with distinctive characteristics and issues, were selected for study because of their importance to the national economy and their geographical and contextual diversity.

## UNDERSTANDING THE CONTEXT

Ghanaian cities have grown rapidly over the last few decades, and that growth is expected to continue, especially outside of the national capital, Accra. By 2030, Accra's population is likely to be 1.7 times larger than its level in 2010, Kumasi's 2.3 times, and Tamale's 2.5 times. Overall, Ghana's urbanization in the 21st century has outpaced the West African average.

Population growth has been accompanied by a reduction in population densities and spatial expansion of cities, which has rendered the provision of transport services more expensive and less efficient. Low-density areas are not served well by public transport, and where such areas do exist, the provision of transport services is more expensive.

### **Mobility: Exponential growth of vehicles, limited infrastructure, and informal public transport**

Ghana's economic and demographic growth has resulted in a greater demand for transport infrastructure and services, thereby placing pressure on the limited public transport system. Vehicle ownership increased sixfold over a 25-year period. That growth and the greater use of vehicles because of longer travel distances have increased travel mileage by an estimated tenfold in areas that have seen a limited expansion of transport infrastructure and services.

The inability of the public sector to fill the growing demand for mobility services has created a gap in the transport market that has been filled by the informal sector. Minibuses—known locally as tro-tros—became the go-to mode of public transport in the 1990s when the public transport operator collapsed.

Soon, minibuses had become firmly established throughout the country. Tro-tros are now the main motorized mode used to access jobs, representing nearly 60 percent of motorized trips to jobs in Accra and about 40 percent in Kumasi. The private sector, through its unions and associations, manages the services and terminals. These private operators finance their vehicles and carry all financial risks for their services. The model is based on cheap, low-quality small vehicles, driven by low-paid, self-trained drivers. In essence, this unsatisfactory model is sustainable through cost avoidance and self-exploitation.

### **The invisible and costly side: Transport externalities**

Although the informal sector fills the gap for much-needed access to jobs and services, it also burdens the transport system with serious externalities and inefficiencies. Operators run the system under poor operational and safety standards. Their fill-and-go practices reduce the availability of services along the corridors. And in the competition for passengers, tro-tros contribute significantly to road fatalities. They also are one of the main contributors to local emissions in Ghanaian cities.

In Ghana, the cost of fatalities and serious injuries arising from road crashes is \$4.55 billion a year, which represents 8.3 percent of the country's gross domestic product (World Bank 2020). Seventy percent of road crash fatalities and injuries affect the economically productive groups (ages 15–64).

Congestion, another important externality, it is a major source of productivity loss in urban Ghana. In Kumasi, congestion accounts for an average income loss of 21.9 percent for tro-tro operators. The formal sector experiences an average loss of 9 percent of productive hours a day and more than two workdays a month (Harriet, Poku, and Emmanuel 2013).

Furthermore, the vehicle fleet is responsible for 80 percent of air pollution in Ghana (Schwela 2012). In 2018, the World Health Organization (WHO) estimated that in Accra alone nearly 3,000 deaths a year are attributable to outdoor air pollution-related ailments. In 2016 the annual mean level of particulate matter (PM<sub>2.5</sub>) was 31.1 micrograms per cubic meter (µg/m<sup>3</sup>), which far exceeds the WHO recommended annual guideline of 10 µg/m<sup>3</sup>, thereby posing a high risk of respiratory infections (Odonkor and Mahami 2020).

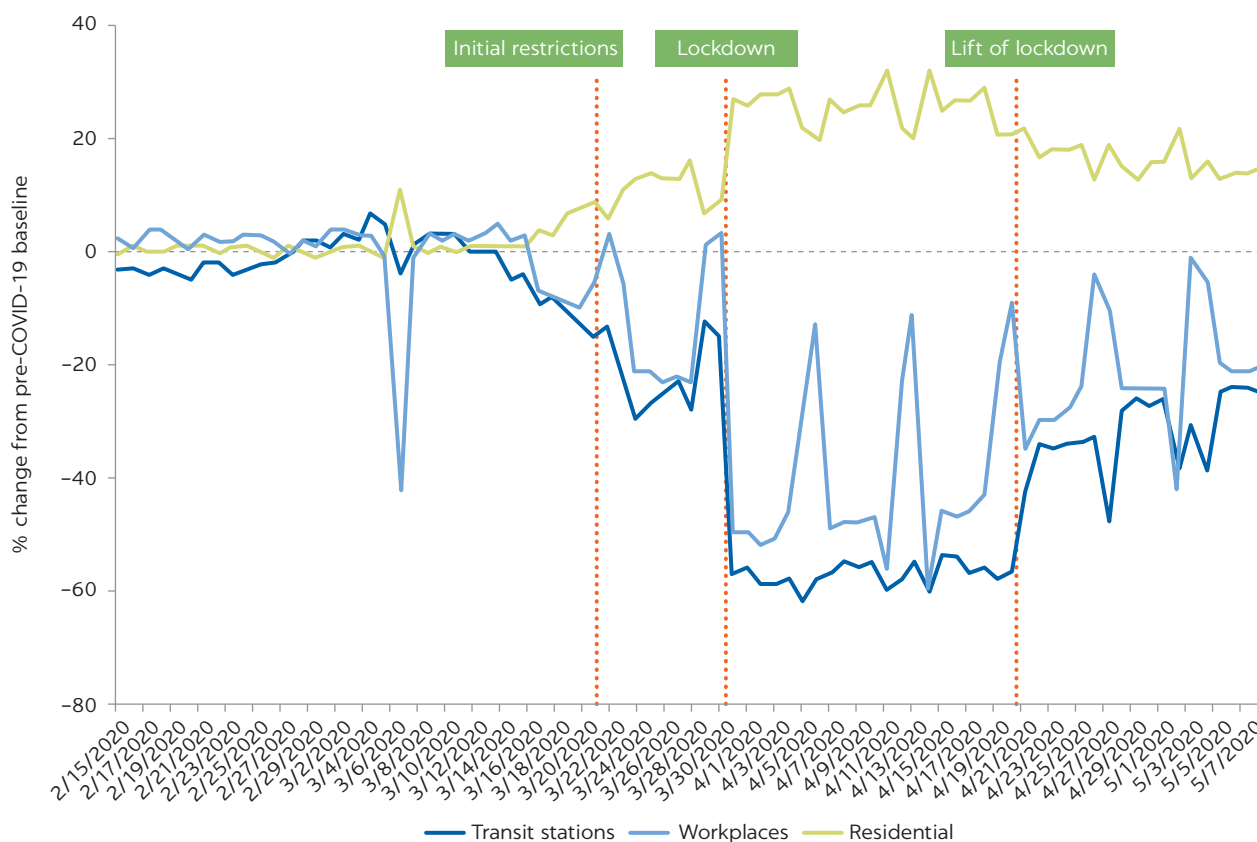
### **Urban mobility and COVID-19**

The unprecedented spread of COVID-19 (coronavirus) has disrupted mobility in Ghanaian cities. Mobility to workplaces during the three-week lockdown from March 30 to April 19, 2020, fell to about 50 percent of baseline before COVID-19, and access to public transport fell to about 60 percent in the same period. At the same time, local or residential mobility increased by about 30 percent (Google COVID-19 mobility data 2020). Three weeks after the lockdown was lifted, mobility to workplaces was still 20 percent below the baseline, access to public transport was 25 percent below the baseline, and residential mobility was 15 percent above pre-COVID-19 levels (figure ES.1).

In the short term, the lockdown—and the slowdown in economic activity—as well as the restrictions on vehicle occupancy have had significant and adverse financial impacts on the transport sector, which are likely to continue for months.

Transport workers, drivers, and conductors of tro-tros are particularly vulnerable to the effects of COVID-19. Drivers and conductors must absorb the risk of demand, which plummeted for weeks and was expected to be below

FIGURE ES.1

**Changes in mobility: Ghana, February 15–May 7, 2020**

Source: World Bank, based on Google COVID-19 Mobility Data 2020.

pre-COVID-19 levels for months. Furthermore, because these groups work in the informal sector, they do not have access to social safety nets or health care coverage.

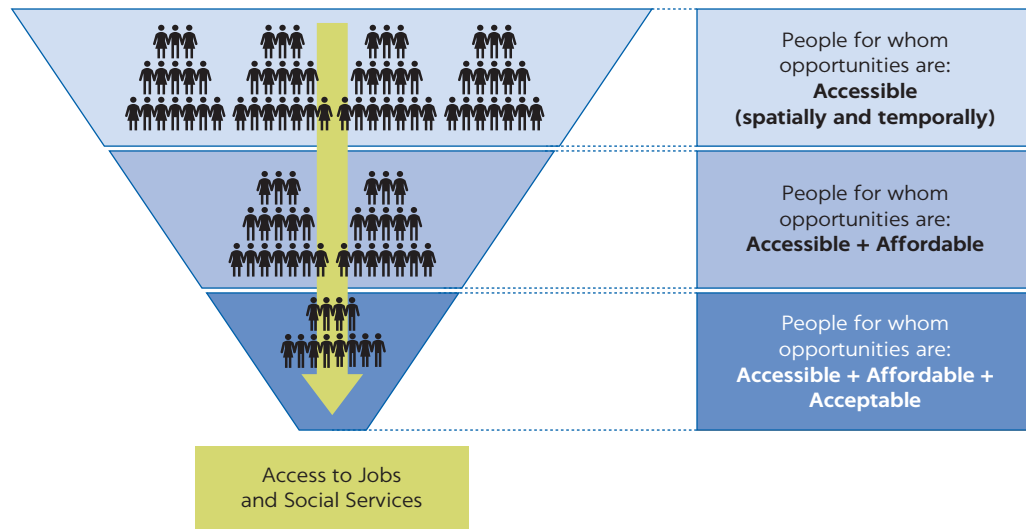
Bus operators running under a contractual basis have also seen their farebox collections plunge. They have higher fixed costs for labor, rent, and debt repayments but less flexibility than informal operators in the short term to adapt to the changes in demand. As a consequence, formal operators are suffering serious financial constraints.

Disruptions from COVID-19 will likely create permanent and structural changes in the transport system in the medium and long term. Their repercussions will likely generate permanent changes in user behavior, business models, and actors in the transport sector.

## FRAMEWORK FOR ANALYZING ACCESS TO JOBS AND SOCIAL SERVICES IN GHANAIAN CITIES

Accessibility to jobs and social services is integral to cities' efforts to reduce poverty and share prosperity. This report proposes an inclusive framework for lowering the barriers to accessing jobs and services. The three A's of the framework are accessibility (spatial and temporal), affordability, and acceptability (figure ES.2).

**FIGURE ES.2**  
**The three A's of the inclusive framework**



Source: World Bank.

### The first A: Accessibility (spatial and temporal)

The ability of people to reach jobs and services differs significantly, depending on the available means of transport and the ownership of private vehicles. Those with private vehicles—generally in the higher-income groups—enjoy greater access to jobs. However, for those using public transport—commonly middle- and low-income groups—access to jobs is poor overall in Ghanaian cities. For almost half of the population of Accra and two-thirds of the population of Kumasi, half of city jobs are not within an hour's reach using public transport. Mobility constraints such as congestion, lack of a proper transit system, a limited number of roads, and last-mile connectivity issues are one reason. Land use and longer commuting distances because of urban sprawl also play a role in limited accessibility.

The spatial representation of this study's accessibility analysis reveals that areas with the highest access to jobs are near the central business district and around main arterial roads (maps ES.1 and ES.2).

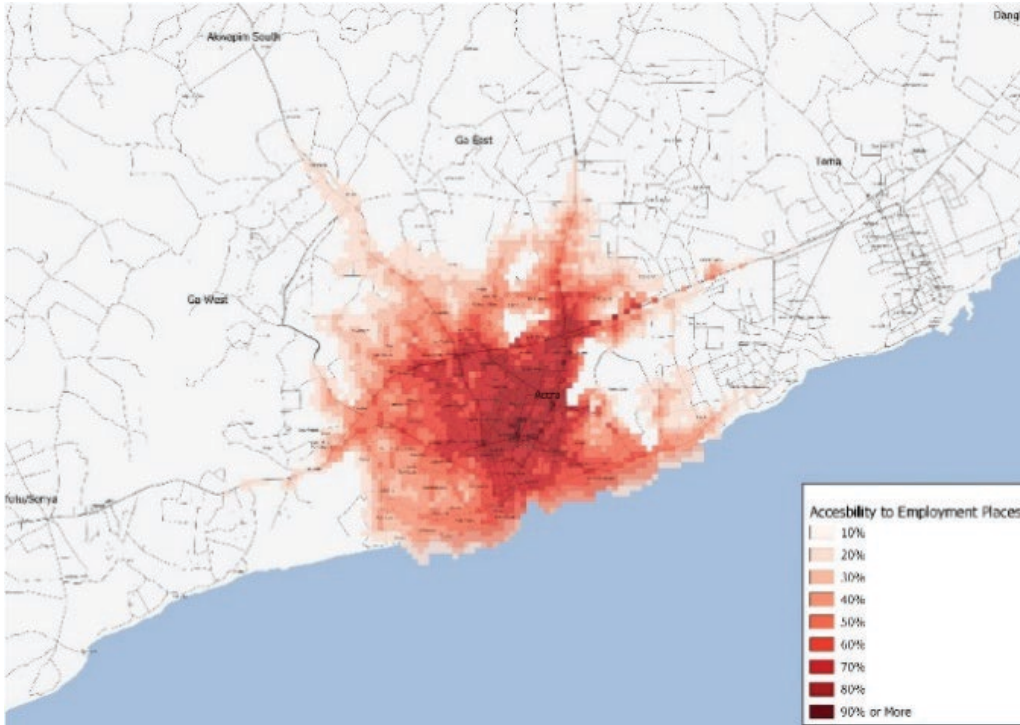
Residents of low-income areas tend to find accessibility to jobs by public transport especially difficult because they live far from the jobs, and last-mile connectivity is an issue. Beyond the main arterial roads, access is limited because most roads in low-income neighborhoods are not paved, which restricts entry by motorized vehicles such as minibuses. Spatial isolation is particularly evident during the rainy season, when unpaved roads are impassable and inaccessible.

Unpaved roads and lack of sidewalks also create difficult conditions for walking and bicycling, and even more so during the rainy season. Especially for low-income groups, women, and people with disabilities, they are a significant barrier to mobility.

More than men, women tend to travel to their jobs during off-peak hours, when services are less frequent. People with disabilities face critical barriers to physically accessing transport vehicles, especially tro-tros, and to navigating the sidewalks that do exist.

**MAP ES.1**

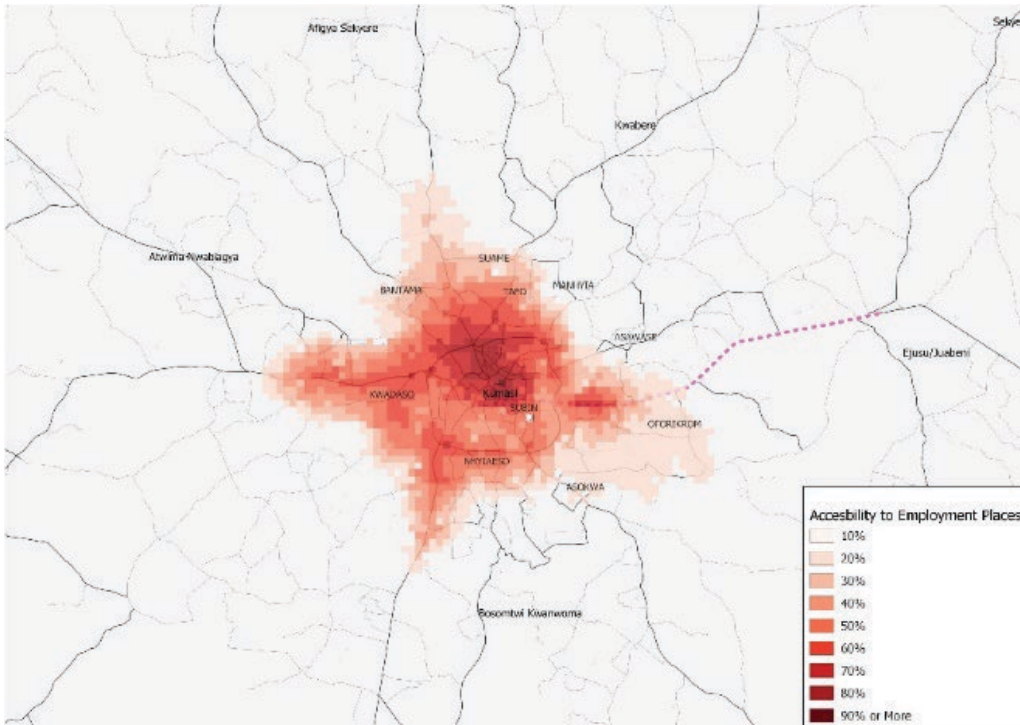
**Regional accessibility within an hour of employment opportunities using public transport: Accra**



Source: World Bank.

**MAP ES.2**

**Regional accessibility within an hour of employment opportunities using public transport: Kumasi**



Source: World Bank.

Access to health and education facilities in urban Ghana is a challenge for a significant part of the population. The transport survey of 2012 revealed that 26 percent of respondents from urban areas did not have reliable transport to health facilities, and 78 percent had no access to health facilities because transport was not available or easily available in the morning. Although Ghana's government has reinforced bus service to the country's main hospitals during the COVID-19 pandemic, access to hospitals by bus remains a challenge in most of Accra and Kumasi.

A comparison of the ability to access educational centers using different modes—private vehicles, public transport, and walking—in Accra and Kumasi reveals that those able to use private vehicles enjoy access to the widest range of schools in Accra. Access by public transport compared with private transport is especially deficient in the east and west of the Accra metropolitan region. This deficiency translates into a significant difference in the ability to access educational centers for those with enough resources to own vehicles versus those (usually the poor) who must rely on taking public transport or going by foot.

### **The second A: Affordability**

In Ghanaian cities—where average incomes are low and large proportions of the urban population live in poverty—many people cannot afford public transport. For the bottom 20 percent of the population, two daily trips represent 60 percent of the average daily household income in Accra and 111 percent in Kumasi.

Women, people with disabilities, and children are disproportionately affected by the affordability barrier because they tend to pay more to use public transport (because they tend to take shorter and more frequent trips and have to pay extra for luggage, wheelchairs, and other equipment), yet these groups have on average a smaller budget than other groups.

The significant level of unaffordability facing a large proportion of households in Accra, Kumasi, and Tamale shapes people's mode choices and limits a large part of society to walking.

### **The third A: Acceptability**

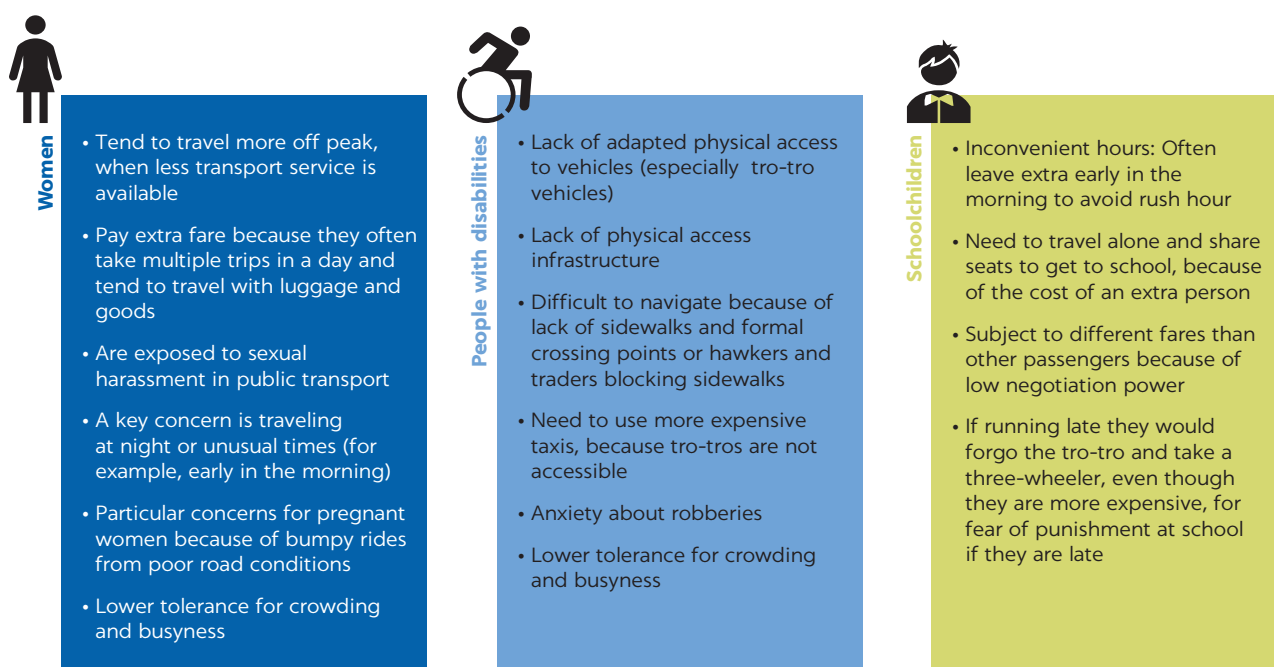
*Acceptability* refers to whether the transport option is suitable for the intended users. Sexual harassment, health safety, road safety, and social norms play an important role in a person's decision to use public transport, especially for vulnerable groups such as women, people with disabilities, the elderly, and children (figure ES.3).

In accessing jobs and services, women and people with disabilities face harassment, concerns about traveling at night or early in the morning, and low tolerance of crowding and busyness. Pregnant women are concerned about bumpy roads.

COVID-19 is an additional factor in the acceptability of public transport. Even if cities such as Accra and Kumasi put in place preventive measures in public transport, significant segments of users still fear infection.

FIGURE ES.3

### How women, people with disabilities, and children are disproportionately excluded in accessing opportunities



Source: World Bank.

## UNDERSTANDING THE INSTITUTIONAL FOUNDATION OF URBAN MOBILITY

Urban mobility in Ghana is deterred by the fragmentation among national and local governments and the lack of formal coordination mechanisms. Stakeholders in the urban mobility agenda include several ministries (Ministry of Transport, Ministry of Roads and Highways, and Ministry of Local Government and Rural Development), central government institutions (National Road Safety Authority and Ghana Police Service), regional coordinating councils, and multiple actors at the local level (metropolitan, municipal, and district assemblies [MMDAs]; Greater Accra Passenger Transport Executive [GAPTE]; departments of transport and of urban roads). Yet ambiguity pervades the performance of these roles, as does a lack of coordination.

The institutional capacity of urban mobility institutions is limited by the shortage of staff trained and specializing in urban mobility. Some MMDAs have established transport departments to provide the basis for planning and regulation of urban mobility services, but they have low or no capacity to fulfill their responsibilities. In addition, the number of MMDAs and transport departments increased in Greater Accra from 4 in 2006 to 29 in 2020, thereby placing even more demands on limited resources.

Capital investment projects in urban mobility have been limited. Investments in urban transport systems have focused mainly on road improvements, with low levels of investment allocated to improving the operational environment of public transport, pedestrian facilities, and formalization of informal transit.

## DEFINING THE PATH OF TRANSFORMATION

The path toward transformation of urban mobility in Ghanaian cities requires development of an integrated programmatic approach to address mobility and accessibility in capital and intermediary cities, while enhancing urban mobility's institutional and operational framework.

The COVID-19 pandemic is a challenge for the urban transport sector, but it also presents opportunities to rethink urban mobility and its role in preventing the spread of COVID-19, as well as opportunities for the formalization of trotros, the development of cashless systems, and the enhancement of nonmotorized transport (NMT) systems. Incentives should be offered for structural changes in the sector so that it delivers inclusive and competitive access to jobs and social services, while building a more resilient system.

This study recommends three areas of action: (1) strengthen the institutional and operational framework of urban mobility; (2) develop an integrated approach to address mobility and accessibility; and (3) respond and adapt to COVID-19.

### Strengthening the institutional and operational framework

Urban mobility's institutional and operational framework will serve as the foundation for any transformation of the sector. It rests on a clear understanding of ownership of the reform program and establishment of a formal basis to coordinate across multiple stakeholders at the central and local levels. Some of the key institutional building blocks need to be reinvigorated—the Centre for Urban Transport (CUT), Urban Transport Advisory Committee (UTAC), GAPTE, MMDAs, transport departments, and others—so they absorb the obligation, direction, motivation, and capacity to deliver. The central government should also support programs to build human capital in specialized skills in urban mobility at different levels of government. And, finally, the government needs to explore further sources of financing for current and capital expenditures, including opportunities for private sector participation in urban mobility.

### Developing an integrated approach to mobility and accessibility

Investment in urban transport is vital to achieving social, economic, and environmental outcomes. Investments in public transport should be aimed at delivering the most resilient and cost-effective solutions, envisaged as the development of a hierarchically integrated transit system (HITS)—that is, transit network that integrates multimodal services, with high-capacity transit serving as the backbone and feeder services and NMT integrated with the overall network.

In the process of building a HITS, the government of Ghana should focus on four areas: (1) improving the existing public transport by rationalizing and reorganizing the existing services using a sustainable business model;

(2) developing a high-quality bus mass transit service in main corridors; (3) integrating the transit network with local neighborhoods by investing in road paving and NMT facilities; and (4) focusing on the most vulnerable population while developing HITS.

Mass transit can serve as a structural element in cities, providing high levels of service in main corridors. An example of mass transit is bus rapid transit (BRT). BRT is not a single solution, but rather a spectrum of solutions, opening up varying levels of options that can be adapted to the local context. It is recommended that Ghanaian cities launch development of mass transit in a pilot or demonstration corridor. Implementation of such systems requires significant operational capacity and strengthened institutional and regulatory frameworks.

In addition to the introduction of new mass transit, rationalization and reorganization of the existing services are imperative. In the process of formalization of the sector, it is critical to develop a system that is accessible, affordable, and acceptable for different groups. It should especially focus on those groups that are traditionally being left behind in the planning process, such as women, people with disabilities, and low-income groups. This formalization will be critical to responding to the urgent need to prevent the spread of COVID-19 in public transport.

Strengthening the road network will call for a “complete streets” approach with quality sidewalks; pedestrian-centered traffic management and crossings; bike lanes; high-quality bus service, including facilities where appropriate (for example, bus stops and depots); and an effort to identify the missing gaps in the road network hierarchy to provide a balance of main, secondary, tertiary, and community roads.

### **COVID-19—reinforcing the need to accelerate reforms in the sector**

Inclusion of urban mobility in the response to COVID-19 is essential and is buttressed by four objectives: (1) saving lives; (2) protecting the poor and vulnerable; (3) ensuring sustainable business growth and job creation; and (4) strengthening policies, institutions, and investments for building a better future (table ES.1).

In the next 12–24 months, the government would do well to concentrate on the first three objectives. First, it should establish protocols to prevent transmission of the coronavirus in public transport. The preventive measures could include social distancing, cleanliness, and information dissemination. Second, the government should protect the most vulnerable workers in the crisis by setting up a fund and safety net programs to support those in the informal transport sector (drivers and conductors). And, third, the government should support the development of a transport system that allows people to reach jobs and social services safely. A few examples are bicycle initiatives, the use of new technologies for cashless fare collection, and financial support to allow continuation of public transport operations and the implementation of hygiene protocols in public transport.

Although COVID-19 has disrupted the access to jobs and services in Ghanaian cities and has especially affected the poor who rely on public transport, it also presents an opportunity for the government to urgently reinvent the sector and to shape the structural changes required in the medium and long term to deal

**TABLE ES.1 Summary of recommendations for responding to COVID-19 in urban mobility: Ghanaian cities**

Objectives	Interventions	
(1) Saving lives	Put in place protocols to prevent the transmission of COVID-19 in public transport. The preventive measures may include social distancing, cleanliness, and information dissemination.	Short term
(2) Protecting the poor and vulnerable	Protect the most vulnerable in the crisis by setting up a fund to support the most vulnerable workers in the informal transport sector (drivers and conductors) with safety net programs.	
(3) Ensuring sustainable business growth and jobs creation	Support the development of a transport system that allows people to reach jobs and social services in safe conditions: <ul style="list-style-type: none"> <li>- Bicycle initiatives</li> <li>- Use of new technologies, that is, cashless fare collection systems</li> <li>- Financial support to public transport operators</li> </ul>	
(4) Strengthening policies, institutions, and investments for building back better	Support and accelerate urban transport reforms to build back better, including <ul style="list-style-type: none"> <li>- Develop a more equitable, innovative, sustainable, and resilient transport, including building incentives toward more sustainable modes (nonmotorized transport) and the formalization of informal tro-tro operations</li> <li>- Develop the role of smart technology and data analytics</li> </ul>	Medium to long term

Source: World Bank.

with COVID-19 (table ES.1). If nothing is done, cities will likely see more congestion, emissions, and accidents. And they will find it too costly to become competitive, inclusive, and sustainable.

In the medium and long term, the government should therefore accelerate the adoption of urban transport reforms, developing smart technologies and data analytics for a more innovative and resilient system. Regulated and modernized public transport, integrated with walking and cycling paths, will help cities develop a more equitable, sustainable, and resilient transport system.

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# Abbreviations

BRT	bus rapid transit
CBD	central business district
CCTV	closed-circuit television
CPF	Country Partnership Framework
CUT	Centre for Urban Transport
DFR	Department of Feeder Roads
DoT	Departments of Transport
DUR	Department of Urban Roads
DVLA	Driver and Vehicle Licensing Authority
GAMA	Greater Accra Metropolitan Area
GAPTE	Greater Accra Passenger Transport Executive
GHA	Ghana Highways Authority
GPRTU	Ghana Private Road Transport Union
GRCC	Ghana Regional Coordinating Council
GRF	Ghana Road Fund
GRTCC	Ghana Road Transport Coordination Council
GTFS	General Transit Feed Specification
GUTP	Ghana Urban Transport Project
HITS	hierarchically integrated transit system
ITS	integrated transit system
KMA	Kumasi Metropolitan Area
LGS	Local Government Service
LI	Legislative Instrument
MDA	ministries, departments, and agencies
MLGRD	Ministry of Local Government and Rural Development
MMDAs	metropolitan, municipal or district assemblies
MoF	Ministry of Finance
MoT	Ministry of Transport
MRH	Ministry of Roads and Highways
NDPC	National Development Planning Commission
NMT	Nonmotorized Transport
NRSA	National Road Safety Authority
OSA	Omnibus Services Authority

OSM	OpenStreetMap
PPBME	Policy, Planning, Budgeting, Monitoring and Evaluation Department
QBS	Quality Bus Service
RCC	Regional Coordinating Council
SCUTA	Steering Committee on Urban Transport in Accra
TD	Transport Department
TDM	transport demand management
UMAC	Urban Mobility Advisory Committee
URD	Urban Roads Department
UTAC	Urban Transport Advisory Committee

# Introduction

Urban access to jobs and social services is essential to end poverty and share prosperity in Ghanaian cities. Ghana's urban areas contribute to more than two-thirds of Ghana's gross national product (GNP), demonstrating both their importance and their potential for contributing further to economic growth.

## STUDY OBJECTIVES

The objectives of this study are to (1) assess the constraints to accessing jobs and social services in Ghanaian cities, especially those facing women, low-income groups, and people with disabilities and children; (2) reveal and analyze urban mobility issues in two intermediary cities<sup>1</sup> in Ghana, Kumasi and Tamale, and in its capital city, Accra; (3) evaluate the initial measures undertaken to mitigate the spread of COVID-19 (coronavirus) in urban transport and the reforms needed; and (4) propose recommendations aimed at transforming urban mobility with the goal of more inclusive and more sustainable growth.

This report introduces the concept of urban accessibility in order to analyze the constraints to reaching jobs and services and to plan for interventions. Accessibility has been extensively studied over the last few decades. However, even while recognizing its importance, few local or municipal bodies can boast of using it in the planning process. The “inclusive accessibility framework” developed by the study team and presented prioritizes investments that target economic growth and social and economic inclusion.

This report opens the door to understanding urban mobility issues of intermediary cities in Ghana. Intermediary cities face tremendous pressures to respond to their growth, but their human and financial capacity is very limited. As in many other countries, capital cities tend to attract most of the attention and funding.

In the context of COVID-19, this study assesses the initial measures the government of Ghana instituted to prevent the spread of the virus and the short-term disruption in the transport sector. This report provides recommendations for the short, medium, and long term to prevent transmission of the virus in public transport and to respond to the changes in the urban mobility arena.

Finally, the report proposes recommendations on how Ghana can achieve more sustainable and inclusive economic growth that supports human capital and greater efficiency and transparency in government delivery. The Theory of

Change (table I.1) presents long-term objectives of poverty reduction and increasing shared prosperity. Outcomes are aligned with those of the World Bank’s Ghana Country Partnership Framework (CPF) through intermediary outcomes—inclusive access to social services; inclusive and competitive access to economic opportunities; and enhancement of governance and service delivery.

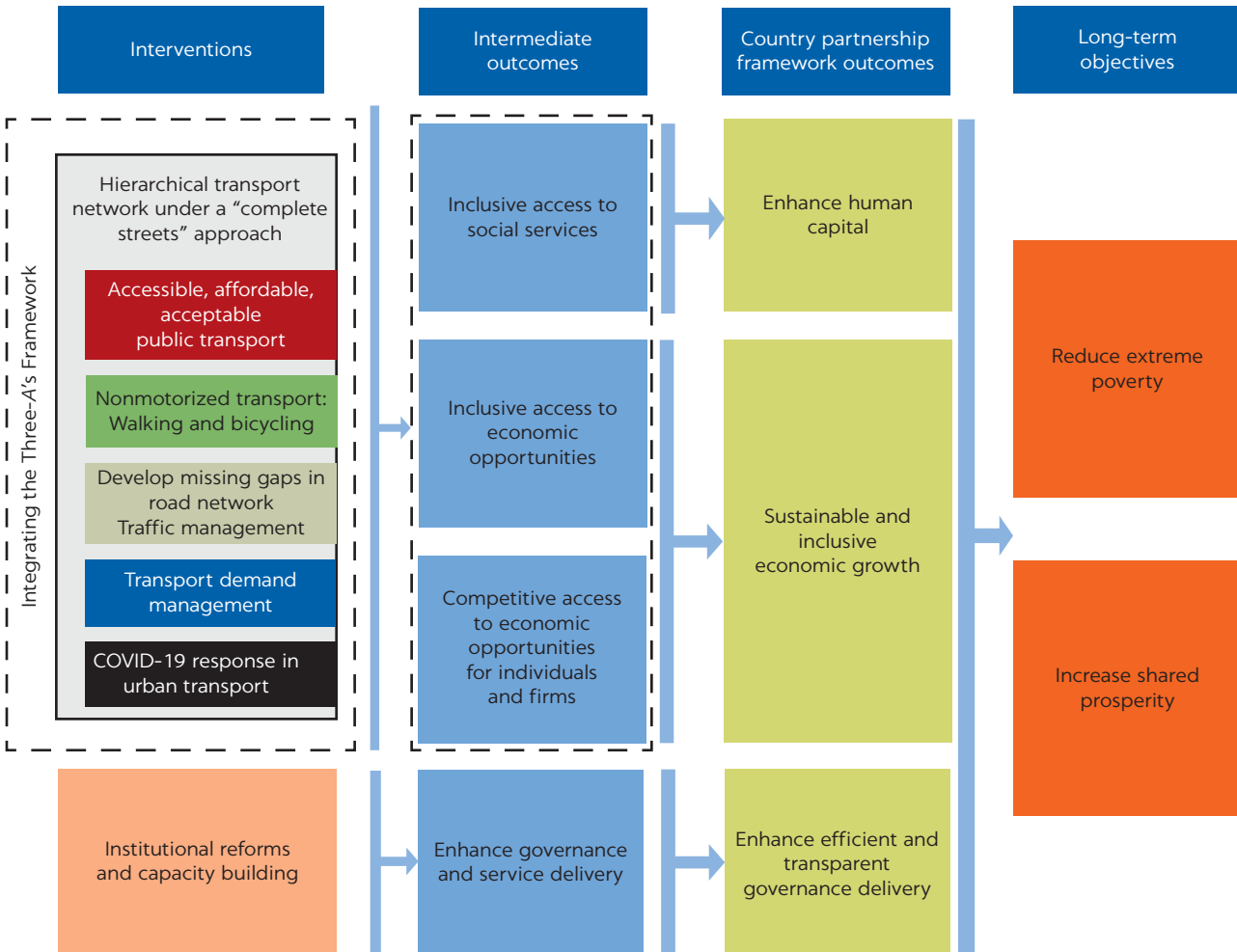
### STUDY APPROACH AND METHODOLOGY

This study is based on primary and secondary quantitative data, focus group discussions, and one-on-one discussions to capture the diversity of travel profiles.

The primary quantitative data include public transport and road infrastructure data collected in Kumasi and Tamale (map I.1) in collaboration with Kwame Nkrumah University of Science and Technology (KNUST).

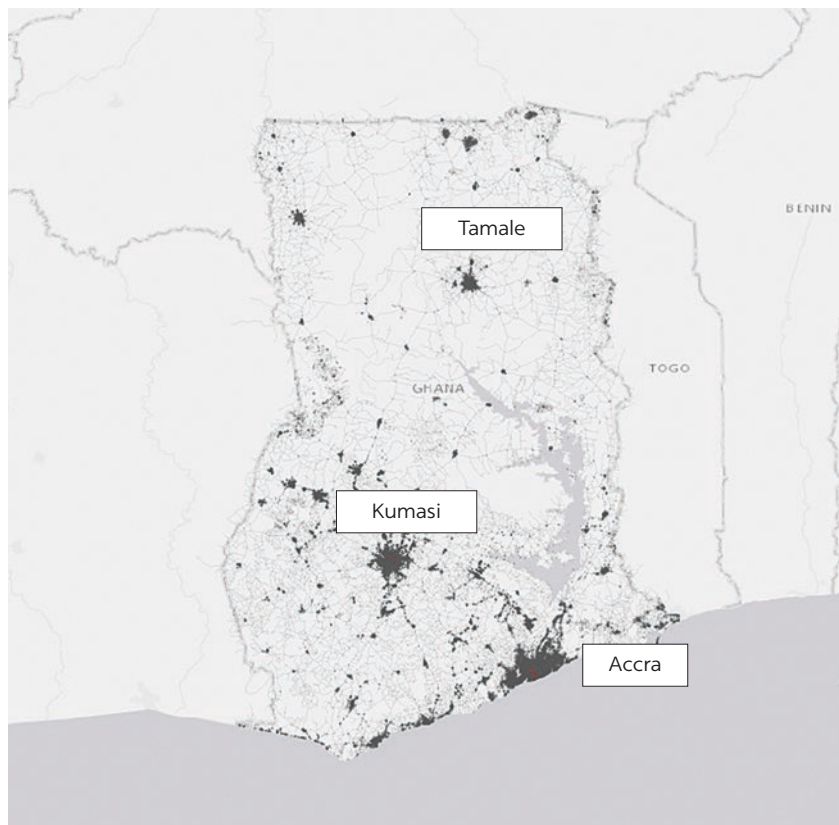
The study adopted a quantitative and qualitative approach to understanding the mobility constraints of vulnerable groups in Greater Accra, Kumasi, and Tamale and to modeling changes in the spatial accessibility analysis.

**TABLE I.1 Theory of change of urban mobility: Ghanaian cities**



## MAP I.1

## Study areas: Accra, Kumasi, and Tamale



Source: OpenStreetMap Africa.

In Accra, the capital city, the study team held semistructured interviews and focus group discussions in five main corridors across the city in February and March 2018. In August 2019, it organized seven focus groups—five in Kumasi and two in Tamale. The focus groups included people from different income brackets, men and women, people with disabilities, ethnic minorities, schoolchildren, and members of the general public.

The analytic stages of this study used the concept of three A's—accessibility, affordability, and acceptability—to understand the levels of access across Accra, Kumasi, and Tamale for different groups of people, particularly those living in poverty. Accessibility analysis mapping allowed the team to identify groups' levels of access by changing parameters such as fares, frequency of travel, and other barriers. The proposed interventions could then be tested against these scenarios to assess their potential impact, and a list of recommendations could be derived from the process.

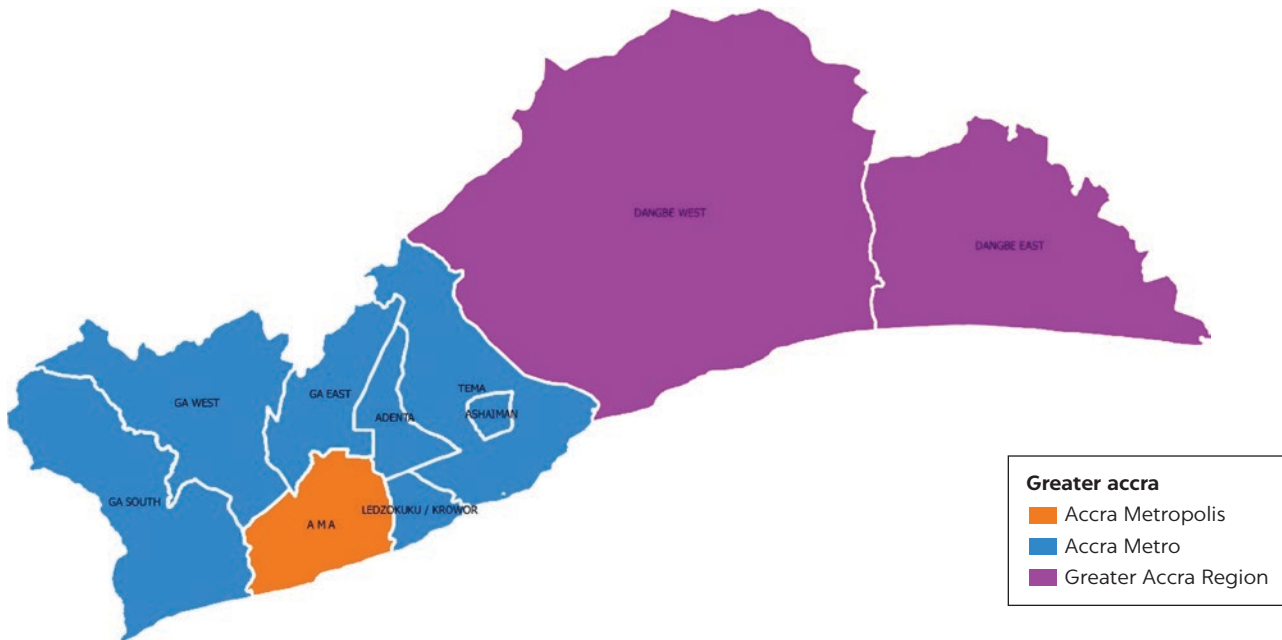
The COVID-19 crisis hit Ghana during the last phases of this study. In May 2020 semistructured interviews were held with the local governments in Accra and Kumasi to collect information about (1) the COVID-19 measures that the governments put in place in urban transport; (2) the impact of the crisis on access to jobs and services; and (3) the impact of the virus on the financial sustainability of the urban transport sector. Additional secondary data were obtained from cellphones to assess changes in people's mobility as a result of the crisis. This information was used to build specific recommendations

aligned with the World Bank’s response to the COVID-19 crisis, which identified four goals: (1) saving lives; (2) protecting the poor and vulnerable; (3) ensuring sustainable business growth and job creation; and (4) strengthening policies, institutions, and investments in order to build a better future.

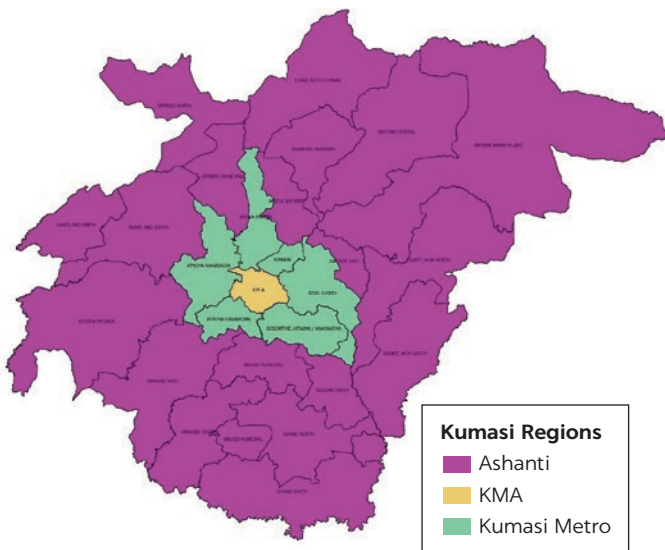
MAP I.2

Administrative areas: Accra, Kumasi, and Tamale

a. Accra



b. Kumasi



c. Tamale



Source: World Bank.

## STUDY AREAS

The three urban areas studied—Accra, Kumasi, and Tamale—are located in different regions of Ghana (map I.1) and have distinctive characteristics and issues. The study selected these cities because of their importance to the national economy and their geographical and contextual diversity.

All three cities are regional capitals (map I.2). Accra is the administrative and commercial capital of Ghana and the Greater Accra region. Kumasi, the capital of the Ashanti region, is the country's second-largest city. Tamale, the capital of the northern region, is the country's fourth-largest city.

## CONTENTS OF THE REPORT

After the introductory section, the report is structured as follows:

**Part I: Understanding the problem.** This part documents the issues that limit access to jobs and social services in Ghanaian cities. Chapter 1 describes the socioeconomic spatial dynamics and the spatial trends, including demographic changes, built-up urban area expansion, and poverty dynamics. Chapter 2 analyzes the issue of accessibility using an inclusive framework that aims to identify barriers to access for different groups, measured in terms of the accessibility, affordability, and availability of transport services. This chapter also details how women, people with disabilities, children, and other vulnerable groups are disproportionately excluded from access opportunities. Chapter 3 describes the institutional foundation for urban mobility in Ghanaian cities in terms of leadership, institutional fragmentation, and human and financial capacity. Chapter 4 describes the key economic costs of inaction in urban mobility.

**Part II: Defining the Path of Transformation.** Based on the analysis in previous chapters, this part defines the “what” (chapter 5) and the “how” (chapter 6) a path of action could be developed for urban mobility in Ghanaian cities, with recommendations for the short, medium, and long term. Chapter 7 attempts to estimate the potential socioeconomic benefits if the recommendations were to be implemented.

**Part III: Conclusions.** Chapter 8 summarizes the key messages of the report and the way forward.

## NOTE

1. Intermediary cities refer to cities outside of the national capital that generally play a critical role in connecting rural areas with main urban areas and external markets.





# Understanding the Problem



# 1 The Context: Urban Sprawl, Limited Transport Infrastructure, and Informal Transport Services

## Key takeaways

- Ghanaian cities have experienced rapid population growth over the last few decades, and it is expected to continue, with most of the urban growth taking place outside of Accra.
- Population growth has been accompanied by reductions in population densities and the spatial expansion of cities, which has rendered service provision more expensive and less efficient. Low-density areas are not served well by public transport, and where they do exist, the provision of transport services is more expensive.
- Ghana's economic and demographic growth has translated into an increase in demand for transport infrastructure and services, putting pressure on the limited transport system.
- In the three Ghanaian cities studied, informal, privately operated transport is prevalent. Tro-tros (minibuses) are the main motorized mode used to access jobs; they represent nearly 60 percent of motorized trips to jobs in Accra and about 40 percent in Kumasi.

## Externalities

- In Ghana, the cost of fatalities and serious injuries from road crashes amounts to an annual loss of

US\$4.55 billion, or 8.3 percent of the country's gross domestic product (GDP).

- Congestion is a major source of productivity loss in urban Ghana. In Kumasi, it accounts for an average loss of 9 percent of productive hours a day.
- The vehicle fleet accounts for 80 percent of air pollution in Ghana, and nearly 3,000 deaths a year in Accra alone are attributable to ailments related to outdoor air pollution.

## COVID-19 and urban mobility

- Preventive measures in public transport are critical to control the spread of the disease. The informality of the sector is, however, challenging for the implementation of measures.
- In the short term, COVID-19 has had significant adverse financial impacts on the transport sector, and they are likely to continue for some months. Drivers and conductors are two especially vulnerable groups from an economic and health perspective.
- Disruptions from COVID-19 will likely create permanent and structural changes in the transport system in the medium and long term, including permanent changes in user behaviors, business models, and actors in the sector.

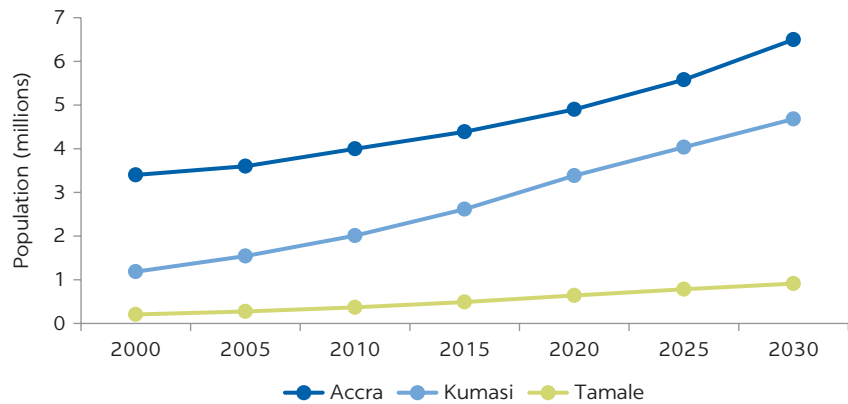
### DEMOGRAPHIC GROWTH, URBAN SPRAWL, AND DECREASING DENSITIES

Ghana’s cities experienced rapid population growth in the last decades of the 20th century, and that growth is expected to continue. In fact, Ghana’s urbanization has outpaced the West African average. Both in-migration and natural increase account for this population increase. The Greater Accra region is home to 16 percent of the country’s population, and the Greater Accra Metropolitan Area (GAMA) is home to 7.5 percent. The Kumasi Metropolitan Area (KMA) accounts for 8.3 percent of the population, and Tamale for 1.5 percent.

Intermediary cities such as Kumasi and Tamale are expected to grow more rapidly than the national capital. Indeed, most of the urban growth will occur outside of Accra. It is expected that by 2030 Accra’s population will be 1.7 times higher than its level in 2010, Kumasi’s 2.3 times higher, and Tamale’s 2.5 times higher (figure 1.1).

The spatial expansion with lower densities has made service provision more expensive and less efficient. For example, Accra’s population increased by 4 percent between 2000 and 2014, but its urban density decreased by 1.3 percent (table 1.1, map 1.1). This shift generated low-density areas not served by public transport.

**FIGURE 1.1**  
**Population growth: Accra, Kumasi, and Tamale, 2000–30**  
*after 2020, estimate*



Source: World Bank, based on UN Population Data, 2020.

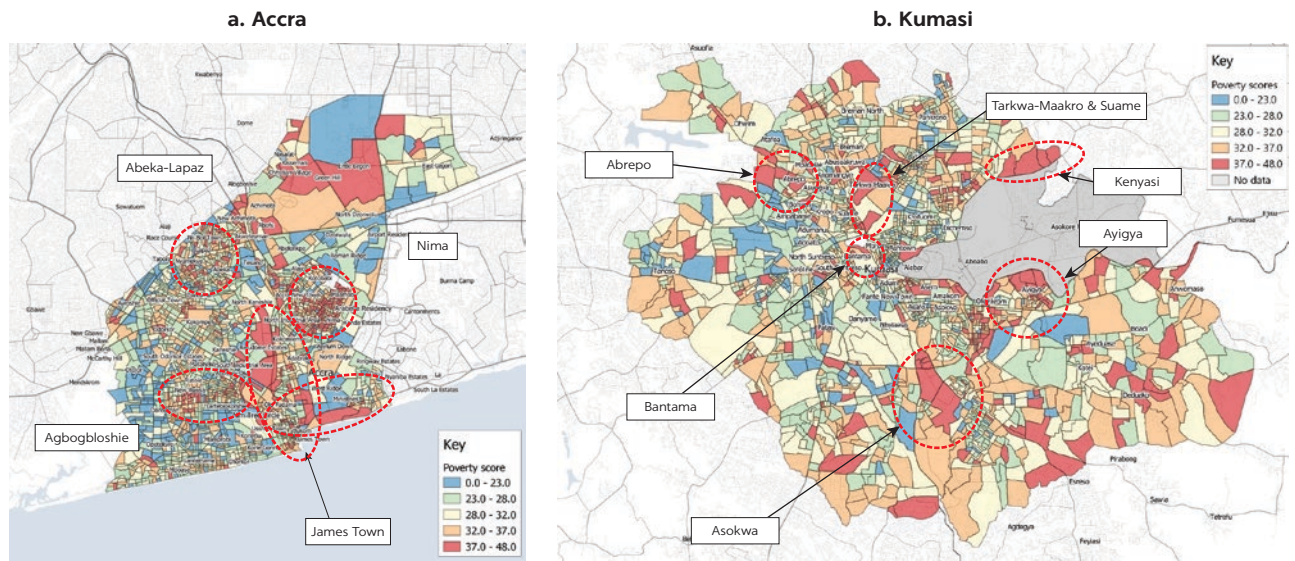
**TABLE 1.1** Annual increase in population, urban extent, and population density of built-up area and urban extent area: Accra, 1991–2014  
*percent*

	POPULATION	URBAN EXTENT	POPULATION DENSITY, BUILT-UP AREA	POPULATION DENSITY, URBAN EXTENT AREA
1991–2000	12.40	7.00	-5.60	-5.20
2000–2014	5.30	4.00	-0.72	-1.30

Source: Lincoln Institute of Land Policy, “Atlas of Urban Expansion,” <https://www.lincolninst.edu/research-data/data/atlas-urban-expansion>.

MAP 1.1

Poverty maps: Accra and Kumasi



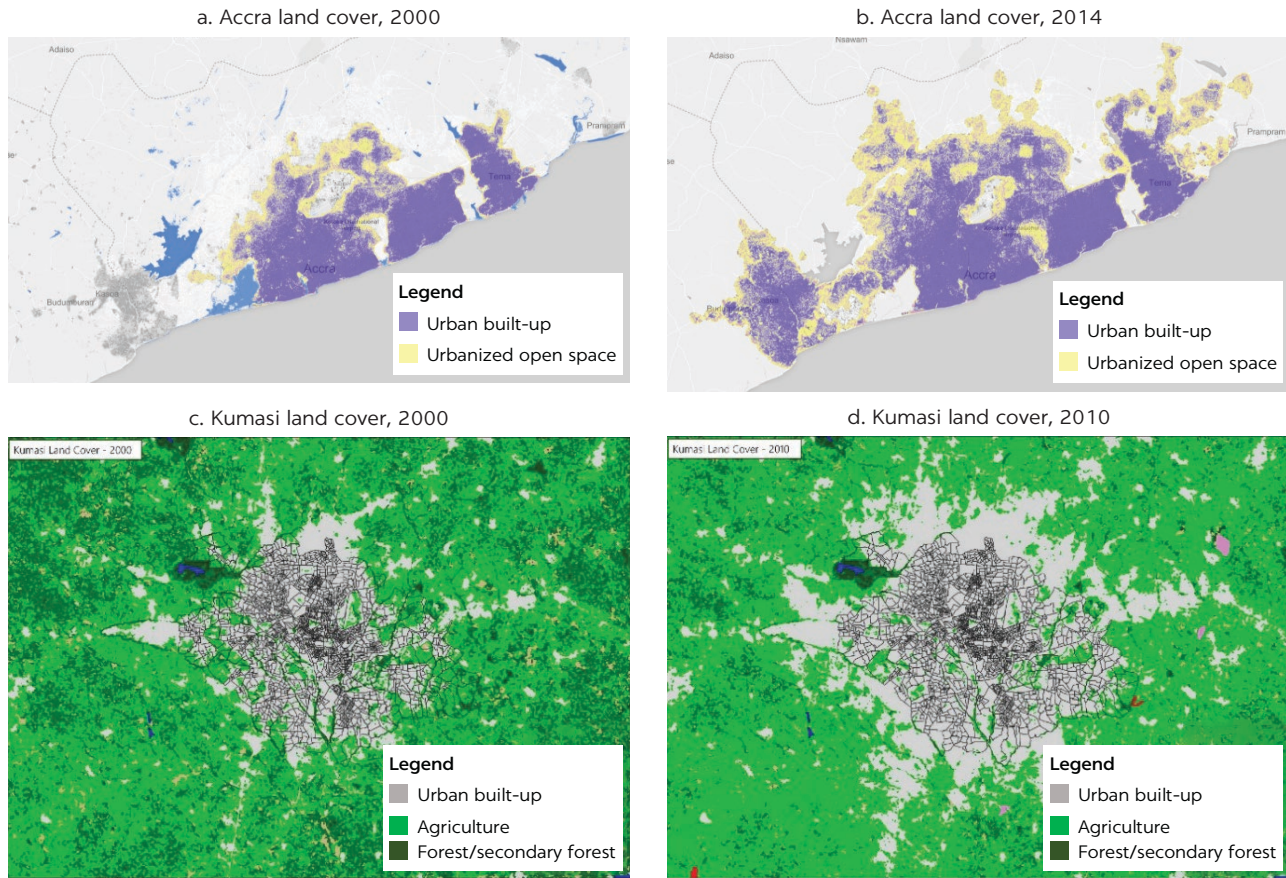
Source: World Bank.

Note: The poverty mapping has been carried out using 2010 census data. This takes into account a variety of household and non-household related factors that commonly indicate poverty to create a “score” of how likely poverty is to exist within a certain area. The non-housing factors include illiteracy, school attendance, unemployment, and deaths in the family (child and adult). Housing factors include the materials used to build the dwelling, tenancy type, and main sources for lighting and drinking water. By combining housing and non-housing indicators, it is possible to create a combined “poverty score” for the overall likelihood of areas containing high proportions of poorer people.

The affordability of housing and the deficit in the supply of housing in principal cities, especially Greater Accra and Kumasi, have had a significant impact on spatial dynamics and encourage the development of slums, especially in the periphery. Low- and middle-income households, priced out of the residential market in a city have moved to periurban areas where land prices are relatively cheaper. The inability of supply to meet user demand results in growing slums in cities’ surrounding areas (map 1.1). As a result, new developments have mushroomed in several periurban areas of Accra and Kumasi (map 1.2). This unplanned expansion, which often occurs in environmentally fragile floodplains and in hazardous zones, results in an increased probability of disastrous effects from natural events (World Bank 2017).

Housing prices and cost per acre in Greater Accra and Kumasi have increased exponentially since 2000 (figure 1.2). The cost of the cheapest newly built house available in the periphery of Accra is between US\$55,211 and US\$67,633 (GSS 2014a; Ghana Real Estate Developer Association (GREDA)). Housing is therefore unaffordable for most of Accra’s citizens, whose average annual income is US\$1,513. A comparison of the housing situation in Accra’s inner-city neighborhoods with similar areas in Nairobi, Dar es Salaam, and Addis Ababa reveals a much higher expenditure on housing and services in Accra than in these other cities. In addition, housing in Accra is of lower quality and quantity.

The limited options to finance a home purchase make it difficult to own a home. Mortgage interest rates are 35 percent for standard risk loans, but they increase to 39 percent in unsecured lending operations. Average mortgages represent only 1 percent of total GDP, and the average loan size for mortgages is US\$53,000. Only 1.7 percent of urban households in Ghana can afford to buy a house (Centre for Affordable Housing Finance in Africa 2017). Data reveal the

**MAP 1.2****Land cover: Accra and Kumasi, 2000 and 2014**

Sources: Landsat imagery and Lincoln Institute of Land Policy, "Atlas of Urban Expansion," <https://www.lincolninst.edu/es/research-data/data/atlas-urban-expansion>.

underdeveloped state of the housing finance market and the relatively exclusive access to such financial services.

The costly and time-consuming official process to obtain construction permits also contributes to a wider supply gap. Construction permits typically cost up to 2 percent of the property value, and an average 13 procedures over 201 days are required to acquire a permit.

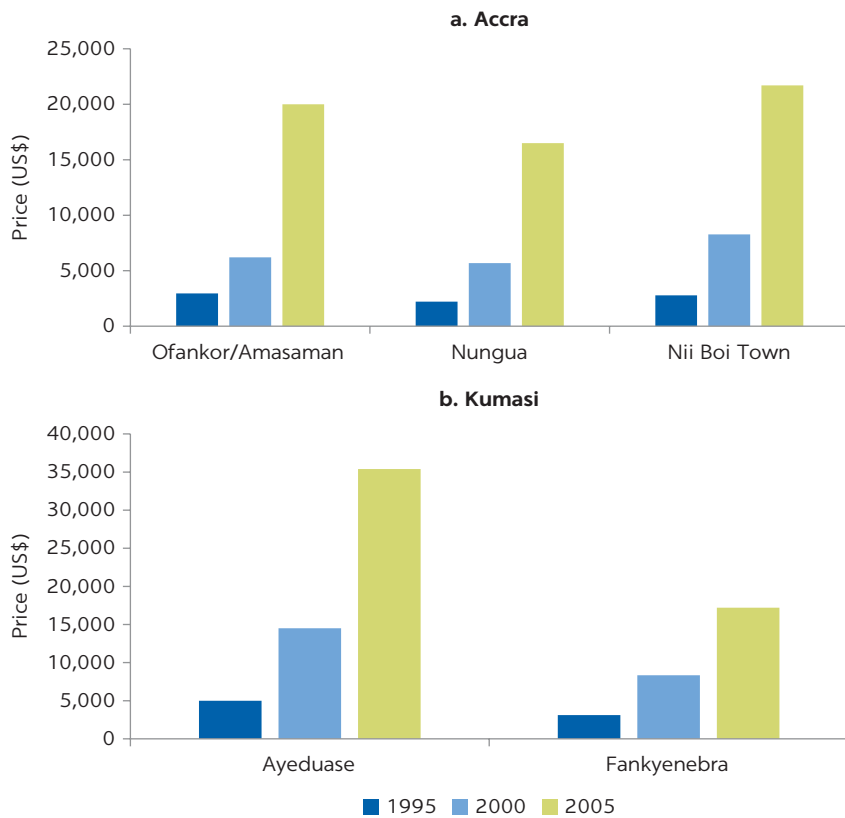
## EXPONENTIAL GROWTH OF DEMAND BUT LIMITED INFRASTRUCTURE

Ghana's economic growth has been accompanied by an exponential growth in motorization and the built-up area of cities, but investment lags in transport systems and infrastructure. Ghana's economy expanded at its fastest recorded rate from 2012 to 2017 as oil and gas production surged. GDP expanded by 8.5 percent in 2017, compared with 3.7 percent in 2016. The burgeoning growth has simultaneously resulted in a growing demand for infrastructure and services.

Although motorization in Ghana is low compared with that at the global level, Accra has a high motorization rate compared with that of other African cities. Kumasi's rate is relatively low against the benchmarked cities. Like most large

**FIGURE 1.2**

**Trends in price of housing land per acre in selected areas: Accra and Kumasi, 1995–2005**



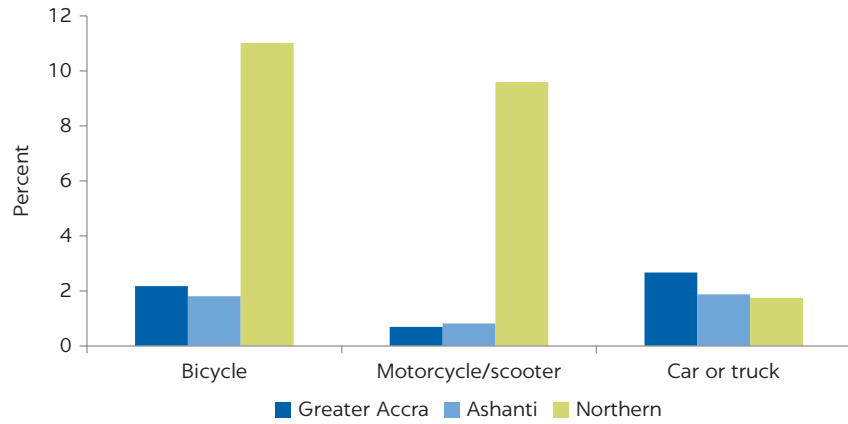
Source: GSS 2010a.

and medium-size African cities, Accra, Kumasi, and Tamale have faced a rapid increase in motorization on a road network that is inadequate to meet the needs. Vehicle ownership in Ghana increased sixfold over a 25-year period, from 40,000 per 1,000 persons in 1990 to 260,000 in 2015. Vehicle ownership is generally linked to household wealth, and so those households with private vehicles have more options for accessing opportunities.

Very few Ghanaians own a vehicle, emphasizing the importance of public transport and nonmotorized transport in all its forms across the country (figure 1.3). Car and truck ownership are low (less than 3 percent) in all three regions studied. Motorcycle or scooter and bicycle ownership are low in Greater Accra and Ashanti, but 10 percent each in the northern region. Tamale, in particular, has a history of favoring bicycle and motorcycle as a transport mode (box 1.1).

Extended periods of underinvestment accompanied urban change in the city’s transport infrastructure and services, especially during the era of structural adjustment from the early 1980s to the mid-1990s. The expansion in city size and decline in density (table 1.1) have made it difficult for urban roads and public transport to meet the market demand. The underinvestment has been especially marked in intermediary cities. In the absence of formal public transport, informal public transport has flourished in all urban areas.

**FIGURE 1.3**  
**Vehicle ownership across urban areas of three regions of Ghana:**  
**Northern, Ashanti, and Greater Accra**



Source: Labour Force Survey, 2015 (GSS 2015).

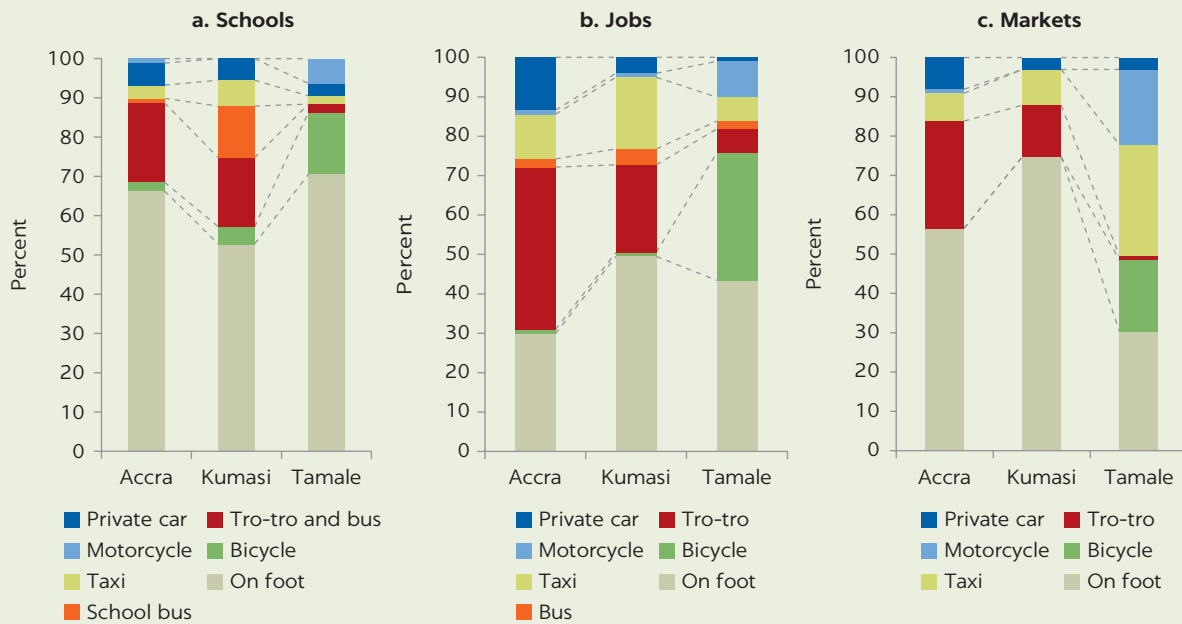
**BOX 1.1**

**How do people move in Ghanaian cities?**

Across all three cities, most people walk to jobs, markets, and schools. In Accra and Kumasi, tro-tros (minibuses) are used commonly, whereas in Tamale (where tro-tros are rare), bicycles and motorcycles are noticeably more common. School buses are

sometimes used in Kumasi to serve schools, but they are rare in Accra and nonexistent in Tamale. Walking is less common in Tamale than in Kumasi and Accra for accessing work and markets, but more common for going to school (figure B1.1.1).

**FIGURE B1.1.1**  
**Modes of travel to go to schools, jobs, and markets**



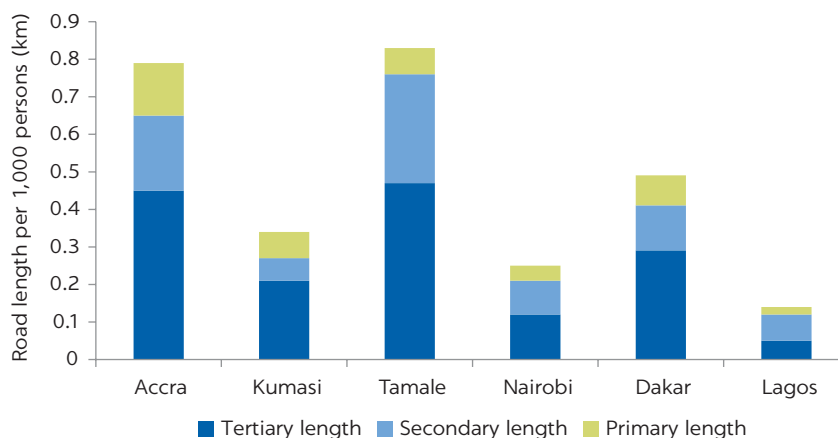
Sources: Transport Indicators Survey, 2007 and 2012; World Bank, based on Second National Household Transport Survey Report 2012 (GSS 2013b).

Urban population growth is adding strain to Ghana’s already poor infrastructure and services. Road network per inhabitant lags behind the average in developing countries. The geographical layout, quality, and capacity of the road network are essential to ensuring accessibility to jobs and services. Lack of well-designed paved roads with separate rights of way for safe passage of vehicles and pedestrians is a barrier to mobility. The study team examined the OpenStreetMap (OSM) Africa road network data for each of the Ghanaian cities studied and benchmarked against three Sub-Saharan African cities to assess the impact of the existing road network on accessibility and to identify barriers posed by the road network. It found that the road length per inhabitant in Accra and Tamale surpassed that of other African cities such as Dakar and Nairobi (figure 1.4). Limitations of the analysis are dependent on the quality and consistency of OSM data. However, they do provide insight into road service level.

### PUBLIC TRANSPORT: DOMINATED BY INFORMAL PRIVATE OPERATORS

In Ghana, transitions such as liberalization and decentralization of regulatory powers have led to a fragmented public transport network. Vacillation since the 1970s between central and local, regulated and deregulated, and regulatory and operational models has resulted in a lack of stability for operators and passengers. During the colonial era and the subsequent civilian and military governments through the early 1970s, city enterprises provided the core urban public transport in Ghanaian cities. In the late 1960s, these enterprises were consolidated into a single state-owned enterprise, the Omnibus Services Authority (OSA). OSA provided large- and medium-size bus services in the main cities such as Accra, Kumasi, and Tamale, and also operated services in smaller cities as well as intercity bus operations. By the mid-1970s, OSA had entered a period of financial difficulty during which the government decided to privatize its passenger transport activities and refused to renew the rolling stock. OSA then lapsed into a classic spiral of deterioration, loss of business, and collapse of both capacity and market. By 2000, OSA was bankrupt and had effectively ceased operations, although it did have some residual facilities.

**FIGURE 1.4**  
OpenStreetMap road network analysis: Selected Sub-Saharan cities



Source: World Bank, based on OpenStreetMap data 2020.  
Note: km = kilometer.

Underinvestment in a formal public transport system was the main reason cities promoted the development of informal private operators, dominated by minibuses—locally called tro-tros. In the three Ghanaian cities studied, informal, privately operated transport is prevalent, and only a limited number of formal large bus operations exist. Other Sub-Saharan cities also face the issue of lack of large public transport vehicles (table 1.2).

Tro-tros took over the market vacated by OSA and became firmly established throughout Ghana. Tro-tros are typically 14- to 18-seater vehicles, invariably old secondhand imports, although generally in better condition than in some other West African countries. The tro-tro is the typical mode of transport in larger urban areas, whereas shared taxis are more prevalent in villages and small towns.

Tro-tros operate between pairs of terminals and serve a fixed route. Vehicles depart only when they are full, which means they depart frequently at busy times, but very long waits can occur at off-peak times. Passengers may have to sit in a hot vehicle for up to an hour waiting for departure. Other vehicles also park in the terminal area awaiting their turn, leading to congestion both in the terminal and in the approach roads. Because buses only depart when full, it is usually not possible to board a vehicle for the first two to three kilometers along the route, so many passengers walk back to the terminal to board a vehicle. This arrangement has advantages for the unions and terminal staff, but it has strong disadvantages for some customers. In the market, it also creates gaps that are served by unauthorized vehicles—floaters—that operate along the route and are not part of the terminal-based units.

From 1983 to the introduction of the permit system, the transport sector in Accra and Kumasi was effectively self-regulating, and it was recognized as such by the authorities (box 1.2). The unions, and in particular the Ghana Private Road Transport Union (GPRTU), have established their position as gatekeepers. In one sense, they have a quite effective framework within which new routes can be formed (box 1.2). A new route-operating license is granted by the union, not by city authorities. The process for creating new routes starts with the agreement between operators who are willing to work the new route with the relevant union branch. The unions effectively control the system through their control of the terminals.

Bus fares have been deregulated since 1990, but in practice they are negotiated between the government and the operators represented by the GPRTU and the Ghana Road Transport Coordination Council. The Driver and Vehicle Licensing Authority (DVLA) issues licenses to drivers and vehicles for commercial operations as well as roadworthiness certificates for vehicles. During 2006–07, DVLA reintroduced mandatory inspections for commercial vehicles, resulting in a visible, positive impact on the external bodywork of tro-tros and taxis.

**TABLE 1.2 Public transport fleets: Sub-Saharan cities**

CITY	TWO- AND THREE-WHEELERS	MINIBUS	MEDIUM-SIZE BUS	STANDARD BUS	LARGE BUS	BUS RAPID TRANSIT (BRT)	COMMUTER RAIL
Accra	✓	✓	✓	✓	✓		
Kumasi	✓	✓	✓	✓	✓		
Tamale	✓	✓	✓				
Nairobi	✓	✓	✓	✓			✓
Dakar	✓	✓	✓	✓	✓	✓	
Dar es Salaam	✓	✓	✓	✓	✓	✓	
Lagos	✓	✓	✓	✓	✓	✓	✓

Source: World Bank.

## BOX 1.2

**Industry structure of public transport: Ghanaian cities**

The structure of the operating industry in Accra and Kumasi comprises the following elements:

- *Operating unions and associations.* Three major operating unions and associations function in Ghana. The Ghana Private Road Transport Union (GPRTU), a national union, oversees the dominant share of the tro-tro and shared-taxi business. The basic units are locals, which operate the individual routes, and branches, which are regional clusters of locals. The GPRTU represents the interests of drivers and of vehicle owners, although it is more naturally aligned with drivers. The Progressive Transport Owners Association (PROTOA) is a national association that operates both tro-tro and shared-taxi businesses and is organized along the same lines as the GPRTU. PROTOA mainly represents the interests of owners. Finally, the Ghana Co-operative Transport Association (GCTA) is a national association, organized along the lines of the GPRTU, that represents the interests of owners and drivers. Other smaller unions are organized in cities as well.
- *Other private operators.* Companies such as Agate, Kingdom Transport, Pergah Transport, GH Express, OA Transport, and the VIP bus service operate several buses and offer contract services, urban services, and intercity services, among others.
- *Metro Mass Transit (MMT)* is a quasi-private company owned by a set of government-linked financial institutions and one privately owned bank. The government has a substantial (45 percent) minority shareholding. The MMT receives financial support from the government and currently operates about 500 buses, of which some 200 operate in the Greater Accra Metropolitan Area.
- *The Ghana Road Transport Coordination Council (GRTCC)* is an umbrella body of all transport operators in Ghana, including unions and associations, other locally based associations, and other operators of both passenger and road carriers.

The private sector operates the majority of public passenger transport in Ghana's main cities, finances all public transport vehicles (except buses purchased by the Ministry of Transport), and carries all financial risks for their services. Through its unions and associations, as well as through Metro Mass Transit, the private sector manages the services and terminals of all public transport except the floaters and others who operate illicitly outside the system. Thus the private sector's role in urban passenger transport in cities is well defined.

The main requirement for the private sector is to upgrade and adapt what it already does, in partnership with Greater Accra Passenger Transport Executive in the case of Greater Accra and the assemblies' transport departments. Upgrades will involve fleet renewal, adoption of performance and quality standards, improvement of customer care and safety, and adaptation of its organizational structures. The financial sector should make funds available and more affordable to the bus operator sector. This may require some government backstopping so that the risk premium is not passed on to borrowers by the bus operator sector.

**TRANSPORT EXTERNALITIES: TRAFFIC ACCIDENTS, CONGESTION, AND AIR POLLUTION**





Transport externalities are a silent—and significant—economic cost in Ghanaian cities. In the context of exponential demographic and

motorization growth, cities have not been able to respond with needed transport infrastructures and services and demand management strategies. In this context, traffic crashes, congestion, and emissions have become a real threat to delivery of the economic potential of cities. This section presents secondary data based on previous studies in three areas (traffic crashes, traffic congestion, and air pollution), aiming at showcasing the seriousness of the problem.

- **Traffic accidents.** In Ghana, the cost of fatalities and serious injuries from road crashes totaled US\$4.55 billion per year, or 8.3 percent of the country's GDP. Some 70 percent of the victims of road crash fatalities and injuries range in age from 15 to 64 years—that is, they are in the economically productive groups (World Bank 2020).
- **Traffic congestion.** Congestion is a major source of lost productivity in urban Ghana (Takyi, Poku, and Emmanuel 2013). In Accra, 70 percent of major roads are congested during rush hour with speeds of less than 20 kilometers per hour. Congestion in the Kumasi metropolis has a negative effect on worker productivity in both the formal and informal transport sectors, representing an average income loss of 21.9 percent. The same study reveals that “the average mandated number of hours of about 9 hours a day was reduced by 0.88 of an hour (52.8 minutes) a day, which represents an average of 9% loss of productive hours a day and loss of over two working days in a month” (Takyi, Poku, and Emmanuel 2013, 233).
- **Air pollution.** In Ghana, the vehicle fleet is the source of 80 percent of air pollution. Vehicle emissions increase because of inefficient urban planning coupled with rapid urbanization, poor maintenance of vehicles, importation of overused cars, and traffic congestion. The average age of a vehicle in Ghana is about 14.2 years. The age of public transport vehicles operated by private transport owners is significantly higher. The result is an annual mean level of particulate matter ( $PM_{2.5}$ ) of 31.1 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) in 2016, which far exceeds the World Health Organization's recommended annual guideline of  $10 \mu\text{g}/\text{m}^3$ . Such pollution thus poses a high risk of respiratory infections in humans and contributes to growth inhibition and decimation of animal and plant life. A study of commercial minibus and taxi drivers in Accra, street mobile vendors or hawkers, and street stationary vendors revealed that personal  $PM_{2.5}$  exposure ranged from  $26.0 \mu\text{g}/\text{m}^3$  for hawkers to  $83.4 \mu\text{g}/\text{m}^3$  for taxi drivers. Individual exposure was higher than  $100 \mu\text{g}/\text{m}^3$  for some. Meanwhile, carbon dioxide emissions increased by an astronomical 285.71 percent between 1990 and 2012 (Schwela 2012; Roy 2016; Arku et al., no date; Musah, Peng, and Xu 2020; Odonkor and Mahami 2020).

The World Health Organization recognizes air pollutants as the greatest environmental risk to human health. As of September 2018, more than 28,000 deaths were attributed to air pollution in Ghana. In Accra alone, nearly 3,000 deaths a year are attributable to ailments related to outdoor air pollution. As of 2015, more than 2,800 deaths were occurring each year from exposure to particulate matter, and that number is expected to rise to more than 3,000 deaths a year in 2020 and surpass 4,500 in 2030 if the current trends continue without drastic action. For Africa as a whole in 2013, the estimated economic cost of premature deaths from ambient PM pollution was nearly US\$215 billion.

**TABLE 1.3 Summary of vulnerable transport user groups: Ghana**

		GREATER ACCRA	KUMASI	TAMALE
	Number of visually impaired	44,100	22,000	1,800
	Number of physically disabled	24,000	11,000	1,500
	Number of women	1,768,000	1,067,000	108,000
	Number of persons over age 60	102,000	61,000	6,100

Source: GSS 2012a.

**BOX 1.3****People with disabilities in Ghana**

- Disability materializes when a person interacts with an object and cannot achieve the intended objective.
- According to the Ghana Statistical Service (2014), 3 percent of Ghana's population of about 25 million has a disability. However, this finding contradicts reports by other agencies, including the Ministry of Health, which estimates 7–10 percent of the population has a disability.
- Although Ghana is a signatory to various international agreements, including the UN Convention on the Rights of Persons with Disabilities (UNCRPD) and the African Charter on Human and People's Rights, persons with disabilities continue to face various forms of discrimination and challenges, including limited mobility and lack of access to education, employment, health care, and social services, among others. One of the core principles of UNCRPD is living independently in the community.
- More than half of all persons with disabilities age 15 years and older are employed. Of those disabled with employment, 52 percent are male, and 47 percent are female. The percentage of employed men with disabilities is even higher in rural areas (58 percent) than in urban areas (49 percent).

**VULNERABLE GROUPS AND URBAN MOBILITY**

People's abilities to use different means of transport in Ghanaian cities to reach jobs and services are not equal. To capture particular constraints for vulnerable groups (table 1.3), this study adopted both a qualitative and a quantitative approach to understand mobility constraints for women, people with disabilities (box 1.3), the elderly, and children in Greater Accra, Kumasi, and Tamale. The study uses the three A's framework (see chapter 2) to assess constraints, thereby informing policies and investments and helping to model changes in the spatial accessibility analysis.

**COVID-19 AND URBAN MOBILITY**

The unprecedented COVID-19 (coronavirus) crisis has disrupted mobility in Ghanaian cities. On March 30, 2020, the government of Ghana imposed

lockdown measures in GAMA and KMA that sharply decreased mobility (figure 1.5). The low mobility levels continued after the lockdown was lifted (figures 1.5 and 1.6).

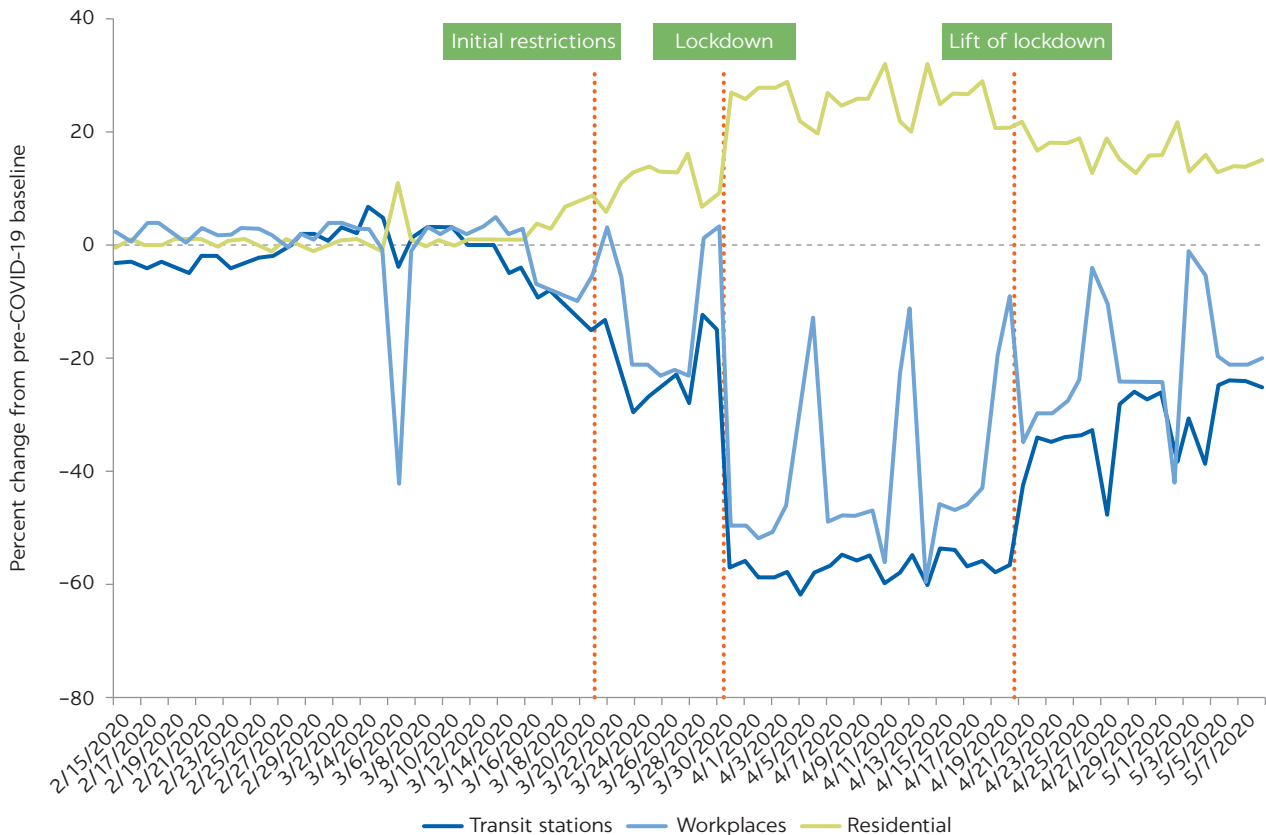
### Measures initiated in Ghana

During the lockdown, GAMA and KMA limited transport services to essential services only—such as those to access the main hospitals. Enforcement teams were deployed in both metropolitan areas to ensure compliance with government measures. Although the number of tro-tros was reduced, many workers did not respect the lockdown imposed by the government and continued operations because for many households in low-income areas, their jobs were their only source of income.

After the lockdown, the government recommended preventive measures to limit the spread of COVID-19 in public transport. These measures included limiting the number of passengers in a tro-tro and bus; instituting hygiene measures such as cleaning vehicles, loading terminals, and stations; hand cleaning; and wearing a mask. Among the measures recommended for intercity bus services were keeping windows open to allow ventilation and allowing buses to stop more frequently.

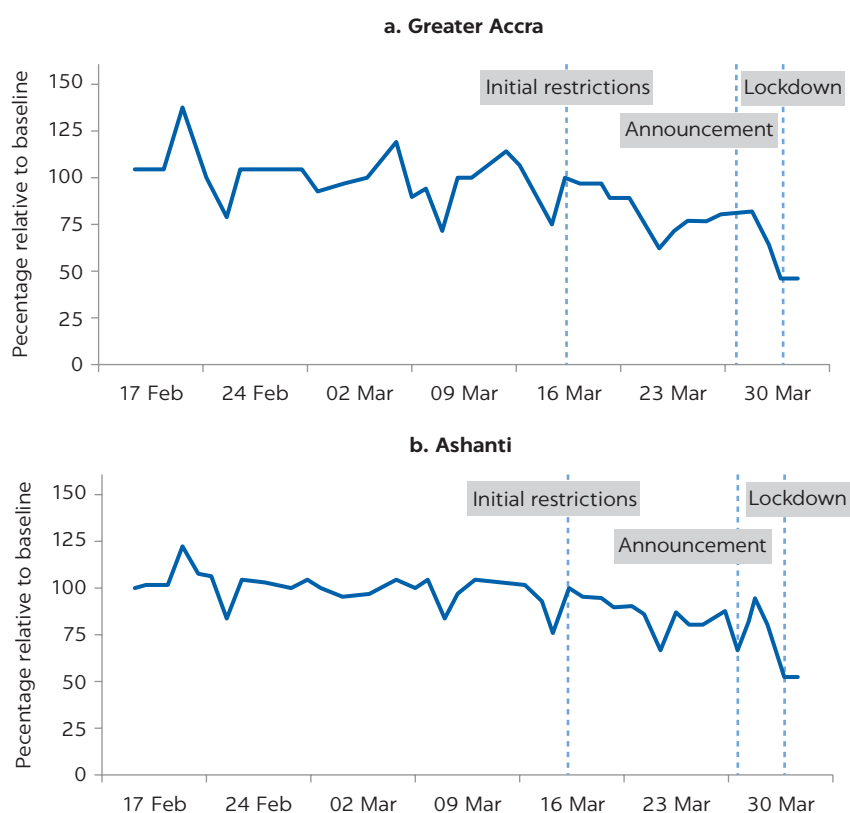
The informality in the transport sector limits the ability to implement these preventive measures. Where most of the transport service is provided by

**FIGURE 1.5**  
Changes in mobility: Ghana, February 15–May 7, 2020



Source: World Bank, based on Google COVID-19 mobility data 2020.

FIGURE 1.6

**Number of trips between any two districts: Greater Accra and Ashanti, February 17–March 30, 2020**

Source: GSS, Flowminder, Vodafone 2020.

unregulated informal private operators (tro-tros), it is difficult to enforce and monitor such measures to limit the spread of COVID-19.

### The impact of COVID-19 on the informal and formal transport sectors

In the short term, the lockdown measures and the resulting reduction of mobility from the slowdown in economic activity and vehicle occupancy have had significant financial impacts on the formal and informal transport sectors. The impact is likely to continue for some months. The sharp shortfall in fare revenue during the lockdown has remained an issue in the aftermath. In particular, social distancing in public transport—for example, limiting the number of people per bus—makes it more difficult to recover operating costs.

Transport workers, drivers, and conductors of tro-tros are particularly vulnerable in the context of COVID-19. Drivers and vehicle owners absorb the risk of demand that has plummeted for weeks, and it is expected to be below pre-COVID-19 levels for months. Although demand has dropped, tro-tros continue to circulate because it is the only means of income for a significant portion of the population. Apart from the financial impact on these groups, their health is particularly at risk, and because of their irregular situation, drivers and conductors have no recourse to social safety nets or health coverage.

Bus operators running on a contractual basis have also seen their farebox collections plunge. They have higher fixed costs of labor, rent, and debt repayments, and therefore less flexibility than informal operators in the short term to adapt to changes in demand. As a consequence, formal operators with large bus operations, such as the Ayalolo buses, undergo a serious financial crisis.

Disruptions from COVID-19 will likely create permanent and structural changes to the transport system in the medium and long term. The medium- and long-term impacts are likely to generate permanent changes in user behaviors, business models, and actors in the sector. Among the changes anticipated:

- A permanent modal shift of public transport users from buses to other modes, such as nonmotorized transport, two- or three-wheelers, or private vehicles.
- Changes in operators' stakeholders because formal companies may collapse from the financial strain. Rising unemployment in the informal sector may generate a pool of additional people willing to work as drivers.
- Changes in the business model of formal and informal operators.

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# 2 Access to Economic Opportunities and Social Services in Ghanaian Cities

## Key takeaways

- Access to transport is not equally distributed between groups, which is an important element of social exclusion.
- Three dimensions determine the ability to access jobs and services: accessibility (spatial and temporal), affordability, and acceptability—the three A's.

## **Accessibility: Spatial and temporal dimensions** **Accessibility to jobs**

- Access to economic opportunities using public transport is generally poor in Ghanaian cities. Almost half of the population of Accra and two-thirds of the population of Kumasi do not have access to more than 50 percent of the city's jobs within one hour using public transport. The two main dimensions affecting accessibility to jobs are mobility (no availability of efficient public transport, congestion, last-mile connectivity) and land use (location of housing vis-à-vis location of jobs).
- Low-income areas tend to be particularly isolated from access to jobs by public transport because they are far from jobs and because last-mile connectivity is an issue. Unpaved roads in neighborhoods do not allow access to tro-tros (minibuses). The isolation is especially difficult during the rainy season.

- Women experience specific constraints. They tend to travel more during off-peak hours than men, when services are less frequent and so affect the travel time to reach opportunities.
- People with disabilities face critical barriers to physically accessing transport vehicles, especially tro-tros, and navigating the current sidewalks—both imposing additional constraints on this group in trying to access jobs.

## **Accessibility to social services**

- Access to health facilities in urban Ghana is a challenge for a significant portion of the population. According to the Ghana National Transport Survey of 2012 (GSS 2013), 26 percent of respondents from urban areas indicated that they do not have reliable transport to health facilities, and 78 percent indicated that transport was not available or easily available in the morning to access health facilities.
- Critical differences persist in the accessibility to health and education centers for those with access to private vehicles, public transport, and walking. Low-income groups that do not own a vehicle are disproportionately excluded from accessing social services.
- Although the government has reinforced buses to access the main hospitals during the COVID-19 pandemic, such access remains a challenge in most of Accra and Kumasi.

**Affordability**

- A large portion of the population in Ghanaian cities cannot afford public transport. For those in the bottom 20 percent, two daily trips amount to 60 percent of daily household income in Accra and 111 percent in Kumasi.
- The significant unaffordability affecting a large number of households in Accra, Kumasi, and Tamale shapes people's choices of mode of transport and limits their mobility options to walking.
- Women and people with disabilities pay on average more to travel using public transport. The reasons are that they must pay extra for traveling with

goods or equipment, must take more shorter trips (women), and must rely on more expensive modes for their accessibility (people with disabilities).

**Acceptability**

- Sexual harassment, health safety in public transport, road safety, and social norms play an important role in the decision to use public transport, especially for vulnerable groups—women, people with disabilities, and children.

COVID-19 significantly influences the acceptability of public transport. People avoid using public transport to reach jobs and services because they fear transmission of the virus, especially in informal transport.

## EVALUATING ACCESS TO OPPORTUNITIES: THE THREE A'S INCLUSIVE FRAMEWORK

For competitive, inclusive growth in Ghanaian cities, residents must have access to jobs and social services. Access to higher levels of employment opportunities in a city, matching demand for and supply of jobs, increases the chances that individuals and organizations can take advantage of agglomeration economies. It also increases the labor market pool so that employers can find the right candidate for a job. When a high proportion of the population receives access to many employment opportunities, the economic performance of urban regions benefits.

Accessibility is not equally distributed between different groups, which is an important element of social exclusion (World Bank 2002). Although high-income groups tend to have more job opportunities because they own private vehicles to transport them to access such opportunities, people in low-income groups must depend on public transport or nonmotorized modes to access jobs and social services. Spatial exclusion among low-income groups limits access because it is affected by the ability to afford a fare. Consideration of the equity of disadvantaged groups is important in the design of inclusive urban transport systems.

Analysis of the social value of a city's transport system from the perspective of accessibility allows integration of an inclusive perspective in the planning. A vast literature on accessibility has emerged to complement the more traditional transport planning methodologies that focused on network efficiency. In it, the scope has widened to accessibility, measuring the ability to reach opportunities and changing the perspective of analyses from the mere optimization of generalized cost to perspectives on a trip's purpose such as access to jobs, social services, and its beneficiaries.

This study developed an inclusive framework to evaluate access to jobs in Ghanaian cities. The framework uses the concept of the three A's of access—accessibility that is spatial and temporal, affordability, and acceptability<sup>1</sup>—to

understand the varying levels of access across Accra, Kumasi, and Tamale for different groups of people with special attention to the vulnerable population (box 2.1).

### ACCESSIBILITY: SPATIAL AND TEMPORAL DIMENSIONS

The accessibility aspect of the framework analyzes the spatial-temporal dimensions of accessibility, which can be broadly understood as the potential for opportunities for interaction. The potential depends on two key factors (figure 2.1): (1) the mobility provided by the transport system, and (2) the spatial distribution of opportunities or land use. Other factors such as the temporal constraints of individuals and activities and the correlation between skills supply and demand also influence accessibility. This study relies on mobility and land use to assess how changes in access to jobs create economic inefficiencies and limit poverty reduction.

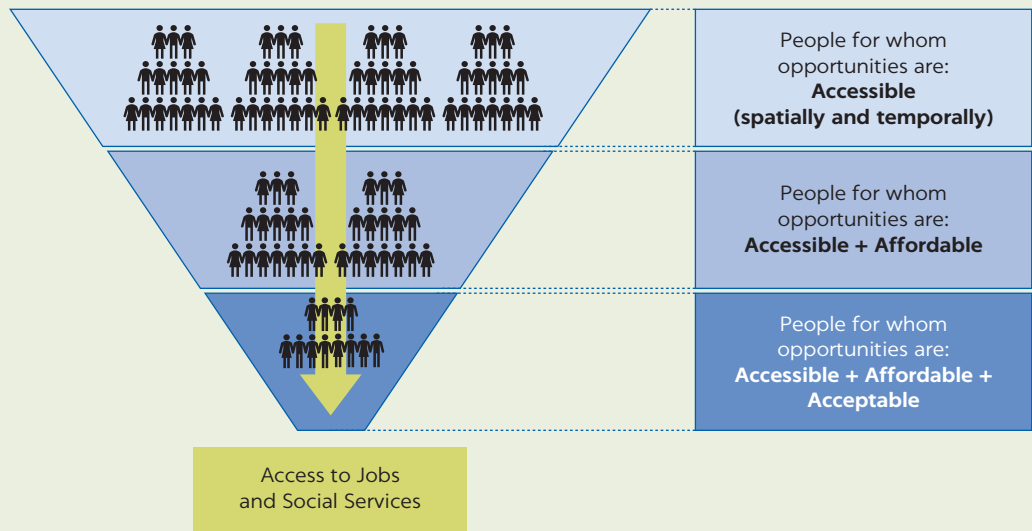
**BOX 2.1**

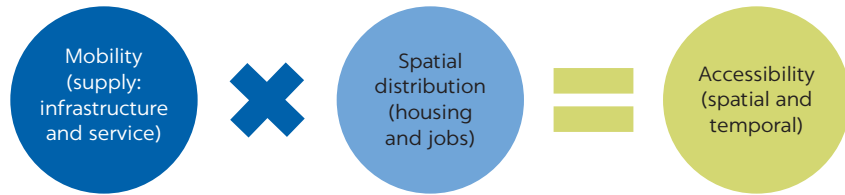
#### Evaluating access to opportunities: The three A's inclusive framework

Several dimensions determine people's ability to access opportunities. These tiers of access help conceptualize the different ways in which people can be excluded from accessing jobs and services, thereby contributing to a cycle of poverty. The relationship between accessibility, affordability, and acceptability can be visualized as an upside-down pyramid (figure B2.1.1). For the largest number of people, transport is accessible from a spatial and a temporal perspective—coverage of the network allows them to

reach their opportunities within a certain boundary of time—in this study, a timeframe of one hour called “theoretical accessibility.” However, not all these people are able to afford transport, even if it is available to them. Finally, an even smaller percentage of people are able to find transport that is acceptable specifically to them (social norms, road safety, and risk of sexual harassment, among other things, play an important role in acceptability) and that is available and affordable.

**FIGURE B2.1.1**  
The three A's of the inclusive framework



**FIGURE 2.1****The two main dimensions of accessibility, spatial and temporal**

Source: World Bank.

Spatial demographic dynamics and urban sprawl play an important role in accessibility. In many similar cities, the poorest and wealthiest sections of the cities are the least well served by public transport. The poorest areas lack suitable infrastructure to support a public transport network, including paved roads and bus stops. The wealthiest areas, by contrast, lack suitable patronage to make public transport networks viable because residents prefer to take taxis or private transport.

### Local access to public transport: Ease of access from residence

A common indicator for measuring accessibility is the city's share of public transport services within walking distance. Residents located within a reasonable walking distance to public transport have a greater opportunity for mobility. About 75 percent of the population within the Accra municipality resides within a 250-meter radius of a transit stop (map 2.1, panel a). Similar statistics are calculated for the employed and for people who have not attended school. The unemployed group has a slightly higher figure: 76 percent of people have access to a transit stop. In Kumasi, 41.9 percent of the population is within 250 meters of a public transport stop (map 2.1, panel b), whereas 42.5 percent of the unemployed reside within 250 meters of a public transport stop.

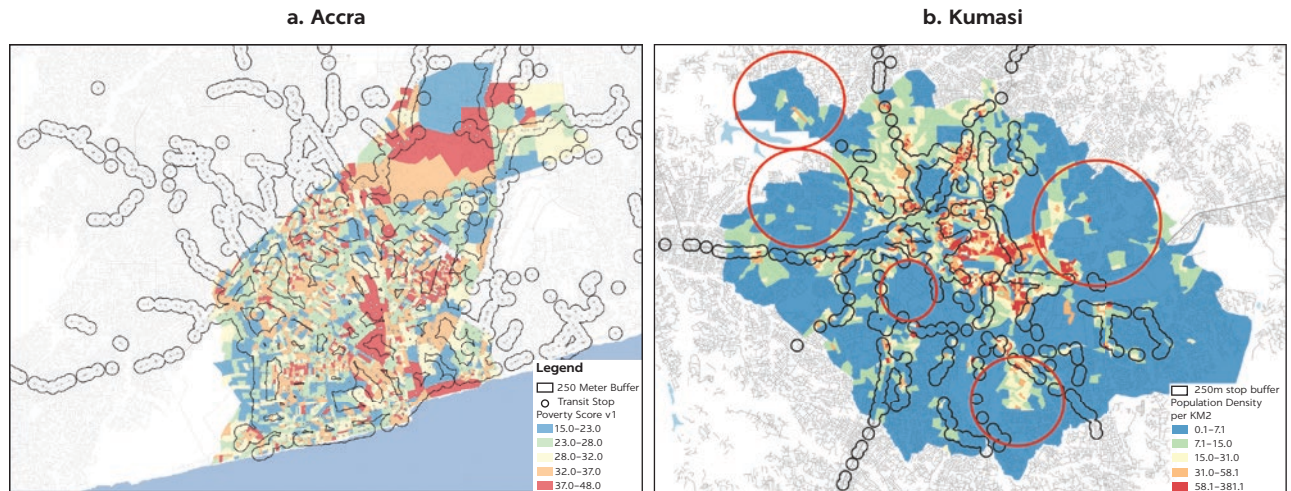
Lack of paved roads and sidewalks is a significant barrier to mobility that especially affects low-income groups, women, and people with disabilities. Unpaved roads and lack of sidewalks create difficult conditions for walking and bicycling, and even more so during the rainy season and during extreme weather conditions such as heavy rainfall and flooding.

Unpaved roads limit the access of transport services (buses), and so populations living in slums are excluded from access to social and economic opportunities (maps 2.2 and 2.3). In a deregulated and informally provided transport environment, routes are driven primarily by demand, although other factors contribute to their distribution, including the location of suitable roads. Only a few motorized modes such as motorcycles are able to reach these areas. Because motorcycles are more expensive than tro-tros, low-income groups are particularly penalized by the constraints to tro-tro access.

### Regional accessibility to employment opportunities in Accra and Kumasi

Access to economic opportunities using public transport is generally poor in Ghanaian cities. Almost half (48 percent) of the population of Accra and

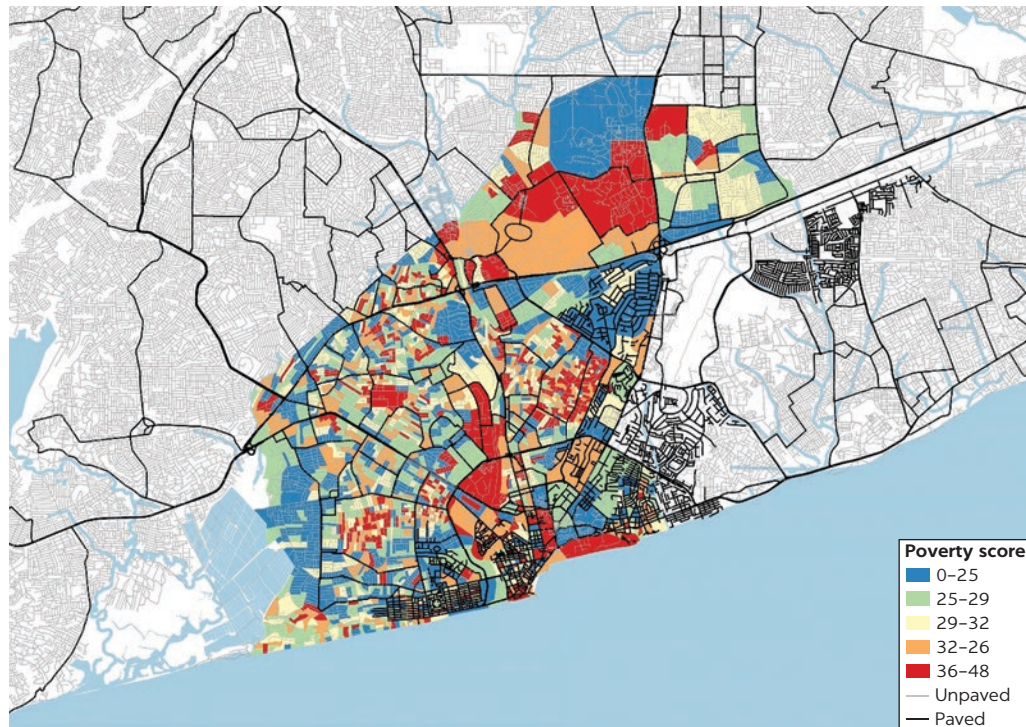
**MAP 2.1**  
Local access gap analysis



Source: World Bank.

Note: Map 2.1 represents the buffer area of 250 meters from transit stops in Accra (panel a) and Kumasi (panel b). Poverty scores, following the methodology described in chapter 1, are presented in a color scale. Red circles identify areas more isolated from transit stations.

**MAP 2.2**  
Paved and unpaved roads: Greater Accra



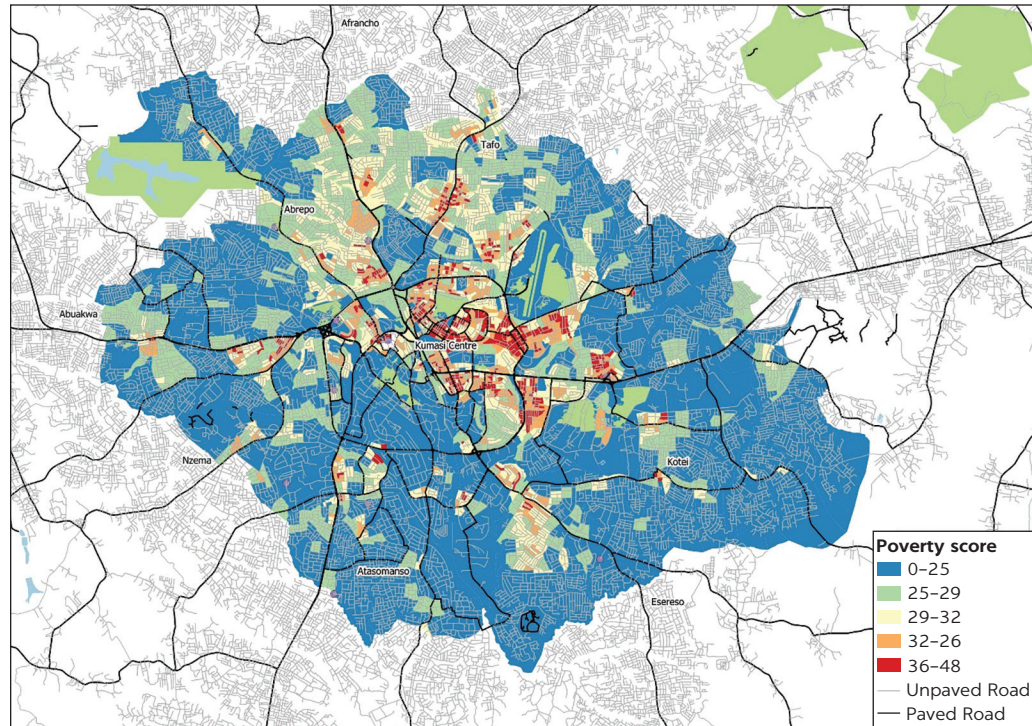
Source: World Bank, based on OpenStreetMap data for roads.

Note: Poverty scores, following the methodology described in chapter 1, are presented in a color scale.

two-thirds of the population of Kumasi do not have access to more than 50 percent of the city’s jobs within one hour using public transport. Access for low-income groups in Accra is better than that for the overall population; 54 percent of the low-income group has access to more than 50 percent of job

MAP 2.3

## Paved and unpaved roads: Greater Kumasi



Source: World Bank, based on OpenStreetMap data for roads.

Note: Poverty scores, following the methodology described in chapter 1, are presented in a color scale.

opportunities because of their location close to central Accra and job markets (map 2.4). Similarly, 47 percent of the women are able to access more than 50 percent of employment opportunities in Accra.

The spatial representation of the accessibility analysis shows that areas of Accra with the highest access to jobs are areas near the center because most jobs are concentrated in this area (map 2.4). The area with high accessibility to up to 75 percent of opportunities branches out in a triangular shape from the center of Accra along the three arterial roads of Dr. Busia Highway, Newsham Road, and Liberation Road. Beyond these arterial roads to the east, west, and north of George W. Bush Highway, the number of jobs accessible in an hour decreases.

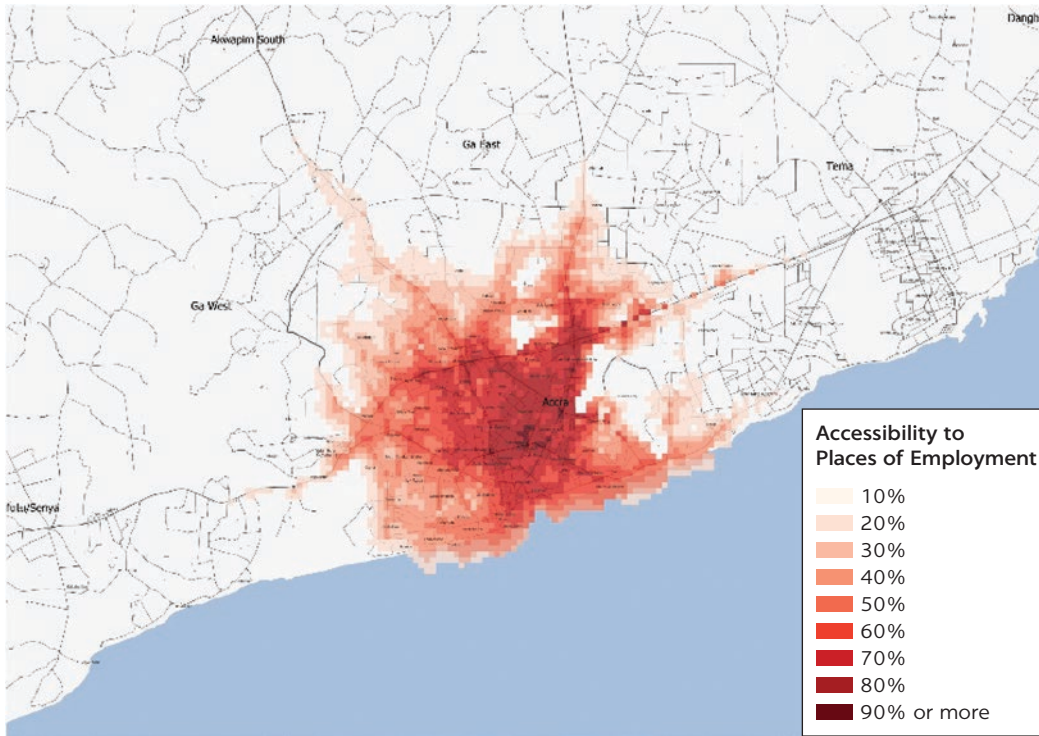
In Kumasi, access to jobs by public transport is poor, with only 64 percent of the total population able to access about half of employment opportunities. Access for low-income groups is worse than that for the overall population, with only 58 percent of those in Kumasi able to access about half of the prevalent job opportunities. The location of low-income areas differs from the same demographic in Accra—they tend to be farther from the city center where jobs are located. Women also have low access, with 36 percent of the total female population able to access more than half of employment opportunities (figure 2.2).

The area of Kumasi with the greatest access to employment opportunities tends to be the one north of the city center, which includes Bantama, Odumasi, and Dichemso (map 2.5). Areas located in the east along Accra Road (by Kwame Nkrumah University of Science and Technology [KNUST]) and Bekwai Road to the southwest are well served by public transport.

Access to jobs using public transport is poorer in Kumasi than in Accra because a larger proportion of the population resides in areas that have limited

**MAP 2.4**

**Regional accessibility within an hour to employment opportunities using public transport: Accra**

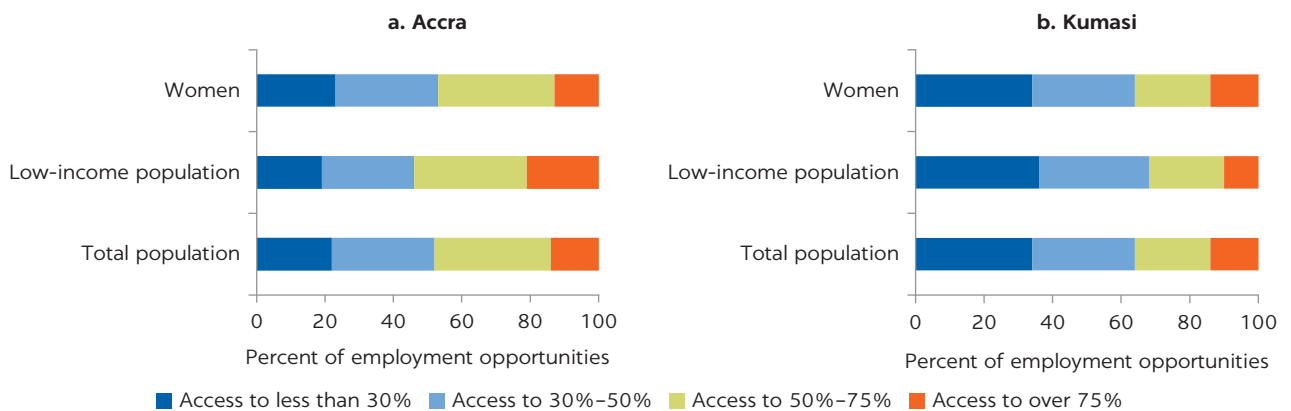


Source: World Bank.

Note: Accessibility to economic opportunities was developed using the Conveyal Urban Accessibility Tool. The location of economic opportunities (in this regional accessibility map and in the rest in the report) follows the methodology developed by Peralta Quiros, Kerzhner, and Avner (2019).

**FIGURE 2.2**

**Access to employment opportunities: Accra and Kumasi**

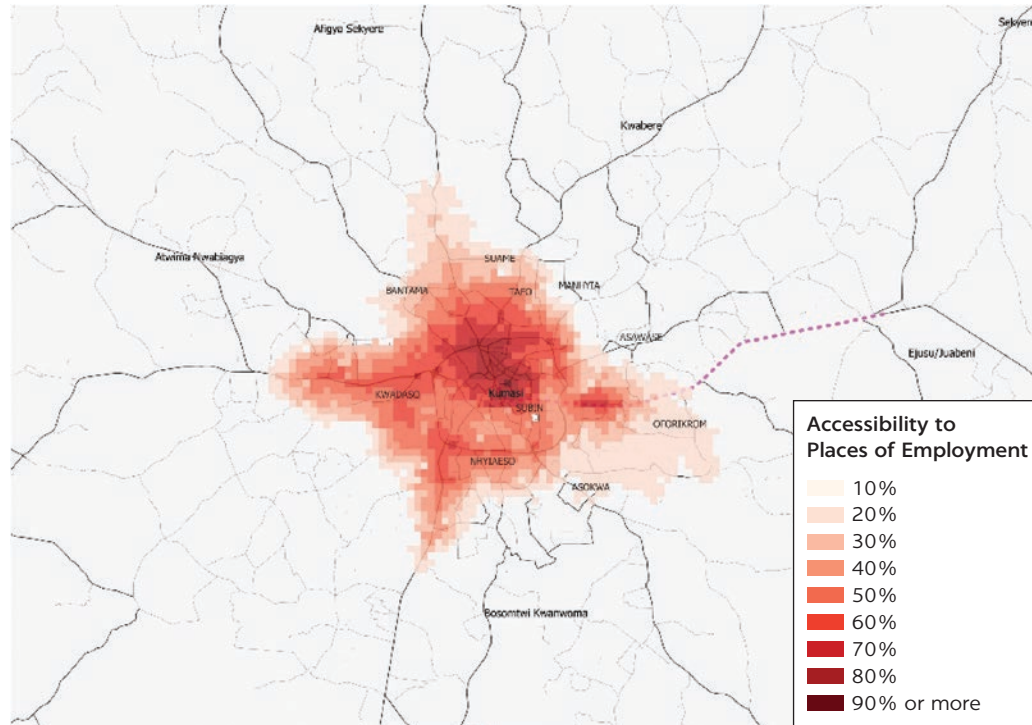


Source: World Bank.

levels of access (to less than 30 percent and 30–50 percent of jobs)—see figure 2.2. Access in Kumasi is also less inclusive because 68 percent of the low-income group, which needs public transport the most—it does not have other motorized options—is unable to reach half of the city’s job opportunities, compared with 64 percent of the national average.

MAP 2.5

### Regional accessibility within an hour to employment opportunities using public transport: Kumasi



Source: World Bank.

Mobility and land use account for poor accessibility in Kumasi. The poorest areas lack suitable basic infrastructure to support a public transport network, including paved roads, which in turn limits the access of public transport vehicles, especially during the rainy season. Meanwhile, the growth of informal settlements where most low-income groups live has mushroomed more toward the periphery in Kumasi than in Accra (map 1.1), which has big pockets of low-income areas in the city center. As a result, low-income residents live farther away from jobs in Kumasi than in Accra.

### Spatial and temporal constraints of accessibility for women and people with disabilities

#### *Access to educational and health facilities in Ghanaian cities*

Transport services and walking facilities should be enhanced to promote inclusive access to educational and health centers in Ghanaian cities (box 2.2). A comparison of the ability to access educational centers using different modes—private vehicles, public transport, and walking—in Accra and Kumasi reveals that those able to use private vehicles enjoy access to the widest range of schools in Accra (map 2.6). Access by public transport compared with

## BOX 2.2

### Characteristics of accessibility and availability for women and people with disabilities drawn from focus group discussions and surveys

Analysis of the spatial and temporal dimensions of accessibility (first level of the pyramid in figure B2.1.1), reveals specific constraints for different vulnerable groups.

Women tend to travel more at off-peak hours than men. During those hours, service is less frequent, thereby rendering actual access for women less than that for the average commuter at peak hours, which tend to be commuting trips to work mainly undertaken by men. Even when traveling at peak hours, when frequency is the highest, women expressed less tolerance of overcrowded buses and less willingness to argue for a seat. In many instances, then, women wait for less overcrowded buses. Thus women travel less often, resulting in less access.

People with disabilities report that they are unable to use tro-tros. Entering a tro-tro requires a large step up, and they are crowded. The disabled are therefore limited to taxis or three-wheelers. Even for the few vehicles accessible to the disabled passenger, drivers often turn away a disabled passenger with equipment such as crutches or a wheelchair because of the extra space needed for the equipment or because of the extra time

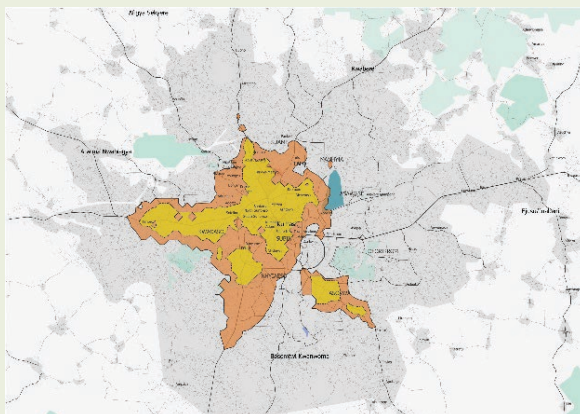
and effort required to get the passenger in and out of the vehicle. Finally, all three cities were identified as extremely difficult to navigate for those with visual impairments. Cities have limited sidewalks, and hawkers and traders block large portions of the pavement, making movement without a guide almost impossible without tripping. In addition, busy roads without formal pedestrian crossing points make travel and walking extremely dangerous. Thus people with visual impairments choose to travel less overall, restricting them from activities in which they might otherwise engage.

When the factors affecting travel by women (far less frequent public transport service at off-peak hours and slower walking speed because women often travel with luggage or goods or accompany another person), only 33 percent of women versus 68 percent of men have access to the central business district (CBD) in less than one hour. When the factors affecting travel by people with mobility impairment (walking speed of only 2 kilometers per hour, walking time limited to five minutes, and limited options in taxi routes), only 8 percent of people with disabilities versus 68 percent of men have access (map B2.2.1).

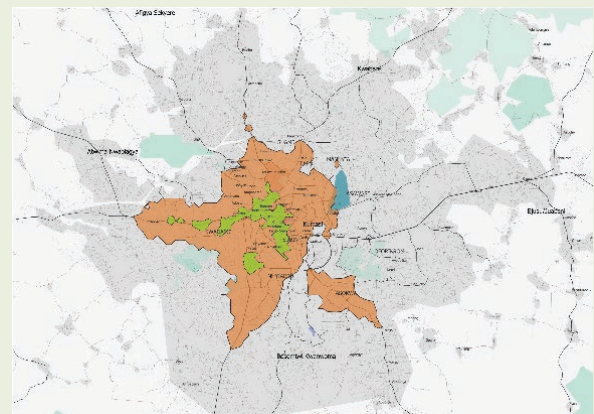
## MAP B2.2.1

#### Accessibility of women and people with disabilities to central business district: Kumasi

a. Women



b. People with disabilities



Source: World Bank.

Note: Maps show the area accessible in a 60-minute trip from the central business district (CBD) for women (panel a) and people with disabilities (panel b) versus an “average user.” Travel is at peak hours without walking restrictions.

**MAP 2.6**

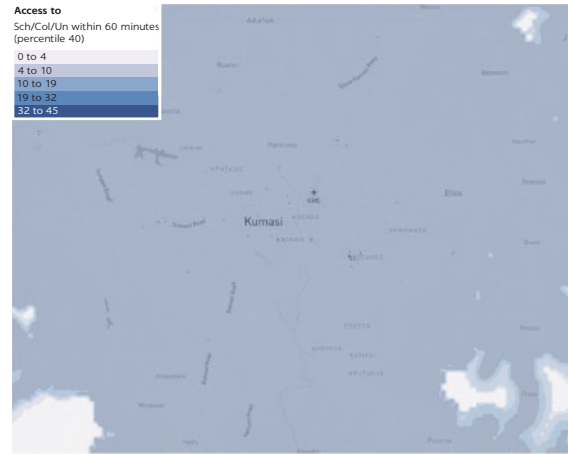
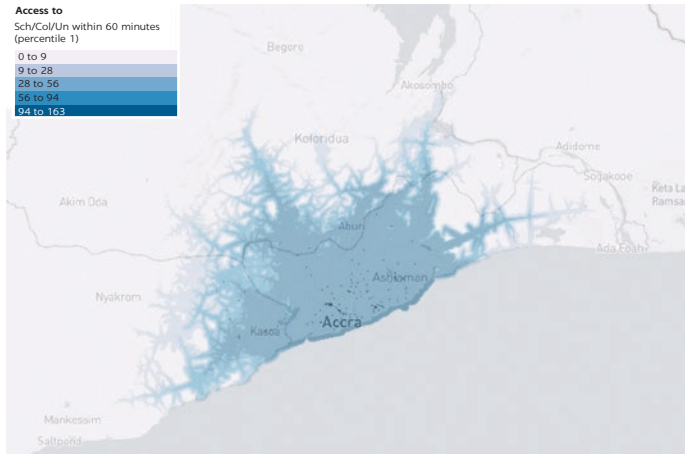
**Accessibility to education centers (schools, colleges, universities): Accra and Kumasi**

**Accra**

**Kumasi**

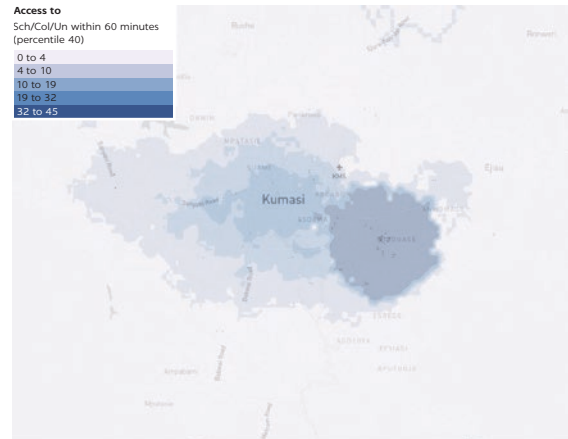
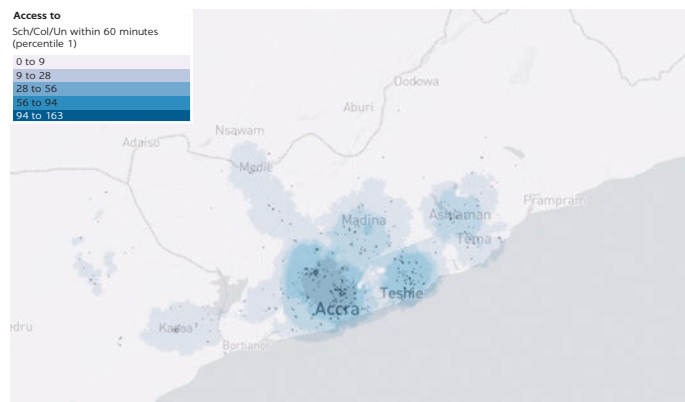
**a. Access via private vehicle, Accra**

**b. Access via private vehicle, Kumasi**



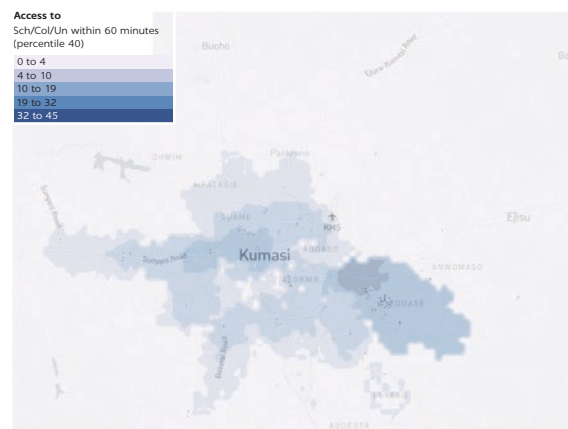
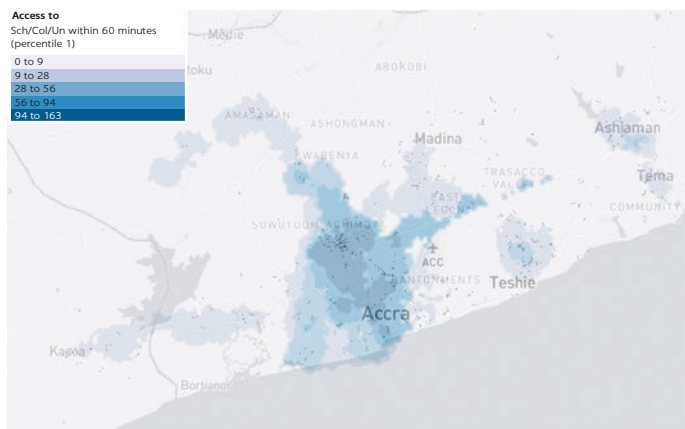
**c. Access via walking, Accra**

**d. Access via walking, Kumasi**



**e. Access via public transport, Accra**

**f. Access via public transport, Kumasi**



Source: World Bank.

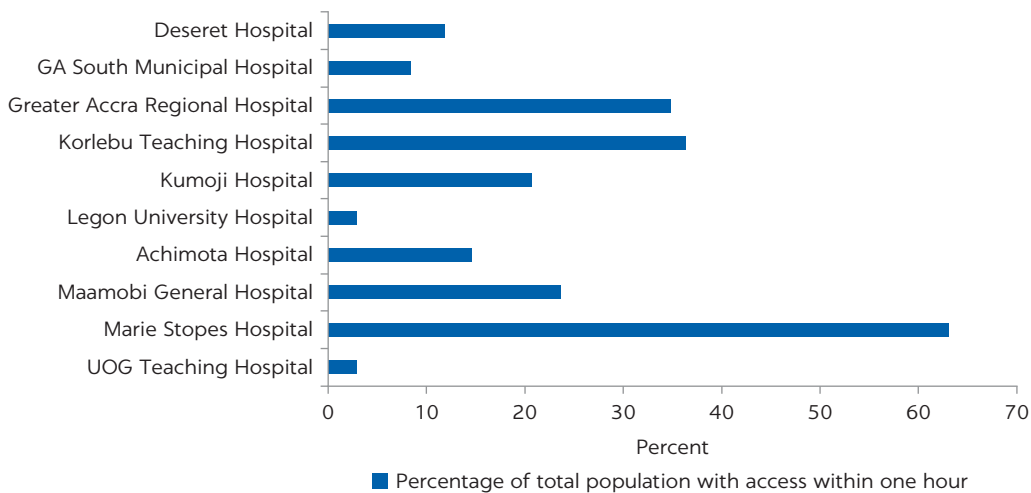
private transport is especially deficient in the east and west of the Accra metropolitan region. This deficiency translates into a significant difference in the ability to access educational centers for those with enough resources to own vehicles versus those (usually the poor) who must rely on taking public transport or going by foot.

Access to health facilities in urban Ghana is a challenge for a significant portion of the population. The Ghana National Transport Survey of 2012 (GSS 2013) revealed that 26 percent of respondents from urban areas did not have reliable transport to health facilities and that 78 percent indicated that transport was not available or easily available in the morning to access health facilities.

Local access using public transport to the main hospitals in Accra is limited; less than 15 percent of the population has access to most of the main hospitals in less than an hour. Hospitals located within the central business district or on major highways have better accessibility by public transport, especially Marie Stopes Hospital, which is accessible by 63 percent of Accra’s population as opposed to those located on the periphery. Korlebu Teaching Hospital, considered the main hospital for Accra, is accessible by only 36 percent of the population. Hospitals within the vicinity of the University of Ghana also have poor accessibility because the surrounding areas have lower population density (figures 2.3 and 2.4).

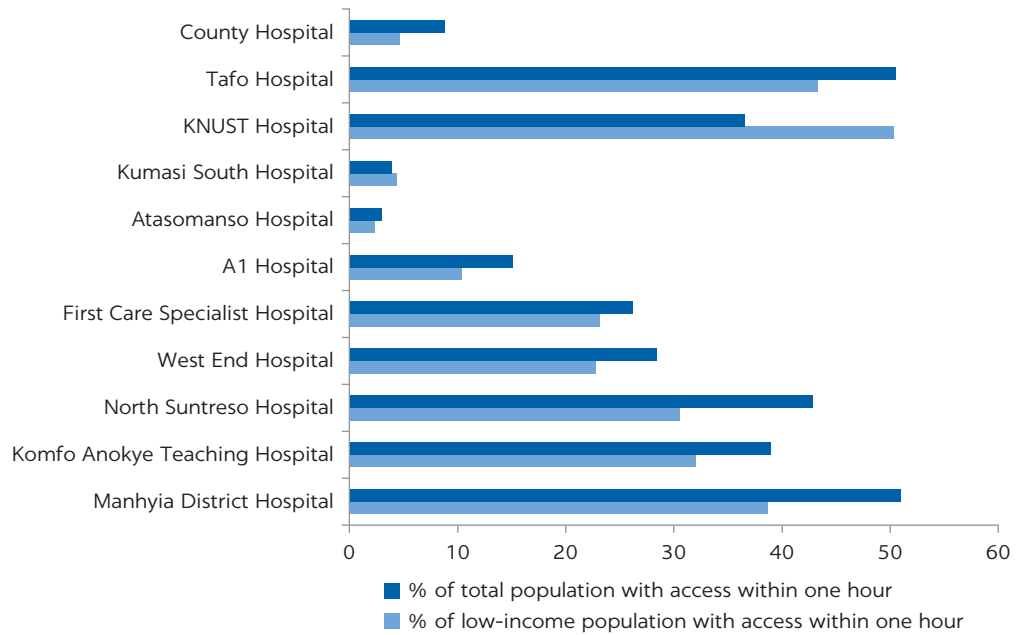
In Kumasi, local access to hospitals by public transport is significantly worse for low-income individuals. Accessibility is highest for hospitals within the Ring Road, or on major roads. Those located in the suburbs, such as Atasomanso Hospital, have poor accessibility for all groups because of lower densities and the limited transport services in these areas. Most hospitals are more accessible to the average population than low-income groups except for KNUST Hospital because low-income areas tend to be toward the periphery and far from hospitals, and the transport services connecting these low-income areas with hospitals is limited.

**FIGURE 2.3**  
**Accessibility to hospitals: Accra**



Source: World Bank.  
Note: GA = Greater Accra; UOG = University of Ghana.

**FIGURE 2.4**  
**Accessibility to hospitals: Kumasi**



Source: World Bank.

## AFFORDABILITY

Affordability is a key consideration for any transport system, especially in cities with high levels of poverty. In Ghanaian cities, where average incomes are low and large proportions of the urban population live in poverty, the availability and affordability of transport are paramount to the mobility of the urban population.

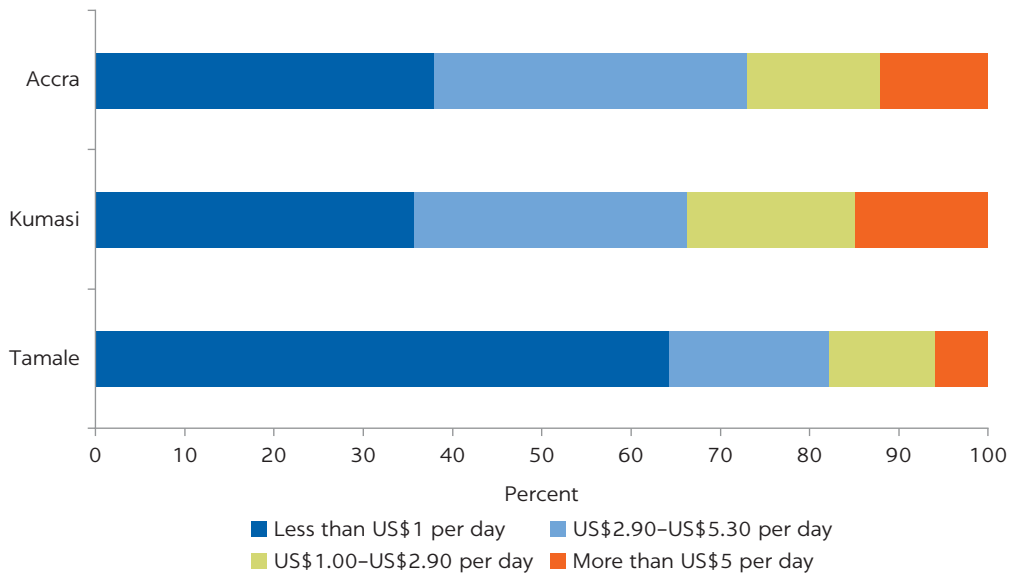
In the context of this study, affordability of transport refers to the proportion of people who are able to afford transport based on average incomes, existing fare prices, and the prevalence and necessity of multistage journeys and bus transfers. It is also important to note where fares are not affordable but are paid regardless, only because they are that critical to an individual's income. This is particularly important in understanding how transport costs contribute to the cycle of poverty and prevent people from being able to save and improve their economic situation.

Understanding what is affordable requires first understanding the levels of income in each city (figure 2.5). Almost two-thirds of households in Tamale earn less than US\$1 per day, whereas the same is true of less than 40 percent of households in both Accra and Kumasi.

The study team calculated the average fare per leg of a journey in Accra and Kumasi based on the observed fares and typical length of trip. The average fare for a 10-kilometer route length is US\$0.30 in Accra and US\$0.46 in Kumasi. The average fare per leg of a trip is the amount paid to board each vehicle. Because most trips often require changing vehicles and multiple bus transfers, the total fare paid for a trip is higher than the single-leg cost (figure 2.6). Also, because local governments negotiate fares with unions and fares are not often adjusted, operators tend to run shorter routes to maximize their profit.

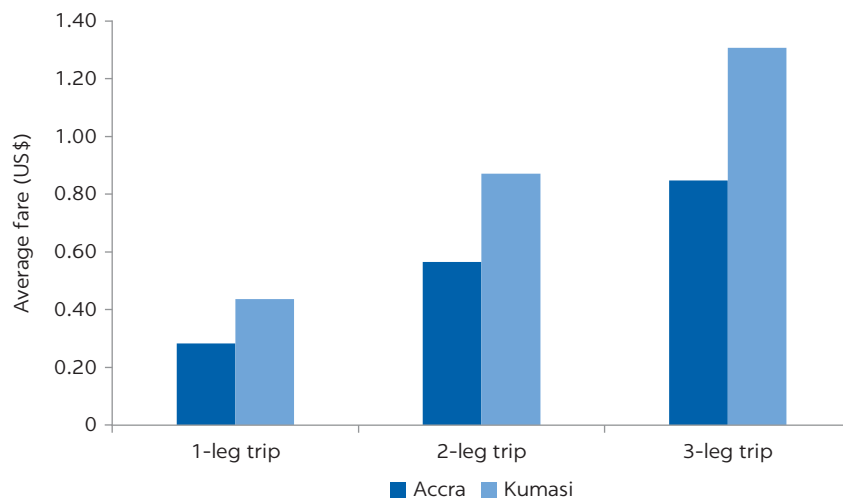
Public transport is highly unaffordable for most of the households in Accra and Kumasi. A way to measure the affordability of transport is to measure the amount of household income required to make two daily trips by public

**FIGURE 2.5**  
**Household income distribution: Accra, Kumasi, and Tamale**



Source: World Bank, based on Ghana Living Standards Survey 2014 (GSS 2014).

**FIGURE 2.6**  
**Average fare by number of trip legs: Accra and Kumasi**

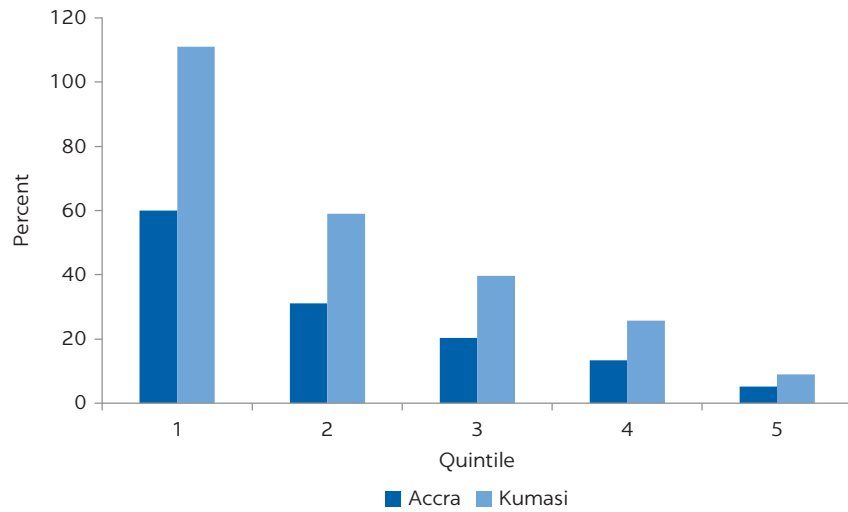


Source: World Bank.

transport. In Kumasi, public transport is even less affordable than in Accra, especially for the poorest (figure 2.7). For those in the first quintile (the bottom 20 percent of earners), two daily trips represent 60 percent of daily household income in Accra and 111 percent in Kumasi. For those in the second quintile, two daily trips represent 31 of household income in Accra and 59 percent in Kumasi.

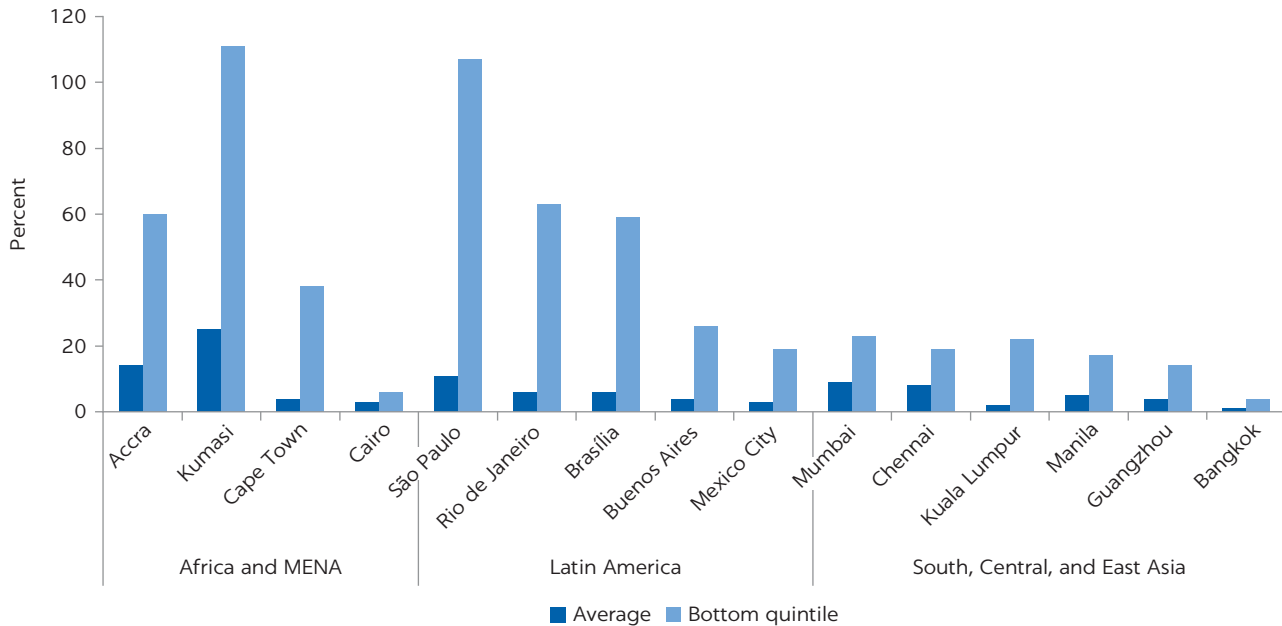
Carruthers, Dick, and Saurkar (2005) developed an affordability index, measured as the percentage of per capita income—on average and for the lowest quintile—required to make 60 10-kilometer trips per month (figure 2.8). They define *affordability* as “the ability to make necessary journeys to work, school, health and other social services, and make visits to other family members or urgent other journeys without having to curtail other essential activities” (Carruthers, Dick, and Saurkar 2005, 1–2).

**FIGURE 2.7**  
**Percentage of household income required to make two daily trips:**  
**Accra and Kumasi**



Source: GSS 2017.

**FIGURE 2.8**  
**Affordability index, average and bottom quintile: Selected cities worldwide**

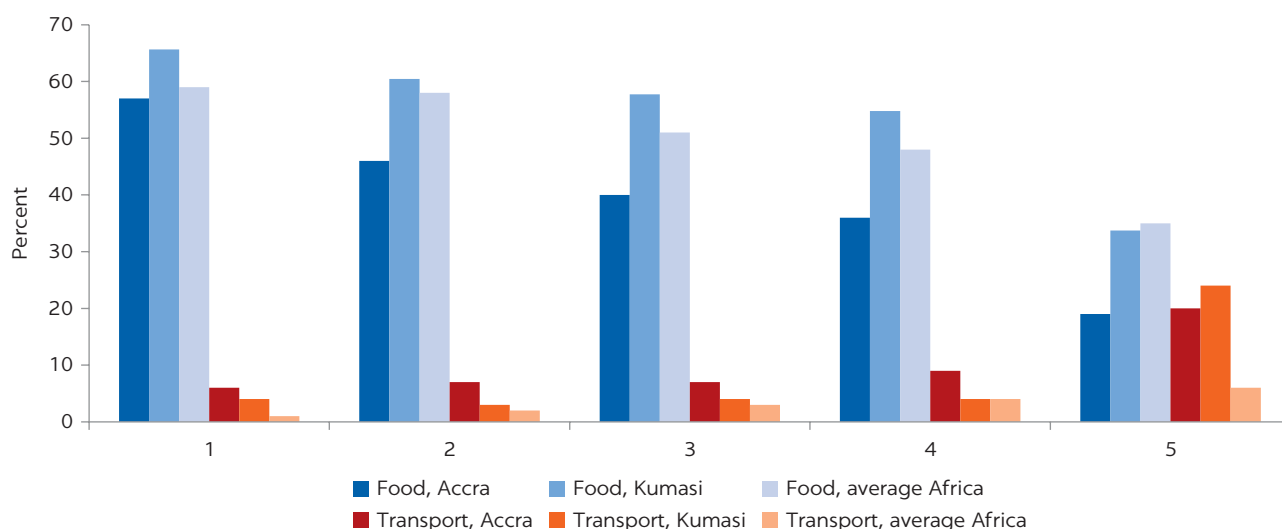


Sources: World Bank, based on Carruthers, Dick, and Saurkar (2005) and GSS (2017).  
 Note: MENA = Middle East and North Africa.

The largest share of household income is spent on food, which accounts for 57 percent for the bottom 20 percent in Greater Accra and 59 percent in Kumasi, leaving very little for transportation and housing. Household income spent on housing and transport in Greater Accra is similar to the trend in other African cities (figure 2.9). The share spent on food is especially predominant among the poorest people. Less money is therefore available for transportation, and the most disadvantaged groups (the poor, women, unskilled workers, and youth) are the most affected by high commuting costs.

**FIGURE 2.9****Percentage of total household expenditure on food and transportation by income group**

1 = poorest, 5 = richest



Sources: GSS 2017; Lall, Henderson, and Venables 2017.

A comparison of Africa with other global regions shows that limited disposable income forces people to walk instead of using motorized modes, as is common in Latin America and Asia. The significant level of unaffordability that affects a large proportion of households in Accra, Kumasi, and Tamale shapes people's transport mode choices and limits the mobility options to walking for a large part of residents. Half of the trips to jobs in Kumasi and one-third in Accra are by foot (box 1.1).

### Regional accessibility to economic opportunities: What happens when budgets are restricted?

A limited budget significantly affects a person's ability to pay the fares needed to reach employment opportunities in Ghanaian cities. To measure the impact of affordability on a person's ability to reach jobs, the study team compared regional accessibility to job opportunities that can be reached in less than an hour for a person without a budget limit and for a person with a budget limit of US\$.50 per day for travel (map 2.7).

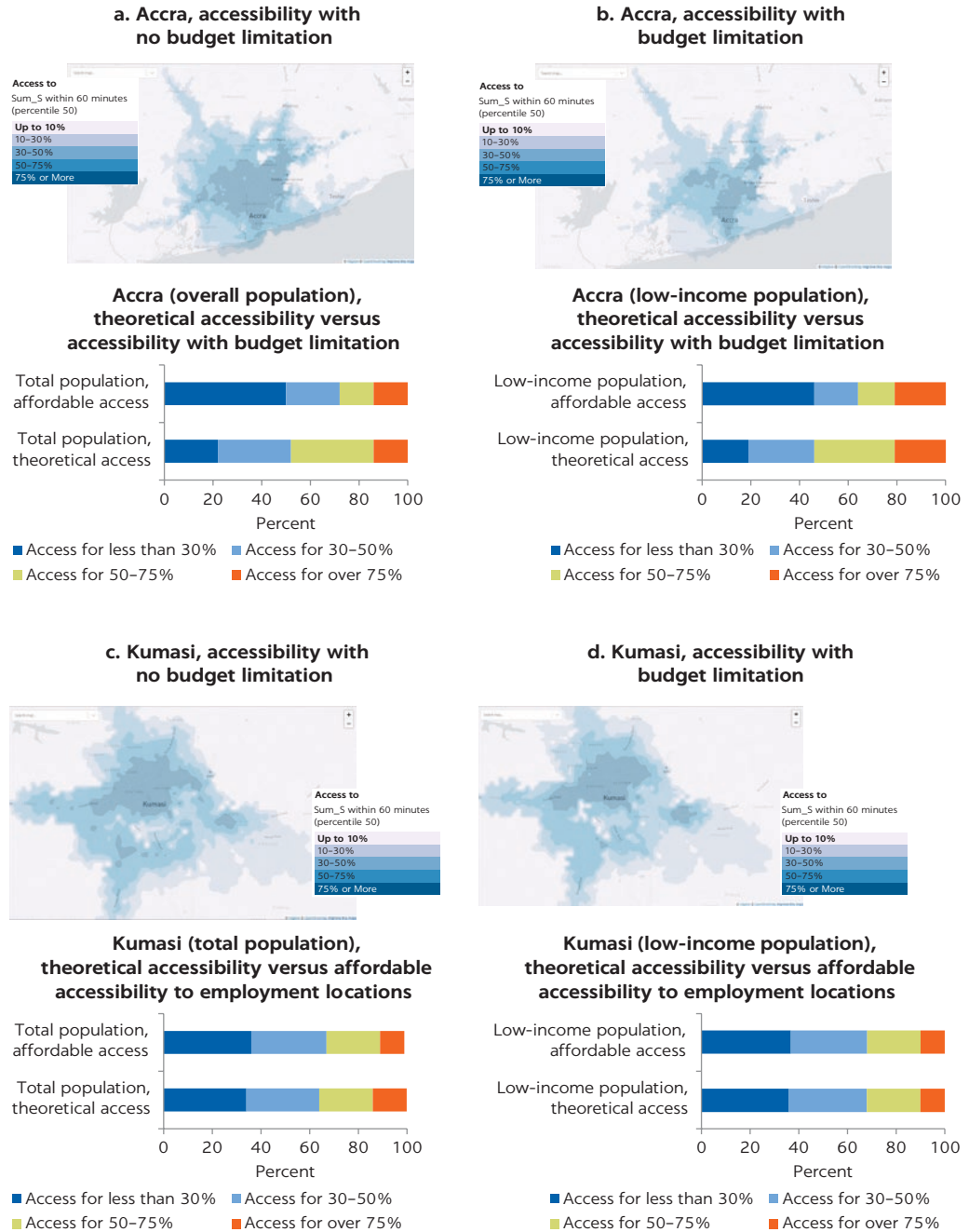
In Accra, analysis of access to jobs without budget limitations (map 2.7, panel a) versus with a budget limitation (map 2.7, panel b) reveals significant spatial differences of accessibility in the triangular area within the three main arterial roads in the central business district.

For Kumasi, analysis of access to jobs without budget limitations (map 2.7, panel c) versus with a budgetary restriction (map 2.7, panel d) reveals that the area with lower level of access to jobs (access to 30 percent or less of employment opportunities) increases especially toward the periphery of the Kumasi.

Areas of the city in which most of the low-income residents live are especially affected by the budget limitation (map 2.7) because low-income residents tend to live in areas that are less connected by public transport, and usually have to chain several bus trips to reach jobs. As a result, low-income residents have to pay more than higher-income groups to access jobs by public transport in the available public transport setting.

**MAP 2.7**

**Comparison of theoretical accessibility and affordable accessibility to employment opportunities within an hour using public transport with and without budget limitations: Accra and Kumasi**



Source: The World Bank report team.

**Other dimensions of affordability: Operators and government**

Affordability is critical as well to operators and the government. The system is unaffordable not only to large portions of the population, but also to the operators who spend much of their operating costs on fuel and do not have sufficient revenue to reinvest in their business. Under the existing conditions, the government does not subsidize public transport operations because the major provision of transportation is left to the market and is organized by unions. However, when externalities such

as pollution, congestion, and traffic accidents are considered, the cost of the transport system is significant to the government (see “Transport Externalities: Traffic Accidents, Congestion, and Air Pollution” in chapter 1).

### **Constraints on affordability for women and people with disabilities**

In Ghanaian cities, most of women’s travel patterns differ from those of men, and women face different challenges when traveling. For example, women tend to earn less than men, making them less able to afford the costs of transport. Because a higher proportion of unpaid care duties fall to women, either in the form of care of children or elderly relatives, such women are time-poor. Women are also more likely to travel accompanied by the people they care for, and therefore they are burdened with paying fares for multiple people. And they are more likely to use bus transfers, accessing multiple destinations in one journey (such as dropping children at school before going to work), which again often requires multiple fare payments. Women also commonly work as market traders, requiring them to carry goods with them on public transport, which can incur an extra cost as goods are carried at a negotiated price, with no set fare. Traders with perishable goods (who are mainly women) are bound to travel in whatever manner available, a fact known to drivers, who sometimes take advantage of it to charge extra money. Women also tend to travel with luggage and goods, necessitating extra cost as the cargo fee is not fixed and must be negotiated. For all of these reasons, women are financially disadvantaged in terms of accessing transport. Single mothers are especially vulnerable to these influences because they are likely to be time-poor and require more income, and yet they have only a single income for the household.

The focus groups and surveys revealed that people with disabilities tend to pay more than the average costs to use public transport. Those with physical disabilities are often unable to physically access tro-tros, forcing them to use more expensive taxis, and even when they can access tro-tros, they have to negotiate fares and pay extra for equipment, such as a wheelchair. Older people who have particularly low incomes reduce the amount they travel because of lack of funds.

## **ACCEPTABILITY**

Focus groups highlighted issues with the acceptability of transport modes in Accra, Kumasi, and Tamale, some of which were serious enough to convince participants to change their travel behavior or use a different mode. The study team identified four kinds of barriers to acceptability: fear-based barriers (violence, health safety, and road safety), low tolerance (overcrowded places, unreliable travel time, and comfort), physical barriers to movement, and social norms.

### **Fear-based barriers**

Access to transport services is more challenging for women than men in cities. Unsafe traveling conditions are a major barrier for women who must travel, and those conditions influence their decision on choice of travel mode, time of travel, purpose of travel, and decision to work.

#### ***Violence and sexual harassment***

About 15 percent of women have suffered sexual harassment while taking public transport. This figure rises to almost 30 percent for travel in minibuses. As part

of the surveys developed under this study to examine barriers to access opportunities in Accra, 50 percent of interviewees responded that physical violence is one of the main obstacles to using public transport, and more than 10 percent mentioned robbery. Provision of efficient public transport is not enough to ensure high rates of usage by the public. Design consideration, social dynamics, and enforcement are essential to inclusive public transport.

Traveling at night or at unusual times (such as early in the morning) is a key concern, particularly for women. It is not generally considered safe to take a taxi at night because of the risk of robbery, kidnapping, or rape. Tro-tros may not be running, or they may be especially unreliable at night or early morning. Consequently, women avoid traveling late at night because of safety concerns. The parents of young women believe it is not safe for their daughters to travel at that time.

Taxis are considered a risk to personal safety because passengers are confined with a stranger, and taxis are known to often be the scene of robbery, kidnapping, and rape.

Robberies are a great concern of the elderly and people with disabilities. Because they would not be able to defend themselves in a robbery, they tend to avoid traveling late at night or early in the morning.

#### ***Health safety and COVID-19***

Public transport users are concerned about the spread of COVID-19 (coronavirus) in overcrowded environments such as vehicles and transit stations and loading points. Fear of infection changes travel behavior and motivates prospective passengers to use a different transport mode. In some instances, people tend to avoid any travel. In others, citizens shift to private vehicles or motorcycles, which they consider safer. Some people prefer waiting longer or traveling at off-peak hours to avoid overcrowded vehicles and transit stations.

The health safety fear is especially high in informal modes, such as tro-tros and shared taxis. Because almost all public transport is provided by informal private operators, passengers find that the operators do not implement preventive measures, such as cleaning vehicles or respecting hygiene regulations.

#### ***Road safety***

Road safety is a concern across all modes. Taxi drivers are thought to be too young, reckless, fast, and sometimes under the influence of drugs. Tro-tro drivers and conductors are considered rude and disrespectful, and they have a reputation for cheating passengers when the opportunity arises. Two- and three-wheelers raise concerns about physical stability because more than one participant in focus groups had witnessed an accident in which a speeding yellow-yellow (three-wheeler) had overturned at a sharp corner. Two-wheelers are considered particularly dangerous because they are not designed for passenger transport, and they are a last resort option, depending on the passenger's budget and destination. Walking, cycling, and motorcycling are all considered dangerous as well because of reckless road users and blocked footways and cycle lanes (as in Tamale) and a lack of respect for road rules.

#### **Low tolerance**

##### ***Overcrowded environment***

Women and the elderly express less tolerance of overcrowded buses and less willingness to fight for a seat. Often, then, they wait for less overcrowded buses. Women and the elderly seemed to have a lower tolerance for crowding and busyness, stating that they struggle to board tro-tros en route because they are

usually filled to capacity. They also struggle to exit the vehicle at the market terminals where the congestion makes exiting difficult and sometimes dangerous because, for example, three-wheelers (referred to locally as “yellow-yellows”) are weaving through traffic. To deal with such factors, older people and women (when possible) tend to travel into town during the off-peak periods. This tendency translates into lower frequency of travel and lower access for women than for men.

#### ***Unreliable travel time***

Travel time, and particularly the unreliability of travel time, is a concern for many of those who use tro-tros. Tro-tros are typically subject to a long and unpredictable wait at the start of the journey while they wait to fill up with passengers. They are also prone to frequent, long, and unpredictable stops en route. Many travelers who need to reach their destination by a particular time take a yellow-yellow, despite the higher cost.

This is a particular issue for schoolchildren because they are one of the main groups facing time pressure to reach their destination. Many schoolchildren reported needing to leave their homes very early to avoid the peak-hour congestion and reach school in time. Similarly, several children said that if they are running late they take a yellow-yellow despite the extra cost this incurred. If the uncertainty of traveling during peak times could be removed, their journey times could be shortened. They would then not need to travel so early in the morning, and they would not incur the cost penalty of switching to a yellow-yellow.

#### ***Discomfort of the vehicle ride***

All transport modes have similarly low levels of comfort because of the road conditions (they all have to travel over the same potholes). This is a key concern for those using transport in Kumasi because they experience pain and discomfort when vehicles go over or through potholes. The potholes also cause congestion when vehicles have to slow down or stop to avoid particularly large holes. In tro-tros, the worst seats are those at the back of the bus because they are directly above the rear wheels. Although passengers do not always have a choice of where to sit in the bus, most try to avoid these seats when possible, although seats closer to the front present different issues because this is where the luggage is often stored. Pregnant women particularly worry about bumpy rides.

### **Physical barriers to movement**

People with disabilities report in focus groups and surveys that they are unable to use tro-tros (entering all tro-tros requires a significant step up, and they are crowded). Their choices are therefore limited to taxis or three-wheelers. Even for the few vehicles accessible to the disabled passenger, the drivers often discourage the disabled from traveling if they have equipment such as crutches or a wheelchair because of the extra space required or because of the extra time and effort needed for boarding and exiting. Finally, all three cities studied are extremely difficult to navigate for those with visual impairments. Sidewalks are limited; hawkers and traders block large portions of the pavement; and busy roads without formal crossing points make traveling extremely dangerous.

### **Social norms**








Another important dimension that plays a role in the decision making to access jobs and social services, which is broader than the transport sector, are the social norms established in society. The study identified, for instance, distinctive social norms between Accra and Kumasi, vis-à-vis Tamale, resulting from the social norms for

women in the Muslim culture that is dominant in Tamale. On the other hand, focus groups and surveys confirmed that the role of women in society is often more associated with the economy of care, which often entails distinctive travel patterns that have their own consequences in terms of affordability and accessibility.

### Summary

Table 2.1 summarizes the key findings of the assessment of access to economic opportunities and social services, with a focus on vulnerable groups.

**TABLE 2.1 Elements identified in this study that limit the ability of low-income persons, women, people with disabilities, and children to access jobs and services**

	 Accessibility	 Affordability	 Acceptability
 Low-income groups	<ul style="list-style-type: none"> <li>• Dependence on public transport and walking to reach opportunities; however, often not available</li> <li>• Lack of paved roads in low-income neighborhoods limit access to public transport</li> <li>• Lack of pedestrian facilities constrain safe access to jobs and services</li> </ul>	<ul style="list-style-type: none"> <li>• Public transport fares are not affordable for large segments of low-income groups</li> <li>• Inability to afford private vehicle</li> <li>• For large segment of low-income individuals, the only affordable mode is walking</li> </ul>	<ul style="list-style-type: none"> <li>• Fear based: road safety, especially motorcycles, three-wheelers, and tro-tros</li> </ul>
 Women	<ul style="list-style-type: none"> <li>• Tend to travel more off peak, when less transport service is available</li> <li>• Difficulty accessing vehicle because they often travel with children and goods</li> </ul>	<ul style="list-style-type: none"> <li>• Pay extra fare: often perform multiple trips in a day, and pay extra because of traveling with luggage and goods or with family (children, elders)</li> <li>• Women tend to earn less income than men, so have less budget available to travel</li> </ul>	<ul style="list-style-type: none"> <li>• Sexual harassment in public transport</li> <li>• A key concern is traveling at night or unusual times (for example, early in the morning)</li> <li>• Particular concerns for pregnant women because of bumpy rides from poor road conditions</li> <li>• Particular concerns about road safety</li> <li>• Lower tolerance for crowding and busyness</li> </ul>
 People with disabilities and the elderly	<ul style="list-style-type: none"> <li>• Lack of adapted physical access to vehicles (especially tro-tro vehicles)</li> <li>• Lack of adapted physical access to infrastructure</li> <li>• Difficulty navigating because of lack of sidewalks and formal crossing points or hawkers and traders blocking sidewalks</li> </ul>	<ul style="list-style-type: none"> <li>• Often pay extra fare to carry wheelchair or other equipment</li> <li>• Necessity to use more expensive taxis because tro-tros are not accessible</li> <li>• People with disabilities and the elderly tend to earn less income</li> </ul>	<ul style="list-style-type: none"> <li>• Anxiety about robberies</li> <li>• Lower tolerance for crowding and busyness</li> </ul>
 Children	<ul style="list-style-type: none"> <li>• Walk long distances to reach school, under unsafe conditions</li> <li>• Lack of pedestrian facilities constrain safe access</li> <li>• Often lack accessible public transport</li> </ul>	<ul style="list-style-type: none"> <li>• Need to travel alone and share seats to get to school because of the cost of an extra person.</li> <li>• Subject to different fares than other passengers because of their low negotiating power</li> </ul>	<ul style="list-style-type: none"> <li>• Walk under unsafe conditions</li> <li>• Inconvenient hours: Often leave extra early in the morning to avoid rush hour</li> <li>• If running late they may forgo the tro-tro and take a three-wheeler, even though they are more expensive, for fear of punishment at school if they are late</li> </ul>

## NOTE

1. This framework is based on Thiede, Akweongo, and McIntyre (2007), a proposal to collapse Penchansky and Thomas's (1981) five-dimension taxonomy (availability, accessibility, accommodation, affordability, and acceptability) into three dimensions (Burger and Christian 2020).

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# 3 Institutional Foundation: Leadership, Institutional Fragmentation, and Limited Human and Financial Capacity

## Key takeaways

- Urban mobility in Ghana is deterred by the fragmentation between national and local governments and the lack of formal coordination mechanisms.
- Metropolitan, municipal, and district assemblies (MMDAs) have made significant progress in adopting bylaws on urban passenger transport, specifically in Greater Accra and Kumasi since 2010, including the regulation of tro-tros (minibuses) in 2011.
- The capacity of urban mobility institutions is limited by the shortage of trained and specialized staff in urban mobility.
- Capital investments in urban mobility have been limited and mainly focused on road improvements. Little investment has been allocated to improving the operational environment of public transport and pedestrian facilities and to formalizing informal transit.
- The potential to mobilize private sector financing in urban transport has not been fully operationalized in Ghanaian cities.

## CHALLENGES IN THE INSTITUTIONAL AND GOVERNANCE STRUCTURE

Urban mobility in Ghana has been deterred by the fragmentation between national and local governments and the lack of formal coordination mechanisms and ownership of urban mobility reforms. Playing a role in the urban mobility agenda are several ministries—Transport (MoT), Roads and Highways (MRH), and Local Government and Regional Development (MLGRD); central government institutions—National Road Safety Authority (NRSA) and Ghana Police Service; regional councils (Ghana Regional Coordinating Council, GRCC); and multiple actors at the local level—MMDAs, Greater Accra Passenger Transport Executive (GAPTE), departments of transport, and urban roads departments.

However, ambiguity pervades the performance of these roles as does a lack of coordination. Different actors have different incentives and no common vision and strategy to guide decisions in urban mobility. Implementation of the

Ghana Urban Transport Project (GUTP), for example, included multiple ministries and MMDAs. Although the project supported the creation of coordination mechanisms such as the Urban Transport Advisory Committee (UTAC) and the Steering Committee for Urban Transport in Accra (SCUTA) that preceded GAPTE, these mechanisms were not effective because of lack of ownership of the reforms that could drive or lead these coordination mechanisms. Ambiguity of functions is another drawback. That is reflected in the newly created National Road Safety Authority, which has broad responsibilities for regulating public transport, but without yet full clarity on how its mandate complements the existing public transport regulatory functions under the MMDAs.

Urban growth within multiple jurisdictions and the repeated subdivision of MMDAs renders urban mobility planning and regulation difficult in areas with metropolitan commuting such as Accra and Kumasi. In Ghanaian metropolises, the interjurisdictional and institutional coordination needed to attain the required efficient and effective intracity, intercity, and regional connections are missing. MMDAs such as Accra and Kumasi have strong functional interaction between the periphery and the key commercial and administrative hubs located in the city center, but they are handicapped without proper metropolitan planning and without a transport system capable of providing access to people and goods in a safe, efficient, and affordable manner (see map 3.1 for Accra and Kumasi administrative boundaries). In Greater Accra, the number of MMDAs has increased from 4 to 29 because of repeated subdivision. A similar situation has affected Kumasi, adding complexity to the institutional framework.

## **INSTITUTIONAL FRAMEWORK FOR INTERJURISDICTIONAL COORDINATION**

Most of the needed institutional and regulatory building blocks to address urban mobility and develop public transport are already in place, but they have not been sufficiently developed or resourced. Thus they are unable to achieve their potential.

The creation of GAPTE marked a significant milestone in the development of interjurisdictional coordination for public transport in Ghana, although its core activity has been compromised to respond to short-term needs. GAPTE was formally established with a core staff in 2016. It was to act under the delegated authority of the assemblies in Greater Accra. However, GAPTE was not able to reach its full organizational strength, and its responsibilities became diluted. To date, GAPTE has primarily been responsible for initiating the Aayalolo bus services. The expectation is that once these services have become established, GAPTE can disengage from operations and begin to develop its role as a transport authority. Meanwhile, GAPTE faces important challenges in financial and human resources. It does not benefit from a secure line of funding, which threatens its viability. Moreover, although GAPTE's staff has the adequate skills to carry out most of its functions, the staff is too small to fulfill the organization's many missions. A more general difficulty facing GAPTE stems from the ambiguity of its position—halfway between a transport authority and a transport operator.

Greater Kumasi lacks any formal authority that could coordinate its constituent MMDAs for transport planning and regulation—neither a higher

MAP 3.1

**Administrative boundaries: Accra and Kumasi**

Source: Esri World Imagery.

level of authority nor a joint executive following the delegated authority model. No formal mechanism exists to promote such interjurisdictional coordination, and no legislative instruments mandate the assemblies to coordinate among themselves. The Regional Coordinating Council (RCC), Ministry of Local Government and Rural Development, and National Development Planning Commission (NDPC) mainly play advisory and supportive roles within the assemblies. Coordination of public transport and traffic management planning between the MMDAs and national entities is also a challenge.

Other significant building blocks are the Centre for Urban Transport (CUT), created initially to support GAPTE, the MMDAs, and operators. However, CUT's activity did not continue after GUTP closed. Finally, UTAC was created for oversight, coordination of the ministries, departments, and agencies (MDAs); and advice. However, it was never given authority over the sectoral institutions, and its activities were diluted with time.

In Tamale, the urban population is concentrated in a single MMDA, which means that interjurisdictional coordination between MMDAs is not a major issue.

## RECENT EFFORTS TO DEFINE REGULATORY FRAMEWORKS

Although Ghana has made significant efforts to develop and adopt public transport frameworks and governance regulations, their implementation has proven challenging. MMDAs have made significant progress in the adoption of bylaws on urban passenger transport, specifically in Greater Accra and Kumasi since 2010, including the regulation of tro-tros in 2011. Local Government Act, 1993 (Act 462) and subsequently the Local Governance Act, 2016 (Act 936) empowered the MLGRD to prepare the relevant legislative instruments that define the MMDAs' responsibilities. Under this act, urban passenger transport is a responsibility that devolves to the MMDAs covering the area in question. The MMDAs have established transport departments that provide the basis for

planning and regulation of urban mobility services. However, the departments do not have adequate capacity to fulfill their responsibilities.

The achievements in regulating the private transport operators of tro-tros are an important step toward the transformation of public transport in Accra. The tro-tro sector has recently agreed to shift from self-regulation to regulation by the MMDAs under a comprehensive regulatory and permit system established in 2010–11 under bylaws of the MMDAs. After initial achievements, a loss of momentum followed, and the substantive provisions of this framework have not been utilized as foreseen.

Both Kumasi and Tamale have within their local administration the Department of Urban Roads that reports to the local government, although they both obtain funding from the central government. However, unlike Kumasi, Tamale does not have a Transport Department for public transport regulation.

### **Capacity constraints**

The institutional capacity of urban mobility institutions is limited by a shortage of staff trained and specializing in urban mobility. The MMDAs have established transport departments to provide the basis for planning and regulation of urban mobility services, but they have low or no capacity to fulfill their responsibilities. In addition, the repeated subdivision of the MMDAs in Greater Accra and Kumasi is causing additional constraints because of limited human and budget resources. GUTP supported the capacity development of transport departments' staff. However, many of the trained staff left these positions after project closure, and just a few of these departments are fully functional because of the lack of trained staff. Similarly, GAPTE has not been able to achieve adequate staffing because of financial constraints and its inability to reach its full organizational strength.

### **Resources and funding of urban mobility**

Resource allocations for the operation of GAPTE and transport departments and departments of urban roads within MMDAs are insufficient to develop specialized functions. Ghana's decentralized local government administration is significantly challenged by its lack of adequate financial resources. As a result, allocations for the transport-related departments are insufficient to cover the specialized functions of these departments. Indeed, the funds allocated to MMDAs are usually insufficient in the face of the numerous functions they are expected to carry out. The Ministry of Finance (MoF) determines the budgets of all ministries and agencies, including their allocations to the various local government units. It also sets rates, taxes, and duties on significant items such as fuel, vehicle imports, and spare parts.

Local authorities are pressured to mobilize their own resources to meet the cost of implementing developmental objectives and service delivery. However, revenue collection usually falls short of its estimated amount, and, once collected, its mobilization and management are deficient. Revenue collected at the MMDA level remains small; it was about 0.18 percent of the gross domestic product (GDP) in 2011 and 0.17 percent in 2012. A greater portion of the MMDAs' internally generated revenue is derived from fees, fines, and licenses, particularly market tolls, licenses, and property taxes. Collection of property taxes in all the districts has proven to be the most difficult and ineffective means of revenue

mobilization, despite being considered the most valuable instrument for resource mobilization. Overall, the MMDAs are dependent on transfers and grants from the central government and donors for capital and operational financing. It is estimated that, on average, 80–95 percent of MMDA budgets is financed by transfers and grants.

Capital investment projects in urban mobility have been limited. Investments in urban transport systems have mainly focused on road improvements, with little investment in improving the operational environment of public transport and pedestrian facilities and the formalization of informal transit. Other significant investments have included procurement of rolling stock (Aayalolo services) to operate in the Amasaman corridor in Accra.

The mobilization of private sector financing in urban transport has not been fully realized in Ghanaian cities. Experience gathered worldwide has identified the potential for private sector participation in urban transport in multiple areas such as infrastructure, vehicles, stations, depots, terminals, and parking financing and operation, among others. Although some attempts were made, they were beset by a lack of successful precedents in Ghana on private sector engagement in urban transport.



# 4 A Call for Action

## BOX 4.1

### The key consequences of a business-as-usual scenario in urban mobility

- Ghanaian cities are at a critical point that will determine whether they become an engine of or a burden on the country's development. If nothing is done to change the trajectories of urban sprawl, motorization, emissions, and accidents, it will be too costly for these cities to become competitive, inclusive, and sustainable.
- The current car-driven development will lock cities in an unsustainable pattern. This would entail (i) exponential growth in local and global emissions and (ii) greater demand for urban space for private vehicles and the resulting worsening of congestion. In this scenario, the cost of externalities would cancel out any productivity benefits that cities can deliver.
- If nothing is done, spatial exclusion will be exacerbated for the most vulnerable. If urbanization continues without the needed investment in nonmotorized and public transport and without the proper land use planning, large portions of the population will be excluded from accessing jobs and services.

Major Ghanaian cities are at a critical point that will determine whether they become an engine of or a burden on the country's development. If nothing is done to change the trajectories of urban sprawl, motorization, emissions, and accidents, it will be too costly for these cities to become competitive, inclusive, and sustainable.

If Ghanaian cities continue the ongoing car-driven development, they will get locked in an unsustainable development pattern. Without a modal shift toward nonmotorized and public transport, local and global emissions will continue to grow exponentially, congestion will worsen, and accessibility will fall drastically for the poorest members of society. First, the continuation of the ongoing modal-shift trends and car-driven development will entail an unsustainable increase in global emissions, which would clash with the decarbonization of the sector and the race against climate change. Meanwhile, local emissions will increase, with significant social and economic costs. Second, congestion will only get worse. If nothing is done, individuals and firms in

Ghana will greatly suffer economically, and the cost of congestion will cancel out any productivity benefits that the cities can deliver. It is estimated that from 2015 to 2030, the primary road length per 1,000 residents will decrease by 43 percent in Kumasi and 71 percent in Tamale, whereas the private vehicle fleet will increase incontrovertibly by 177 percent in Kumasi and 192 percent in Tamale over the same period. The decrease in road share and increase in the number of private vehicles in cities demonstrate the need for policies and investments that lead to a more sustainable future, where nonmotorized and public transport are at the core of cities' vision.

If nothing is done, spatial exclusion will be exacerbated for the most vulnerable. In a business-as-usual scenario, areas on the periphery of the city—mostly low-income residents without private vehicles—will be excluded from accessing jobs via public transport. An analysis of growth patterns<sup>1</sup> from 2015 to 2030 found that Accra's population density would fall by 57 percent, Kumasi's by 36 percent, and Tamale's by 32 percent. If urbanization continues without the needed investment in nonmotorized and public transport and without the proper land use planning, a large part of the population will thus be located in low-density areas, disconnected from jobs and services.

COVID-19 (coronavirus) is a threat to the sustainable development of Ghanaian cities. If nothing is done, the urban transport sector will see permanent structural changes that could accelerate private motorization, emissions, and accidents. However, the pandemic also brings an opportunity to rethink the sector to build back better. It calls for accelerating reforms that will lead to more resilient, more sustainable, and greener urban mobility.

## NOTE

1. Urban growth was predicted by means of a two-stage analysis. The historic growth in urban sprawl was tracked by tracing the periphery of the urban area in 2000, 2010, and 2017 using Google satellite data. Growth rates in 2025 and 2030 were then modeled by increasing the percentage size of the urban area against predicted population growth. In a do-nothing scenario, all growth is assumed to be distributed on the periphery.



## **Defining the Path of Transformation**



# 5 What to Do Now?

## Key takeaways

This study recommends two key areas in which to improve urban mobility.

### ***Build the foundation by strengthening the institutional and operational framework***

- Reinvigorate the institutional and operational framework—Centre for Urban Transport (CUT); Urban Transport Advisory Committee (UTAC); Greater Accra Passenger Transport Executive (GAPTE); metropolitan, municipal, and district assemblies (MMDAs); transport departments; and others—so they assume the obligation, direction, motivation, and capacity to deliver.
- Establish a formal basis to coordinate across multiple stakeholders and engage, coordinate, and mobilize the ministries, departments, and agencies (MDAs) and the MMDAs so they take common action.

- Build human capital in specialized skills in urban mobility within MMDAs and MDAs.
- Explore further sources of financing for existing and capital expenditures.
- Expand opportunities for private sector participation in urban mobility.

### ***Develop an integrated approach to addressing mobility and accessibility***

- Develop a hierarchically integrated transit system that provides citizens with accessible, affordable, and acceptable public transport.
- Develop solutions to tackle local connectivity to communities and nonmotorized transport.
- Improve traffic management and fill the gaps in the network.
- Institute transport demand management plans.
- Respond to COVID-19.

Ghanaian cities are growing rapidly, and yet they are not delivering their potential to promote inclusive, competitive growth. As described in chapter 2, access to jobs is increasingly challenging because of chronic congestion, the limited availability of public transport, and the longer travel distances stemming from urban sprawl. Access is especially challenging for vulnerable groups such as low-income households, who tend to live in poorly connected areas, often on the periphery of cities far from jobs. Women face particular barriers to accessing jobs such as safety in public transport, and people with disabilities are excluded because of the physical barriers that limit their access to public transport.

Urban transport should serve as the structural factor that will determine whether Ghanaian cities become an engine of or a burden to the country's economic transformation. Cities such as Accra, Kumasi, and Tamale have been unable to keep pace with the growing demands for mobility to connect people to jobs and social services and businesses to other businesses, customers, and international markets. If nothing is done, these cities' competitiveness and inclusion will be heavily undermined. To become functional, they urgently need investments in transport systems and coordinated urban planning. Otherwise, the cost of congestion will cancel out any productivity benefits the cities can deliver.

Attempts at reform must focus not only on the rapidly growing capital city of Ghana, but also on its intermediary cities. As in many other countries in the region, most of the attention and funding on urban transport have been directed at the capital city. However, intermediary cities such as Kumasi, Tamale, and Takoradi are in acute need of attention and funding to respond to their growing needs. These intermediary cities are growing faster than Accra, and yet they are hampered by very limited data and clear neglect of urban transport. Intermediary cities in Ghana have the potential to become intermediary hubs between rural areas, the capital city, and external markets, which would enhance the country's economic inclusion and reduce pressure on Greater Accra.

## **STRENGTHENING THE INSTITUTIONAL AND OPERATIONAL FRAMEWORKS OF URBAN TRANSPORT**

Stronger institutional and operational frameworks could serve as the foundation for change in the complex urban mobility arena. Only the efforts of capable, well-coordinated, and committed institutions at different levels of government can resolve the complex multisectoral problems linked to urban mobility. Meanwhile, high rates of motorization, urban sprawl, and insufficient access and demand management are the root causes of congestion, air pollution, high-energy consumption, road accidents, and social exclusion, among other things.

Because institutional changes are seldom easy, the government needs to define a clear action plan for an overall institutional reform of urban mobility, supported at the highest level. The following recommended actions are based on past experiences in Ghana and in other cities around the world.

### **Reinvigorate the institutional and operational frameworks**

Reinvigorating the institutional and operational frameworks would enable institutions such as GAPTE, the transport departments in MMDAs, CUT, and UTAC to assume the obligation, direction, motivation, and capacity to deliver. Key institutional building blocks of urban mobility were created during implementation of the Ghana Urban Transport Project (GUTP). However, these mechanisms and institutions were neither empowered nor properly funded, and they never developed their full potential. GAPTE itself was never properly funded, and its functions were compromised from an early stage, leaving it to perform the role of operator of buses, rather than its core functions. Transport departments in MMDAs were built up as part of GUTP. However, much of their human capacity was lost over time because of lack of attention and funding.

In particular, there is an urgent need to disengage GAPTE from the business aspects and liabilities of the Aayalolo routes to avoid GAPTE's

imminent collapse. The collapse of GAPTE would mean losing one of the major actors in the institutional reforms during the implementation of GUTP. In the short term, the government should arrange to resolve the financial liabilities incurred to date and facilitate a steady source of funding. Such measures would allow GAPTE to bring its staffing level to full capacity and develop its role in regulation, permit issuance, and coordination of travel demand analyses, transport planning, and ticketing and pricing.

Greater Kumasi would benefit from the launch of institutional and regulatory coordination mechanisms between MMDAs, learning from the successes and failures of GAPTE. The uncontrolled urban sprawl of Kumasi has extended beyond the boundaries of the Kumasi Metropolitan Area (KMA). During the implementation of GUTP, it was expected that Greater Kumasi MMDAs would establish an entity similar to GAPTE. However, this entity never materialized. Greater Kumasi should draw from similar experiences in Greater Accra and other cities in Africa to define institutional mechanisms that would bring coherence and coordination of public transport to the metropolitan region.

At the local government level, mandate, authority, and responsibility should be embedded in the amendments to Act 936, Legislative Instrument 1961, and any individual legislative instruments established by the MMDAs. It is recommended that urban mobility matters be mandatory for metropolitan and municipal assemblies as well as any district assemblies notified by the minister—especially any district assemblies in the Greater Accra Metropolitan Area (GAMA).

Transport departments need to be staffed, empowered, and held accountable to MMDAs to ensure results. MMDAs should staff transport departments to their capacity with suitably qualified staff, and they should define and implement capacity-building requirements for all transport departments. Intervention by local governments to develop suitable indicators to cover the scope of transport departments will enhance those departments' accountability and delivery.

### **Establish a formal basis for coordination and ownership of reforms**

Previous efforts to improve urban mobility have revealed it is essential to establish both a clear understanding of the ownership of the reform program and a formal basis to coordinate across multiple stakeholders, in addition to engaging, coordinating, and mobilizing MDAs and MMDAs to take common action.

Ultimately, ownership must rest with the country's president and cabinet. In Ghana, ownership of reforms is a national issue that has defied all previous efforts to resolve it. MMDAs and MDAs need to work together to resolve the mobility crisis in Ghanaian cities. Based on experience, such coordination will not materialize until the government of Ghana issues an executive order to do so, including a mechanism for effective coordination and oversight.

Stakeholders generally agree that ownership of coordination, implementation, and mobilization of budget resources must rest with the local government. Mayors of cities such as Accra and Kumasi have been great advocates of improving urban mobility, although with limited financing and staffing to deliver changes. Also evident is a general consensus that the Ministry of Local Government and Rural Development (MLGRD) has shown limited commitment to urban mobility in the past. The reasons are related to the lack of capacity and lack of incentives to deliver on this agenda. Stakeholders also agree that MLGRD

should not take over the natural functions of other MDAs. Each has its own role to play, and it is primarily a matter of coordination.

Oversight and inter-MDA management should be led by a reconstituted UTAC, which may more appropriately be positioned as the Urban Mobility Advisory Committee (UMAC). It should include a representative from the Office of the President.

Meanwhile, stakeholders created an urban mobility working group in March 2020 that should serve, in the short term, as an interim platform for coordination to create momentum in the transport sector. The group includes key ministries (Transport, Roads and Highways, and Local Government and Rural Development), and key local government bodies of Accra, Kumasi, and Tamale. The Ministry of Transport (MoT) will lead the working group meetings at the initial stage, with the intention to transfer responsibility to the MLGRD when that organization is available to lead the discussions efficiently. The working group's first tasks include: (1) reviewing the CUT Act and the functions of the erstwhile UTAC and other relevant bodies and assessing the potential to reinvigorate the existing institutional and operational frameworks of urban mobility; (2) reviewing and discussing ways to improve the governance of urban mobility; and (3) serving as a platform to inform Country Partnership Framework (CPF) consultations.

### **Build human capital in specialized skills in urban mobility in MMDAs and MDAs**

Capacity building to improve urban mobility is incumbent on all levels of government, and especially so at the local level. Since the liberalization of urban public transport in Ghana in the 1960s, the capacity to plan and regulate public transport has been lost. This deficiency has led to the private sector and the tro-tro (minibus) industry stepping in to fill the gap. Capacity building within the civil service and government will enable implementation of interventions to plan, regulate, and manage urban transport. Specialized skills in urban mobility planning, public transport operations, and regulations are scarce in Ghana. A survey conducted by the Commonwealth Association of Planners (Currie, Fenner, and Harridge 2018) revealed that in 2018 Ghana had less than one planner for every 100,000 persons, thereby limiting the country's technical capacity to plan and deliver projects. Capacity-building programs should target GAPTE, departments of transport and urban roads, MMDAs, and MoT. MMDAs are especially ill-equipped in the domain of urban mobility because the devolution of urban transport powers has been slow in coming, and when it has finally happened, it has not been supported with sufficient capacity building.

Capacity building in urban mobility should be monitored and supported at the central level. Government should assess the best approach to reinstating units such as the disbanded Centre for Urban Transport, either by reviving CUT or creating a unit within a line ministry (such as MoT or MLGRD) with a similar mandate.

Capacity building of private operators would help to operationalize the regulatory framework of public transport. The government of Ghana should build capacity within the private bus sector to develop professional operators capable of operating a quality public transport network. At the moment, urban public transport operation is largely provided by the privately operated tro-tros. But the disorganized provision of public transport has prompted the government to

rethink its involvement in its provision. In the past, bus services in Ghana were provided by public sector operators using high-capacity vehicles. With the liquidation of the Omnibus Services Authority (OSA) in the 1990s, public transport in Ghana was effectively deregulated.

Meanwhile, today's Ghana National Transport Policy outlines a vision for a better-organized and higher-quality public transport system in all of Ghana's cities. Several interventions have already been undertaken and more are planned on the path to achieving this vision.

### **Explore further sources of financing for current and capital expenditures**

It is important to fully complete decentralization and administrative reforms in order to reorganize financing, establish functional mandates, and transfer human resources to MMDAs. Ghana has set out on an ambitious path to extend the decentralization of urban planning and service delivery management. But decentralization remains ineffective because of prevailing contradictions in the legal framework and the insufficient transfer of human resources and capital to MMDAs. Local governments have expanded their functional assignments, but the corresponding financing and administrative decentralization have not been completed.

The funding of MMDAs' transport departments and departments of urban roads should be increased to ensure the effective operation of these departments. As MMDAs struggle to fund basic local government activities, transport-related departments at the local level tend to be particularly underfunded, making it difficult to retain qualified staff and supply enough equipment to develop daily data collection. The maintenance of existing facilities and roads is also limited, and departments of urban roads rely on the allocation of central government funding, which entails cumbersome bureaucratic processes, even for minor road maintenance or lighting repairs.

Past experience in Ghana and elsewhere has demonstrated that stable and secure financing is essential for institutions to develop their mandate, especially for those institutions that will play complex coordination roles. GAPTE, for example, relied on funding that depended on the passenger volume of the Amasaman corridor operation. However, financial uncertainty and the financial deficit run up by the Aayalolo bus operation put GAPTE's sustainability at risk.

The allocation of resources to interjurisdictional schemes could support intergovernmental transfers from the national government to create a robust system of coordination with local governments. As interjurisdictional plans are formulated, their implementation should be coordinated and incentives provided for specific projects as agreed by the local and national governments. Such coordination would bring together adjoining assemblies that have common problems and that would benefit from pooled resources and decision-making to rationalize the provision of public goods and services. The proposed recommendations would also serve as a tool in designing and delivering new plans for large agglomerations (such as the Greater Accra and Greater Kumasi areas) and would support effective implementation of existing interjurisdictional plans.

Another recommendation is to explore new sources of financing to respond to major urban mobility requirements in Ghana because investment in the urban sector and existing revenues are falling far short of the needs. The efficiency of the urban system and of urban service delivery is largely influenced

by the provision of adequate financing. Ghana should improve its metropolitan and municipal revenues; rationalize its intergovernmental fiscal framework, including the prevailing decentralization reforms; and develop new urban financing mechanisms. Some potential sources of revenue could be the direct beneficiaries of urban transport in the form of user charges, fuel levies, taxation of vehicle operation, and parking fees. Revenue from the indirect beneficiaries of improvements in urban mobility could take the form of land value capture and allocation of different taxes.

### **Expand opportunities for private sector participation in urban mobility**

Public-private partnerships (PPPs) are another way to bridge financing gaps and achieve private sector added value in urban mobility. The development of regulations to guide PPPs could expand the options available for municipal financing, but they will require additional technical assistance and regulatory clarification. Areas ripe for private participation are infrastructure financing, bus operations, fare collection, station management, parking, and transit-oriented development, among others. The appetite of the private sector for assuming risks in any of these areas depends on the predictability of costs and revenues and the experiences of previous projects (box 5.1).

#### **BOX 5.1**

### **New approaches to bus financing based on public-private partnerships**

Most urban transport projects in the developing world have recognized the need for fleet renewal, but countries have taken two very different approaches to renewal.

The traditional approach, particularly with a public sector passenger service provider, has been to procure buses to support the state-owned companies. The common practice until the late 1990s was that the government would subsidize financing for procurement of buses for state-owned public undertakings to operate. But for the following reasons the results were often disappointing, and the buses did not last their economic life. First, the public sector operator was not responsible for fleet replacement, and it was motivated by the short-term goal of profit maximization, which required operating the buses for long hours with little maintenance. Second, operational reforms were not introduced, and the fare structure was set below full cost recovery, resulting in the decline and eventual demise of the state-owned bus companies in most cities. Third, buyers who procured the rolling stock often did not follow competitive and transparent guidelines. And, fourth, at times rolling stock

suppliers charged higher than market prices for maintenance and replacement parts. In addition, support for the public sector operator had the unintended consequence of discouraging the private sector from engaging in an environment of unfair competition.

A contemporary approach has focused on public-private partnerships, with the public sector financing the enabling environment (including infrastructure development) and the private sector retaining all operational responsibilities, including rolling stock finance and management. But even the private sector often needs an initial impetus in the form of subsidized financing for fleet renovation, primarily because the existing private operators are often financially constrained and lack the market knowledge needed to invest in standard good-quality buses. Meanwhile, commercial banks are often reluctant to lend to operators until the business model for financing new buses is established. And the capacity of city agencies to regulate and monitor improved services often needs strengthening. Good examples of successful bus financing can be found in Dakar and Lagos.

The government of Ghana should establish urban mobility demonstration projects that successfully integrate private sector financing to whet the appetite of investors. The experience of the quality bus service in the Amasaman corridor in Accra created a negative precedent in the sector because the government (1) was not able to initiate the measures required to establish predictability of revenues for operators and (2) proceeded with changes in the structure of the project without considering the financial implications for the operations. The required measures include regulating tro-tro operations in the corridor, creating bus priority measures to make buses more attractive than tro-tros, and enforcing public transport and traffic management regulations. Furthermore, the Amasaman quality bus service project saw sudden changes by the end of the project in the procurement of rolling stock<sup>1</sup> without a defined business model and without involvement of operators who were originally envisaged to participate in the financing. This led to undesired consequences for the financial sustainability of the operations and created a precedent of unpredictability of government direction, which is viewed as critical to attracting investment. A successful demonstration or pilot project by the government will positively change the views of investors.

## **DEVELOPING AN INTEGRATED APPROACH TO ADDRESSING MOBILITY AND ACCESSIBILITY AND MINIMIZING EXTERNALITIES**

In developing an urban transport system that facilitates access to jobs and social services, Ghanaian cities should focus on the “complete streets” approach (box 5.2), which consists of the following elements:

1. A hierarchically integrated transit system that provides citizens with accessible, affordable, and acceptable public transport.
2. A quality network of sidewalks, pedestrian-centered traffic management and crossings, bike lanes to enhance local connectivity to communities, and integration with other modes.
3. Steps to fill in the gaps in the road network hierarchy in order to balance the number of main, secondary, tertiary, and community roads.
4. Implementation of transport demand management plans to encourage the use of greener and more sustainable transport modes (public transport, non-motorized transport, fewer private vehicles), implement parking management, and implement policies to reduce the number of trips and their length, among other things.
5. Participation of urban mobility in the response to COVID-19. Such participation, which is essential, should be integrated into and aligned with the rest of the actions noted earlier. COVID-19 has reinforced the urgency of transport reforms (table 7.1).

All these interventions should take into account the needs of vulnerable groups (see table 5.2).

## BOX 5.2

**“Complete streets”**

“Complete streets” refers to roadways designed to safely accommodate diverse transport modes, users, and activities, including walking, cycling, driving, public transport, people with disabilities, plus adjacent businesses and residents (Victoria Transport Policy Institute 2015).

Complete streets planning recognizes that roadways serve diverse functions. They include mobility, commerce, recreation, and community, and that road users range from freight trucks to pedestrians with impairments.

FIGURE B5.2.1

**Typical “complete streets” features**

Wider and better sidewalks

Universal design features (curb cuts and ramps)

Crosswalks with pedestrian refuge islands

Bike lanes and paths

Bus lanes and shelters

Center left-turn lanes

Landscaping

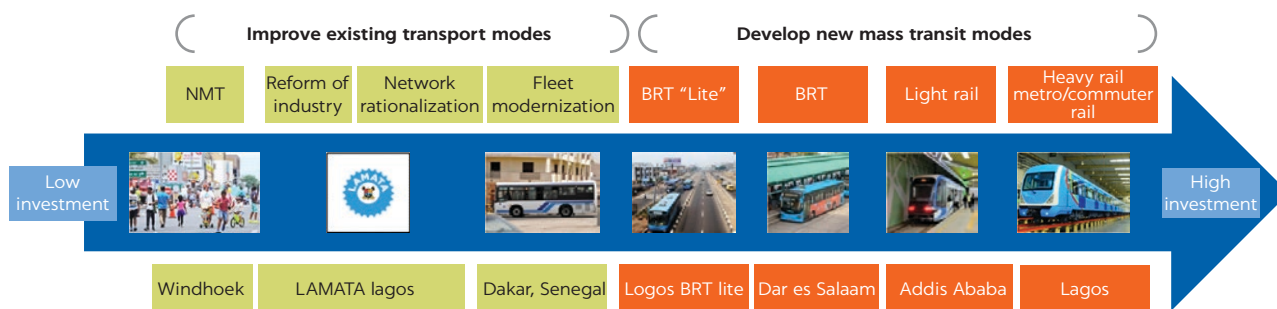
Source: Victoria Transport Policy Institute (2015).

### **Develop a hierarchically integrated transit system that provides citizens with accessible, affordable, and acceptable public transport**

All three Ghanaian cities studied are pursuing enhanced public transport networks. Their transit systems are dominated by privately operated minibuses. Although such modes are important to provide the poor with access, they offer low-quality service and greatly contribute to externalities. By learning from past experiences in Ghana and other countries in Sub-Saharan Africa (figure 5.1), Ghanaian cities have an opportunity to enhance the current system and build a hierarchically integrated transit system (HITS)—that is, a transit network that integrates multimodal services in which high-capacity transit serves as the backbone, and feeder services and nonmotorized transport (NMT) are integrated in the overall network.

In the process of building a HITS, the government of Ghana should focus on four areas: (1) improving existing public transport by rationalization and reorganization of the existing services using a sustainable business model; (2) developing high-quality bus service to provide mass transit service in main corridors; (3) integrating the transit network with local neighborhoods by investing in road paving and NMT facilities; and (4) focusing on the most vulnerable groups while developing the HITS.

**FIGURE 5.1**  
**Examples of public transport interventions: African cities**



Note: BRT = bus rapid transit; LAMATA = Lagos Metropolitan Area Transport Authority; NMT = nonmotorized transport.

## IMPROVING EXISTING TRANSPORT MODES BY RATIONALIZING AND REORGANIZING EXISTING SERVICES USING A SUSTAINABLE BUSINESS MODEL

Rationalization and reorganization of existing services under a sustainable business model are imperative for the development of HITS. Introduction of feeder services ensures that the existing services are integrated with mass transit operations. This must be achieved by engaging with stakeholders to avoid opposition from unions, user groups, and government bodies.

If the tro-tro sector is to be enhanced, whether by improving minibus services or migrating to larger vehicles, conditions should be established in which an efficient operator can generate enough operating surplus to finance investment in new vehicles (box 5.3).

In the process of formalization, the entities that operate bus routes will migrate from associations or unions toward a more formal corporate form, perhaps with a few transition points until eventually becoming companies of some type. Under GUTP, the government of Ghana had already defined a transition path of bus operation permits (first by creating type A and type B permits) that aimed to transition toward a formalized corporate form.

The planned transition toward formalization should be reinvigorated. First, the tro-tro network—offering better service and vehicle quality and meeting emission standards—would be operated under a type A permit, whose conditions will have evolved to reflect the practice and standards in the sector. Second, primary routes would be designated quality bus routes and operated under type B permits, and they would have route service contracts, with buses receiving priority to ensure reliable service.

Type A permits for tro-tros will introduce two significant changes. First, the permits will be for an entire route—not on a vehicle-by-vehicle basis. Second, the permits will include service performance and quality conditions, which will be developed gradually. The route entity, whether an association, union, or corporation, will have responsibility for both the overall and individual performance of all of its members. This responsibility would inevitably require changes in the internal organization and discipline, improved operational management and monitoring, and the possibility of sanctioning or even expelling operators who are not compliant with service performance or quality requirements.

## BOX 5.3

### Key factors in developing a sustainable business model for public transport: Ghanaian cities

Interaction with local stakeholders and international experience indicate that the key factors in developing a sustainable business model in Ghanaian cities are the following:

- Relieving public transport vehicles of congestion to enable a significant change in productivity, unit costs, and attractiveness to customers.
- Enforcing a prohibition of all forms of unauthorized and illegal services that encroach on public transport and hurt its earnings.
- Improving infrastructure, especially road surface conditions.
- Changing the organizational structure of the operator sector, especially moving toward models that are geared to optimizing resources rather than maximizing membership.
- Investing in larger vehicles to reduce the unit costs of passenger per kilometer.
- Realigning network and service levels based on better knowledge of trip demand.
- Gearing institutional frameworks and agencies toward supporting development of the sector.
- Targeting government financial support to create conditions that will encourage operators to make the necessary investments in fleet and facilities.
- Adopting a regulatory approach that provides guidance and incentives for operators to develop their business and serve the public rather than treating them as taxable objects to be controlled.

The most effective approach is likely to be a partnership in which the public and private sectors invest in the assets they are better suited to develop and manage.

For any type A permit route that involves a significant level of replacement or renewal of minibuses—or migration to the slightly larger midibuses—operators will have to manage the risk associated with the financial obligations. This will require strengthening the capacity of and mutual obligations within the route entity to ensure that the route permit is not sanctioned or terminated because of poor performance. Operators will have to maximize use of the asset and its earnings, and so they will be more motivated to make new arrangements for resource and productivity optimization. As the level of investment increases, it is likely that operators and owners will be increasingly willing to move the vehicle financing risk to the route entity (despite their prior reluctance to agree to such a mutual agreement) and ultimately to the route entity itself purchasing the vehicles.

Type B permit routes, whether with large buses or midibuses, entail a substantial level of investment and requirements for operational and management capacity. Such a level would be achievable only by operators that adopt a strong corporate form (as a company) from the outset. Commercial banks and other sources of financing for investment are likely to give preference to entities with a stronger corporate form, and, indeed, may make a formal business structure a prerequisite.

#### ***Develop a high-quality bus service***

Bus rapid transit systems have proven to be a cost-effective solution to improving access to jobs and services in cities. A BRT system requires infrastructure that provides priority to buses so that they run efficiently and are cost-effective. A variety of solutions can fit within the definition of a BRT. Some are less

## BOX 5.4

**Case study: BRT-lite in Lagos**

Lagos BRT-Lite is generally considered to be the first bus rapid transit (BRT) system in Sub-Saharan Africa. Delivered in just 15 months from inception to operation, with the cost of delivery just a fraction of the showcase systems of Bogota and Curitiba, the scheme has elicited praise as a possible model for developing cities.

Designed first and foremost to meet the needs of the user, the scheme offers the majority of users segregated routes, with shelters and terminal infrastructure. Buses run at up to 30-second headways, carrying nearly 200,000 passengers a day and achieving significant time savings and cost savings over the traditional minibus (*danfo*) operations.

capital-intensive options, such as the Lagos BRT-lite (box 5.4) that was built at a cost of \$1.7 million per kilometer. BRT also requires higher-capacity vehicles that deliver a higher-quality service to passengers and operators. A suitable business model is essential to deploy these vehicles.

Both Accra and Kumasi have planned the development of a BRT network in main corridors (map 5.1), and it is recommended that Ghanaian cities start the development of mass transit in a pilot or demonstration corridor. Implementation of such systems requires significant operational capacity and stronger institutional and regulatory frameworks. An initial pilot can serve as an opportunity to demonstrate to residents, the private sector, and overall society the impact of such systems, while the government introduces institutional and regulatory framework improvements. Once the first corridor is developed and functional frameworks are in place, the government can learn from the experience and scale up interventions.

In Accra, the unsatisfactory experience of GUTP has affected the public image of BRT. However, the valuable lessons learned should be considered in developing the next mass transit (box 5.5).

## MAP 5.1

**Proposed BRT corridors in master plans: Accra and Kumasi**

Source: World Bank, based on government master plans.  
Note: BRT = bus rapid transit.

## BOX 5.5

### Lessons learned from the Ghana Urban Transport Project

The Ghana Urban Transport Project (GUTP) implemented in Accra by the government of Ghana was intended to encourage broad policy reforms and catalyze transformation of urban transport in Accra through a combination of management improvements, regulation of the public transport industry, and implementation of a bus rapid transit system. The project was completed in 2015 with unsatisfactory results. The following lessons learned from that project are critical for further engagement in the urban mobility sector in Ghana:

- Setting up a strong institutional basis for coordinated planning and regulation is critical to the success of urban transport projects. The World Bank report *Cities on the Move* (2002) identifies institutional weaknesses as the source of many observed failures in urban transport in developing countries (World Bank 2002). Strengthening urban transport institutions often requires legislative, institutional, and management changes at the national, state, and municipal levels to minimize jurisdictional and functional impediments to efficient and effective service delivery. Strengthening transport also requires setting up dedicated institutional bodies for urban transport planning and regulation, with commitment from the highest levels of government and a champion to further the cause of good management.
- Building a political consensus among operators by transparently sharing information across multiple stakeholders requires engagement with existing transport operators to ensure that their livelihoods are protected and even enhanced.
- A successful project design is based on an approach that is comprehensive (covers multiple administrative boundaries and is multimodal), continual (plans, planning data, and tools are updated on a regular basis), cooperative (all stakeholders develop communications plans and stakeholder analysis), connected (capital projects are consistent with adopted long-range plans), championed (support at the highest political level and ownership), and changed incrementally (interventions are scaled up in an incremental fashion and allow flexibility in design).
- Skillful management of stakeholder expectations, two-way communication, and public involvement are essential for the success of urban transport projects. Engagement with transport operators in Accra, who are key stakeholders in the implementation of public transport reforms, got off on the wrong foot. They believed their livelihoods were endangered by the reforms, and so they long resisted the project. A successful system requires ownership by the existing operators, drivers, and users and incorporation of their specific concerns in the design.
- It is equally critical to strengthen the enforcement capacity. Reforms cannot work unless new arrangements are consistently enforced based on formal statutes (for example, franchise operators should be protected against illegal operators). This applies to public transport operations and traffic management. Consistent enforcement requires close coordination of all implementing agencies.
- It is imperative to focus not only on the rapidly growing capital, but also on intermediary cities to use transport infrastructure to structure urban growth. As in many other countries in the region, most of the attention and funding on urban transport have been directed to the capital city. However, intermediary cities, such as Kumasi, Tamale, and Takoradi need urgent attention and funding to respond to their urbanization. These intermediary cities are growing faster than Accra in terms of population and built-up area. However, very limited data are available on these cities, and urban transport has been clearly neglected. Secondary cities in Ghana have the potential to become intermediary hubs between rural areas and the capital and external markets, which would enhance the country's economic inclusion and reduce pressure in Greater Accra.

**Develop a quality network of sidewalks, pedestrian-centered traffic management and crossings, and bike lanes to enhance local connectivity to communities, and integration with other modes, to tackle local connectivity to communities and nonmotorized transport**

In a HITS, last-mile connectivity—that is, connecting the transit network with neighborhoods—plays a critical role, especially for the most vulnerable populations, which include low-income groups, women, and people with disabilities.

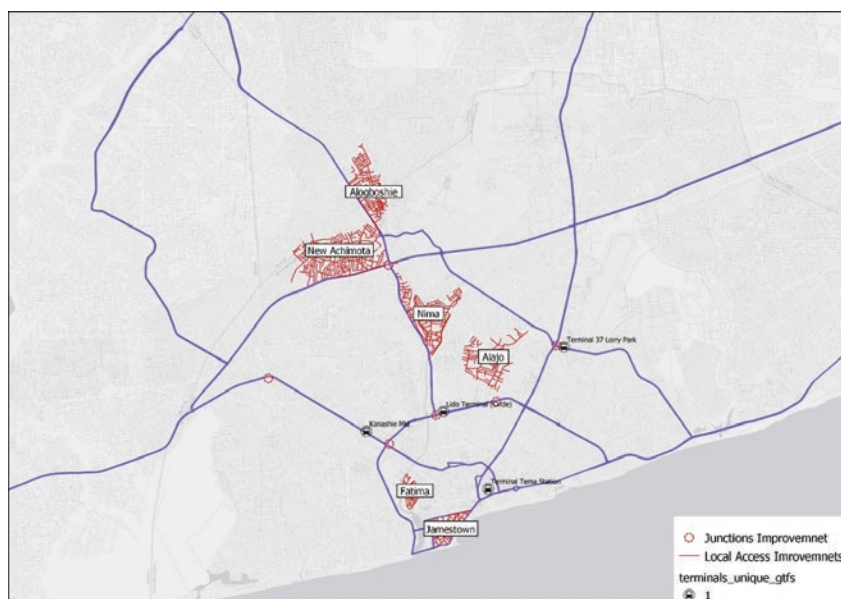
Paving local roads in a strategic manner to connect with the rest of the network will allow bus transit routes to access neighborhoods. Lack of suitable roads, for example, constrains the distribution of the public transport network to communities in Accra (map 5.2), Kumasi, and Tamale that have very poor first- and last-mile connectivity because it is inhibited by unpaved roads that are extremely uneven. Such poor roads in these areas further suffer from extreme weather conditions such as heavy rainfall and flooding.

Meanwhile, integration of nonmotorized modes with the rest of the network can be realized through safe walking routes from transport nodes and relevant infrastructure such as bicycle lanes and parking at stations. Adapted infrastructure such as ramps for the physically challenged can help integrate the most vulnerable in labor markets. Improved lighting and the overall safety environment of walking areas will improve road safety and safety for women.

Because cycling is a common mode of transport in northern Ghana, investments in the bicycle infrastructure in Tamale is particularly important. According to the 2017 Ghana Living Standards Survey, bicycle ownership in cities in northern Ghana is significantly higher than in cities in other regions. Opportunities to encourage the use of bicycles and to discourage the transition toward motorcycles in cities such as Tamale could demonstrate the positive social and environmental effects of sustainable demand management policies.

MAP 5.2

**Local unpaved roads in slum areas: Accra**



Source: World Bank.

### **Identify gaps in the road network hierarchy and implement improvements in traffic management**

Ghanaian cities should identify gaps in the road network hierarchy in order to balance the number of main, secondary, tertiary, and community road networks. Identification of the missing links should follow a clear functional hierarchy in which roads and paths are categorized in terms of their use within the network as a whole so the exercise can serve as an aid to design, adaptation, and management.

Paving local roads in a strategic manner to connect with the rest of the network will allow public transport routes to access neighborhoods. It will have a significant impact on the local access of low-income communities.

Lack of a comprehensive traffic and parking management plan in many Ghanaian cities affects traffic flow and road safety. Basic improvements in traffic and parking management could bring about remarkable improvements in intersection efficiency and road safety. More complex traffic management improvements include implementation of the “smart city” concept in traffic management. For example, in 2019 Accra launched a traffic management center that uses an advanced integrated transit system (ITS) to manage an adaptive traffic control system. An ITS should be integrated with other mass transit and road improvement interventions, including junction remodeling.

### **Implement transport demand management plans to encourage the use of greener and more sustainable transport modes, and reduce the number of trips and their length**

Transport demand management (TDM) consists of incentives to redistribute the demand of transport in space and time or reduce the demand to travel. In general, these incentives contribute toward objectives such as network efficiency, enhancement of access to jobs and services, and reductions in emissions.

TDM comprises a broad range of measures. Ghanaian cities should develop TDM plans in which solutions are integrated into the overall urban mobility plan. A critical area is parking management to discourage the use of private vehicles as well as to promote efficiency, safety, and better use of urban space. Another critical TDM area is promoting the use of greener and more efficient modes of transport (such as walking, cycling, and public transport) that provide less incentive to use private vehicles. Measures to promote transit-oriented development and densification around transit stations promote the use of public transport and nonmotorized transport and have a significant impact on accessibility. Finally, policies to reduce travel, such as promoting home-based work, should also be part of the TDM adopted by Ghanaian cities, taking advantage of new technologies.

### **Respond to COVID-19 in urban transport and rethink the sector to build back better**

Inclusion of urban mobility in the response to COVID-19 is essential and is buttressed by four objectives: (1) saving lives; (2) protecting the poor and vulnerable; (3) ensuring sustainable business growth and job creation; and (4) strengthening policies, institutions, and investments for building a better future.

Opportunities for transformation of the urban transport sector rely on government intervention to shape the structural changes caused in the medium and long term by COVID-19. If nothing is done to encourage the transformation, the costs of inaction described in chapter 4 will only increase.

Ghanaian cities should accelerate the urban transport reforms described in this section by strengthening policies and the institutional and operational framework as well as investments to develop an integrated approach to mobility and accessibility.

The key reforms described in this chapter are even more urgent to respond to the impact of COVID-19 on urban mobility (table 5.1). The key reforms include:

- Adopting institutional and operational frameworks to enhance coordination between local and national governments, empowering local governments, and developing strong institutions that can deal with the complexity of urban mobility and the multisectoral approach of the sector.
- Formalizing modernized public transport. Cities would establish incentives for a transition toward a formalized system that is more resilient to shocks, and digital technologies would contribute to the system’s efficiency, safety, and resilience. The public transport reforms should seek to formalize the contractual arrangements between the public transport authority and operators and build on smart technologies to, for example, implement cashless payment systems.
- Targeting investments to nonmotorized modes of transport, such as walking and cycling. Integrating walking and cycling paths will help cities develop a more equitable, sustainable, and resilient transport system.
- Developing the role of smart technologies and data analytics for a more innovative and resilient system and launching incentives to reduce the number of trips (telecommuting).

**TABLE 5.1 Summary of recommendations to respond to COVID-19 in urban mobility: Ghanaian cities**

Objectives	Interventions	Short term
(1) Saving lives	Put in place protocols to prevent the transmission of COVID-19 in public transport. The preventive measures may include social distancing, cleanliness, and information dissemination.	}
(2) Protecting the poor and vulnerable	Protect the most vulnerable in the crisis by setting up a fund to support the most vulnerable workers in the informal transport sector (drivers and conductors) with safety net programs.	
(3) Ensuring sustainable business growth and jobs creation	Support the development of a transport system that allows people to reach jobs and social services in safe conditions: <ul style="list-style-type: none"> <li>- Bicycle initiatives</li> <li>- Use of new technologies, that is, cashless fare collection systems</li> <li>- Financial support to public transport operators</li> </ul>	
(4) Strengthening policies, institutions, and investments for building back better	Support and accelerate urban transport reforms to build back better, including <ul style="list-style-type: none"> <li>- Develop a more equitable, innovative, sustainable, and resilient transport, including building incentives toward more sustainable modes (nonmotorized transport) and the formalization of informal tro-tro operations</li> <li>- Develop the role of smart technology and data analytics</li> </ul>	} Medium to long term

## FOCUSING ON THE MOST VULNERABLE

To integrate vulnerable users, cities must understand their constraints and their needs to access jobs and social services (see chapter 2, table 2.1). They should then translate that understanding into changes in policies, infrastructure, and services (see table 5.2).

In doing so, local and central governments should pay careful attention to the modes that the poor and other vulnerable groups use the most: walking, cycling, and public transport (figure 5.2). Private motorized vehicles are used by a small segment of society, and yet improving conditions for cars grabs most of the attention.

Table 5.2 summarizes the elements that need to be integrated in urban transport planning to tackle the barriers facing vulnerable populations in seeking to reach jobs and services. These elements have been identified through the quantitative and qualitative research developed as part of this study.

To enhance the access of low-income groups to jobs and services, the government of Ghana should improve the more affordable modes: walking, cycling, and public transport. Paving roads and improving lighting in strategic locations can enhance the access of neighborhoods to jobs. Paving of urban streets will allow motorized transport, such as large buses and minibuses, to access communities that are accessible only by motorcycles. Thus bus and minibus service would improve the provision of more affordable modes in those areas.







Targeted subsidies could be explored to overcome barriers to access for some low-income groups. In general, subsidies targeted to specific disadvantaged groups require understanding the safety net databases and a good capacity to implement and monitor the subsidy programs. The study team did not find relevant examples in Africa of effective transport demand subsidies. Thus the targeted subsidies used in Latin American cities such as Bogota and Buenos Aires should be analyzed for their applicability to the Ghanaian context (box 5.6).

For women, improvements of public transport fleet can deliver significant benefits. Vehicle specifications should incorporate the needs of women such as low floor boarding vehicles that would facilitate entering a vehicle with goods and children, storage space for luggage and goods, closed-circuit television cameras to improve safety, and designated areas for priority users (including pregnant women). The formalization of public transport service provision should also respond to women's needs by, for example, ensuring minimal service at off-peak hours when women tend to travel more and the presence of professionally trained drivers able to respond in case of sexual harassment in public transport.

As observed in surveys and focus groups, women would benefit from safety improvements in the bus stops and in the last mile that connects public transport with their home. Improving lighting, visibility, and general safety is critical to respond to this dimension.

Fare policies should also be assessed to respond to the needs of women. One possible option is a variable fare. Lower fares at off-peak hours would benefit women, as more women travel at that time, and they could also serve as a demand management measure to distribute demand outside of the peak hours. Other areas to explore in fare policy are (1) options to control the extra charges for the luggage or goods that often accompany women; (2) targeted subsidies; and (3) integrated policies for bus transfers, which are more commonly used by women.

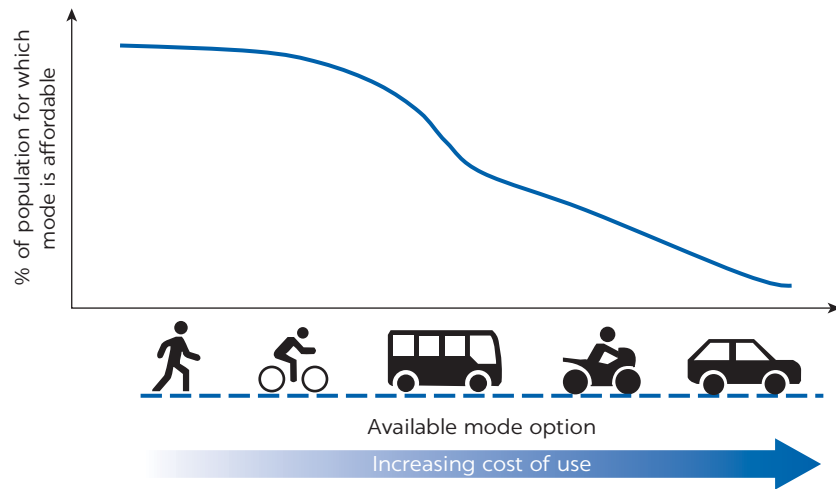
**TABLE 5.2 Integrating the needs of vulnerable groups in urban transport planning**

	 <b>Accessibility</b>	 <b>Affordability</b>	 <b>Acceptability</b>
 <b>Low-income groups</b>	Nonmotorized transport <ul style="list-style-type: none"> <li>• Wider and better sidewalks</li> <li>• Cycling facilities</li> <li>• Enhanced access to neighborhoods</li> <li>• Safer crossings</li> </ul>	Improve more affordable modes <ul style="list-style-type: none"> <li>• Walking, cycling</li> </ul>	Nonmotorized transport <ul style="list-style-type: none"> <li>• Safer walking and cycling</li> </ul>
	Public transport service provision <ul style="list-style-type: none"> <li>• Increased service supply</li> <li>• Increased operation all speeds</li> <li>• Reinforce access to hospitals during COVID-19</li> </ul>	Target subsidies for public transport	Public transport service provision <ul style="list-style-type: none"> <li>• Professionally trained drivers with safe driving skills</li> <li>• Formalized system with rules to prevent spread of COVID-19</li> </ul>
	Complete Street approach to infrastructure <ul style="list-style-type: none"> <li>• Road paving in slums</li> </ul>	Improve more affordable modes <ul style="list-style-type: none"> <li>• Public transport</li> </ul>	
 <b>Women</b>	Nonmotorized transport <ul style="list-style-type: none"> <li>• Wider and better sidewalks</li> <li>• Enhanced access to neighborhoods</li> </ul>	Improve more affordable modes <ul style="list-style-type: none"> <li>• Walking, cycling</li> </ul>	Public transport vehicle modernization <ul style="list-style-type: none"> <li>• Vehicle specifications incorporating needs of women</li> <li>• Designated areas for priority users (including pregnant women)</li> <li>• CCTV cameras to enhance safety</li> </ul>
	Public transport service provision <ul style="list-style-type: none"> <li>• Increased off-peak frequencies to respond to mobility patterns of women</li> <li>• Increased service supply to avoid overcrowded buses</li> </ul>	Public transport vehicle modernization <ul style="list-style-type: none"> <li>• Vehicle specification incorporating storage for goods: avoiding extra fare</li> </ul>	Public transport service provision <ul style="list-style-type: none"> <li>• Professionally trained drivers to respond to cases of sexual harassment</li> <li>• Professionally trained drivers with safe driving skills and ability to respond in case of sexual harassment</li> <li>• Formalized system with rules to prevent spread of COVID-19</li> </ul>
	Complete Streets approach to infrastructure <ul style="list-style-type: none"> <li>• Road paving in slums</li> </ul>	Public transport integrated fare <ul style="list-style-type: none"> <li>• Bus transfers</li> <li>• Fare does not depend on luggage/goods</li> <li>• Target subsidies</li> <li>• Lower fare for off-peak travelers</li> </ul>	
			Complete Streets approach to infrastructure <ul style="list-style-type: none"> <li>• Safe streets: lighting, visibility</li> </ul>
 <b>People with disabilities and the elderly</b>	Nonmotorized transport <ul style="list-style-type: none"> <li>• Wider and better sidewalks</li> <li>• Enhanced access to neighborhoods</li> </ul>	Public transport vehicle modernization <ul style="list-style-type: none"> <li>• Vehicle specification incorporating storage for goods: avoiding extra fare</li> <li>• Designated areas for priority users (including people with disabilities, the elderly)</li> </ul>	Public transport service provision <ul style="list-style-type: none"> <li>• Professionally trained drivers with safe driving skills</li> <li>• Formalized system with rules to prevent spread of COVID-19</li> </ul>
	Public transport vehicle modernization <ul style="list-style-type: none"> <li>• Universal design features: low floor boarding, access ramp, and so on</li> <li>• On board passenger announcement</li> <li>• Designated areas for priority users (including people with disabilities, the elderly)</li> </ul>	Public transport integrated fare <ul style="list-style-type: none"> <li>• Fare does not depend on wheelchair/equipment</li> <li>• Target subsidies</li> </ul>	
	Public transport terminals and facilities <ul style="list-style-type: none"> <li>• Universal design features: curb cuts and ramps</li> <li>• Designated areas for priority users (including people with disabilities, the elderly)</li> </ul>		
	Complete Streets approach to infrastructure <ul style="list-style-type: none"> <li>• Universal design features (curb cuts and ramps)</li> <li>• Safe crossings and crossings adapted to special needs</li> <li>• Safe sidewalks</li> <li>• Traffic management and ITS</li> </ul>		

■ Walking and cycling
 ■ Public transport
 ■ Road infrastructure and traffic management

Note: CCTV = closed-circuit television; ITS = integrated transit system.

**FIGURE 5.2**  
**Affordability, by mode of transport**



Note: BRT = bus rapid transit; NMT = nonmotorized transport.

#### BOX 5.6

### Targeted subsidies for public transport fares: Bogota and Buenos Aires

Cities such as Bogota and Buenos Aires set fares at cost recovery levels, and then they use targeted subsidies to make transport affordable for low-income users. For the typical household in Buenos Aires, its expenditure on public transport as a share of total income fell from 8.4 percent in 2003 to 2.4 percent in 2012, and for the average household in the lowest income quintile, the expenditure on public transport as a share of

total income fell from 43.1 percent in 2003 to 11.2 percent in 2013.

In Bogota, the System of Identification for Potential Social Programme Beneficiaries (SISBEN), a social database, identifies vulnerable housing groups and designates them as beneficiaries of transport subsidies. Low-income users receive subsidies of up to 30 percent of a fare.

For persons with disabilities, a universal access design for public transport vehicles, transit terminals, and stops, as well as infrastructure connecting neighborhoods with public transport, could facilitate better accessibility to jobs and services. Improved sidewalks and street crossings are important for people with limited mobility and limited visibility. Designated areas for priority users in buses and waiting areas (terminals and bus stops) are important to facilitate accessibility for people with disabilities and the elderly.

Fare policies should also be assessed to respond to the needs of people with disabilities (table 5.2). The implementation of options to control extra charges for wheelchair and other equipment could eliminate the extra cost that people with disabilities often have to pay to access buses. Targeted subsidies could also be assessed. It may be appropriate to link the fare policy for people with disabilities to Ghana's existing safety net programs and explore options for targeted subsidies through the existing safety nets.

## NOTE

1. The government decided, by end of the project, to procure rolling stock on a single-source basis, rather than competitively as was originally planned.

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## 6 How to Do It?

The path toward transformation of urban mobility in Ghanaian cities requires a phased approach in which local and national governments would improve institutional and operational frameworks and deliver demonstration projects in the medium term that would serve as a foundation for longer-term transformation. The proposed approach focuses on developing a short-, medium-, and long-term plan to address the growing challenges of urban mobility in Ghana's cities. Table 6.1 presents the proposed approach for the short term (less than 1 year), medium term (1–5 years), and long term (5–10 years).

**Short term.** The immediate emphasis should be on building the foundation of a larger transport program. The initial thrust will be on selected cities—such as the capital city (Accra), a midsize city (Kumasi), and a small city (Tamale).

A policy directive from the government would be timely for undertaking the following steps:

- Identify which improvements in urban transport should receive priority from the government.
- Designate a lead ministry, assigning human and financial resources.
- Define the necessity for institutional coordination. Such a directive would require setting up an urban mobility coordination body to ensure that various initiatives complement each other rather than compete.
- Designate the Greater Accra Passenger Transport Executive (GAPTE) as a bus planning and management body, in accordance with its initial mandate, instead of an operating unit.
- Set up similar executive bodies for other cities to regulate public transport across multiple municipalities.

Institutional capacity in Ghana warrants measures that strengthen it. First, GAPTE would be transformed into Accra's bus planning and management body. Second, Kumasi and Tamale would benefit from options for setting up a regulatory body. Third, the government would have to examine options for financing investments to improve mobility—both public and private. And, fourth, it would have to identify human capacity constraints and an approach to build technical capacity.

Development of a road network must be based on a road network inventory survey by road type and functional use and on an assessment of road conditions.

The government's response to the COVID-19 crisis in the short term should be to, first, establish protocols to prevent the transmission of coronavirus in public transport. The preventive measures may include social distancing, cleanliness, and the dissemination of information. Second, the government should protect the most vulnerable by setting up a fund to support informal transport workers (drivers and conductors) with safety net programs. And, third, the government should support the development of a transport system that allows people to reach jobs and social services safely. Such measures may include supporting bicycle initiatives, using new technologies for cashless fare collection, and providing financial support to allow continuation of public transport operations and the implementation of hygiene protocols in public transport.

**Medium term.** In the medium term, improvements in urban transport will concentrate on other courses of action: (1) enhance value by offering the user a reliable, safe, affordable, and quality service; (2) initiate a bus renewal scheme; (3) implement mass transit solutions and physical investments to improve flow along priority corridors; (4) enhance local connectivity to communities by paving neighborhood roads and improving or creating nonmotorized transport (NMT) facilities (sidewalks and bike paths); and (5) implement traffic management and demand management plans in cities.

Road networks will require major support to strengthen the system. A “complete streets” approach will result in quality sidewalks, pedestrian-centered traffic management and crossings, bike lanes, and high-quality bus service, including facilities where appropriate (bus stops and depots). Meanwhile, gaps in the road network hierarchy must be identified to provide a balance of main, secondary, tertiary, and community roads.

The government should develop a policy that establishes the direction, framework, and a high-level program for urban mobility in Ghana's urban areas. It would adopt a comprehensive perspective, going beyond traditional issues of transportation and infrastructure to include the perspectives of communities, the urban society, the urban economy, and the urban environment. Such policies would require considerable consultation and consensus building across a wide range of stakeholders.

The following actions are recommended to enhance the urban mobility institutional and operational framework:

- Reinvigorate the institutional and operational framework—Centre for Urban Transport (CUT), Urban Transport Advisory Committee (UTAC), GAPTE, metropolitan, municipal, and district assemblies (MMDAs), and transport departments—so they have the obligation, direction, motivation, and capacity to deliver.
- Build a formal basis to coordinate across multiple stakeholders, and engage, coordinate, and mobilize the ministries, departments, and agencies (MDAs) and the MMDAs to take common action.
- Designate a ministry to lead policy reforms in urban mobility and provide for overall advisory functions, training, and capacity building.
- Build human capital in specialized skills in urban mobility within the MDAs and MMDAs.
- Explore further sources of financing for existing and capital expenditures, including opportunities for private sector participation in urban mobility.

The government should establish incentives for a transition toward a formalized system that is more resilient to shocks and in which digital technologies

contribute to the system's efficiency, safety, and resilience. The public transport reform should aim to formalize contractual arrangements between public transport authority and operators and build on smart technologies such as cashless payment systems. Investments should also target nonmotorized modes of transport such as walking and cycling.

Capacity building will require strengthening the partnership with Kwame Nkumah University of Science and Technology (KNUST) to set up a comprehensive urban mobility planning, operations, management, and technology center of excellence as a regional training center.

**Long term.** The long-term plan will seek to strengthen institutional capacity and develop the appropriate regulatory framework for the government's strategic plan to promote public transport reforms and to operationalize the private sector participation agenda for the transport sector. Reforms would (1) provide formally organized and regulated public transport for all citizens; (2) gradually transform the high-quality bus system into an interconnected network; (3) finance filling of the missing links in the network; and (4) develop a basis to strengthen the institutional and regulatory frameworks to improve bus operations.

Table 6.1 summarizes this report's recommendations for the short, medium, and long term.

**TABLE 6.1 Summary of recommendations for urban transport reforms over three time periods: Ghana**

		SHORT TERM	MEDIUM TERM	LONG TERM
<b>Enhance urban transport institutions, strategic planning, and regulatory framework</b>	<b>Institutional and policy framework</b>	<ul style="list-style-type: none"> <li>Issue a policy directive to:               <ul style="list-style-type: none"> <li>Emphasize importance of urban transport</li> <li>Designate a lead ministry, with human and financial resources</li> <li>Develop a framework for institutional coordination</li> </ul> </li> <li>Designate GAPTE to be bus planning and management body for Accra</li> <li>Evaluate options for setting up a regulatory body for Kumasi and Tamale</li> </ul>	<ul style="list-style-type: none"> <li>Set up urban mobility coordination body</li> <li>Develop a national urban mobility policy</li> <li>Provide human and financial resources to strengthen GAPTE and other bodies in Kumasi and Tamale</li> </ul>	<ul style="list-style-type: none"> <li>Strengthen transport departments in the MMDAs</li> <li>Replicate reforms in more cities in Ghana</li> </ul>
	<b>Financing</b>	<ul style="list-style-type: none"> <li>Identify options for financing investments to improve mobility—both public and private sectors</li> </ul>	<ul style="list-style-type: none"> <li>Explore further sources of financing, including options for private sector participation, to scale up the urban mobility program</li> </ul>	<ul style="list-style-type: none"> <li>Explore further sources of financing, including options for private sector participation, to scale up the urban mobility program</li> </ul>
	<b>Human capital development: government and academia</b>	<ul style="list-style-type: none"> <li>Identify human capacity constraints and an approach to building technical capacity</li> </ul>	<ul style="list-style-type: none"> <li>Provide capacity building and training</li> <li>Develop twinning arrangements with successful cities</li> <li>Develop partnership with a local university (KNUST) to set up a comprehensive urban mobility center of excellence as a regional training center</li> </ul>	<ul style="list-style-type: none"> <li>Build the partnership with a local university</li> </ul>

table continues next page

**TABLE 6.1 Summary of recommendations for urban transport reforms in Ghana over three time periods**  
(continued)

	SHORT TERM	MEDIUM TERM	LONG TERM	
<b>Hierarchical transport network under a “complete streets” approach</b>	<b>Modernizing existing public transport</b>	<ul style="list-style-type: none"> <li>• Begin transformation of minibus associations into corporations</li> <li>• Set up contractual arrangements, including operational plans and fare collection system</li> </ul>	<ul style="list-style-type: none"> <li>• Provide reliable, safe, affordable, quality level of service</li> <li>• Initiate bus renewal scheme</li> </ul>	<ul style="list-style-type: none"> <li>• Provide formally organized and regulated public transport for all city residents</li> </ul>
	<b>Implementing quality mass transit</b>	<ul style="list-style-type: none"> <li>• Identify priority corridors for high-quality bus services</li> </ul>	<ul style="list-style-type: none"> <li>• Implement mass transit demonstration project and physical investments to improve flow along priority corridors</li> </ul>	<ul style="list-style-type: none"> <li>• Gradually transform high-quality bus network into a BRT network system</li> </ul>
	<b>Nonmotorized transport</b>	<ul style="list-style-type: none"> <li>• Strengthen NMT network</li> </ul>	<ul style="list-style-type: none"> <li>• Develop and start implementing a complete-streets approach with quality sidewalks, pedestrian-centered traffic management and crossings, bike lanes, high-quality bus service</li> </ul>	<ul style="list-style-type: none"> <li>• Develop and start implementing a complete-streets approach with quality sidewalks, pedestrian-centered traffic management and crossings, bike lanes, high-quality bus service</li> </ul>
	<b>Develop missing gaps in road network</b>	<ul style="list-style-type: none"> <li>• Conduct a road network inventory survey, by road type and functional use</li> <li>• Assess road condition</li> </ul>	<ul style="list-style-type: none"> <li>• Enhance local connectivity to communities through paving of neighborhood roads and improving or creating NMT facilities</li> <li>• Identify missing gaps in the road network</li> </ul>	<ul style="list-style-type: none"> <li>• Finance construction of missing links</li> <li>• Create an integrated system with last-mile connectivity</li> <li>• Provide sidewalks, NMT network</li> </ul>
	<b>Transport demand management and traffic management</b>	<ul style="list-style-type: none"> <li>• Develop TDM measures</li> <li>• Develop traffic management plans with focus on the most vulnerable road users</li> </ul>	<ul style="list-style-type: none"> <li>• Implement TDM plans in cities</li> <li>• Implement traffic management plans in cities</li> </ul>	<ul style="list-style-type: none"> <li>• Implement TDM plans in cities</li> <li>• Implement traffic management plans in cities</li> </ul>
	<b>Response to COVID-19 in urban mobility</b>	<p><i>Measures toward saving lives, protecting the poor and vulnerable, and ensuring sustainable business growth and job creation</i></p> <ul style="list-style-type: none"> <li>• Establish hygiene measures in public transport and keep workers safe</li> <li>• Support the most vulnerable informal transport workers with safety net programs</li> <li>• Develop supporting initiatives to keep cities moving safely: bicycle, walking, public transport</li> </ul>	<p><i>Measures towards strengthening policies, institutions, and investments for building better</i></p> <ul style="list-style-type: none"> <li>• Reinforce measures defined for the medium term to support a resilient recovery</li> </ul>	<p><i>Measures toward strengthening policies, institutions, and investments for building better</i></p> <ul style="list-style-type: none"> <li>• Reinforcing measures defined for the long term to develop inclusive and competitive access to opportunities</li> </ul>

Note: BRT = bus rapid transit; GAPTE = Greater Accra Passenger Transport Executive; KNUST = Kwame Nkumah University of Science and Technology; MMDAs = metropolitan, municipal, and district assemblies; NMT = nonmotorized transport; TDM = traffic demand management.

# 7 The Benefits of Action

The way forward to transforming Ghanaian cities through urban mobility is guided by three main objectives: (1) maximize access to jobs and social services for all, (2) minimize externalities of the transport sector, and (3) support the response to COVID-19 (coronavirus) in urban mobility (table 7.1). This chapter presents the indicators to be used in achieving these objectives in terms of access and externalities.

**TABLE 7.1 Framework of benefits of improved urban mobility**

			MAXIMIZE ACCESS FOR ALL		MINIMIZE EXTERNALITIES		COVID-19 RESPONSE
			ACCESS TO JOBS AND SERVICES	LOCAL ACCESS	ROAD SAFETY	LOCAL AND GLOBAL EMISSIONS	COVID-19
<b>STRENGTHEN THE URBAN TRANSPORT INSTITUTIONAL AND OPERATIONAL FRAMEWORK</b>							
<b>ENHANCE URBAN TRANSPORT INSTITUTIONS, STRATEGIC PLANNING, AND REGULATORY FRAMEWORK</b>		Enhance institutional framework	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
		Enhance operational framework	✓✓✓	✓	✓✓✓	✓✓	✓✓✓
<b>DEVELOP AN INTEGRATED APPROACH TO ADDRESS MOBILITY AND ACCESSIBILITY</b>							
<b>HIERARCHICAL TRANSPORT NETWORK UNDER A "COMPLETE STREETS" APPROACH</b>	Provide accessible, affordable, and acceptable transport	High-quality bus service to deliver mass transit	✓✓✓	✓	✓✓	✓✓✓	(Hygiene measures)
		Public transport reform: Formalization, service rationalization, digitalization of the sector	✓✓✓	✓	✓✓✓	✓✓	✓✓✓
		Public fleet modernization	✓✓	✓	✓✓	✓✓✓	✓✓✓
		Hygiene in public transport and worker safety					✓✓✓
		Integrated land use and transport planning	✓✓✓	✓	✓	✓	

table continues next page

**TABLE 7.1 Framework of benefits of improved urban mobility (continued)**

			MAXIMIZE ACCESS FOR ALL		MINIMIZE EXTERNALITIES	COVID-19 RESPONSE	
			ACCESS TO JOBS AND SERVICES	LOCAL ACCESS	ROAD SAFETY	LOCAL AND GLOBAL EMISSIONS	COVID-19
<b>HIERARCHICAL TRANSPORT NETWORK UNDER A “COMPLETE STREETS” APPROACH</b>	Nonmotorized transport and local connectivity	Enhanced walking and cycling facilities	✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓
		Improvements to local connectivity	✓✓	✓✓✓	✓✓	✓	
	Develop missing gaps in road network and traffic management	Intelligent transport systems, traffic and demand management, junction improvements	✓✓	✓	✓✓✓	✓✓	
		Develop missing gaps in the road network	✓✓	✓	✓		
	Transport demand management	Develop and implement transport demand management plan	✓✓✓	✓✓	✓	✓✓✓	✓✓✓

Source: World Bank.

✓✓✓ intervention contributes greatly to the outcome

✓✓ intervention contributes to the outcome

✓ intervention contributes somewhat to the outcome but is not the main objective

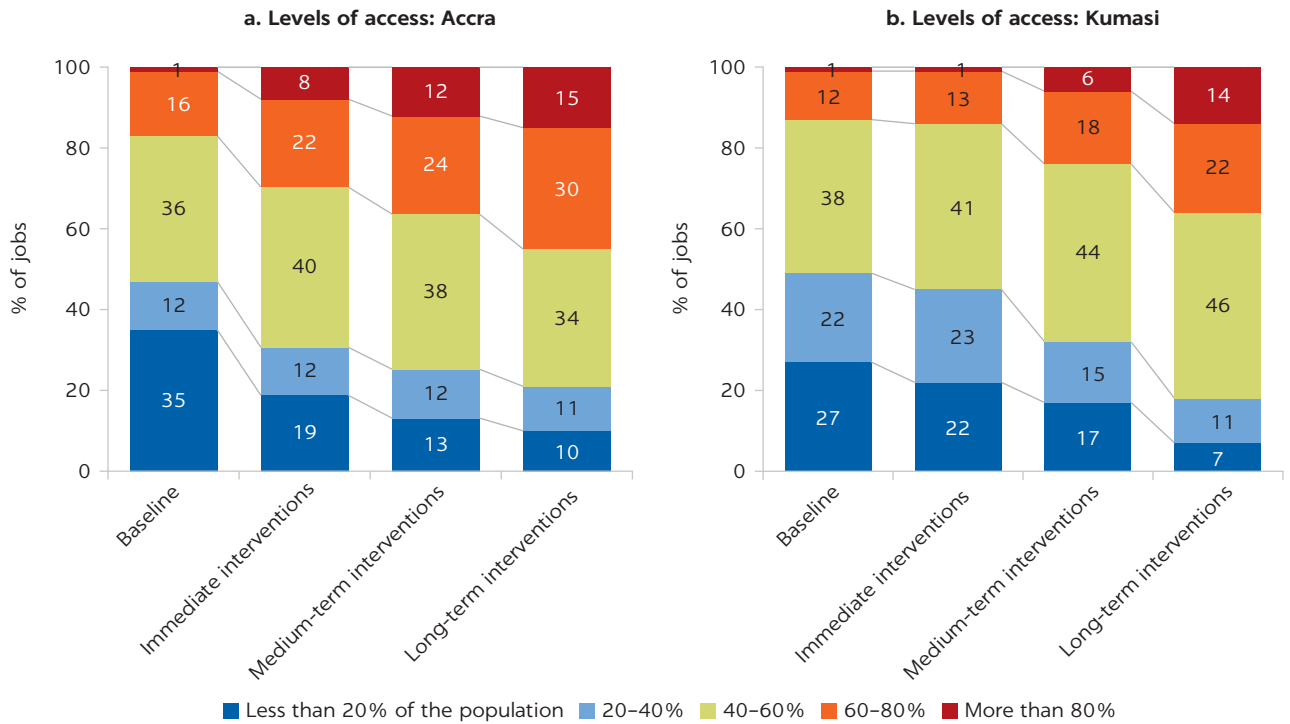
## IMPACT ON ACCESS TO JOBS

Improvements in urban mobility will deliver greater access to jobs and services. Based on the interventions proposed (maps 7.1 and 7.2), the proportion of the population of Accra (map 7.1) that can access more than 60 percent of jobs would increase from 17 percent to 36 percent in the medium term and 45 percent in long term (figure 7.1). In Kumasi (map 7.2), the share of population that can access more than 60 percent of jobs would almost double—from 13 percent in the baseline situation to 24 percent when a bus rapid transit (BRT) demonstration corridor emerges in the medium-term scenario. By the time a full mass transit network is implemented in the long-term scenario, the share of population with access to over 60 percent of employment would increase to 36 percent (figure 7.1).

## IMPACT ON ACCESS TO SCHOOLS

Implementation of the proposed interventions (maps 7.1 and 7.2) increases accessibility to schools. Notably, implementation of the long-term interventions would dramatically reduce the share of population beyond 60 minutes of any school by public transport from 7 percent to 0 percent. All students would therefore be within 60 minutes of a school (figure 7.2).

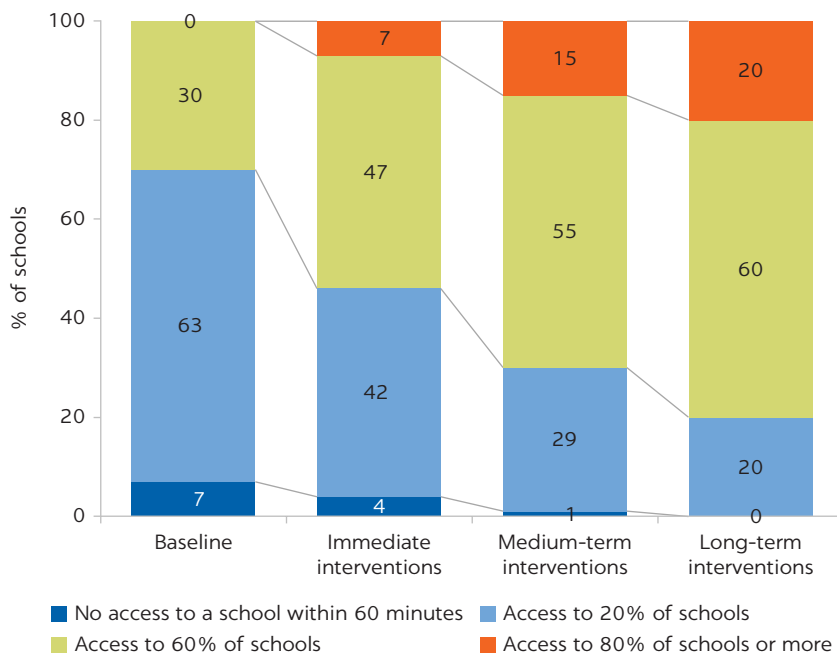
**FIGURE 7.1**  
**Level of access to jobs: Accra and Kumasi**



Source: World Bank.

Note: These figures show the change in access to opportunities for the baseline scenario and after the implementation of immediate, medium-term, and long-term interventions. The changes in level of access show how a larger percentage of the population has access to higher levels of opportunities.

**FIGURE 7.2**  
**Levels of access to schools: Accra**



Source: World Bank.

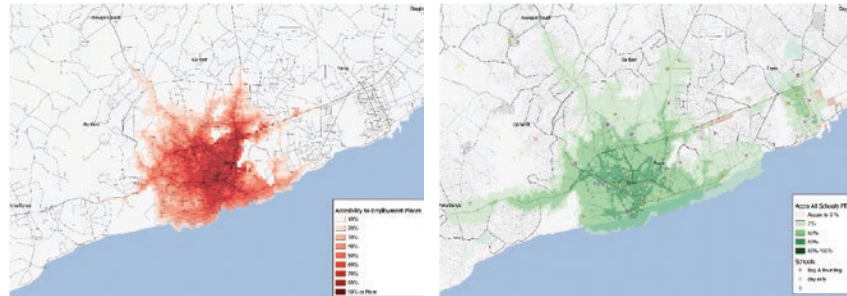
**MAP 7.1**

**Analysis of regional accessibility to jobs and schools: Accra**

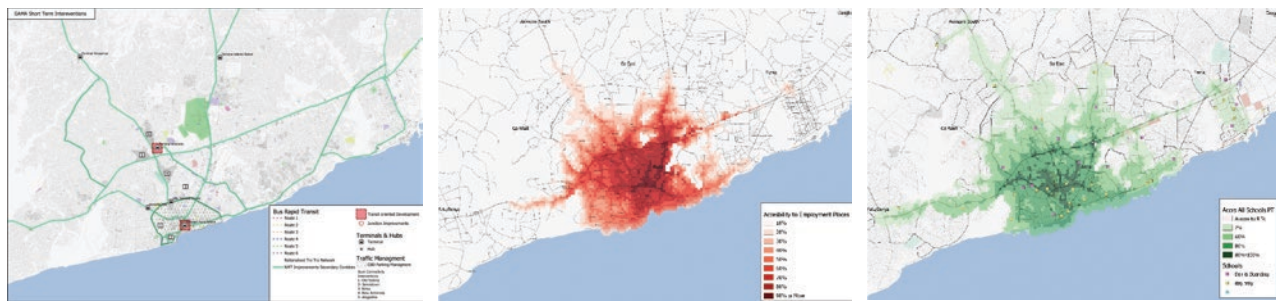
**Access to jobs**

**Access to schools**

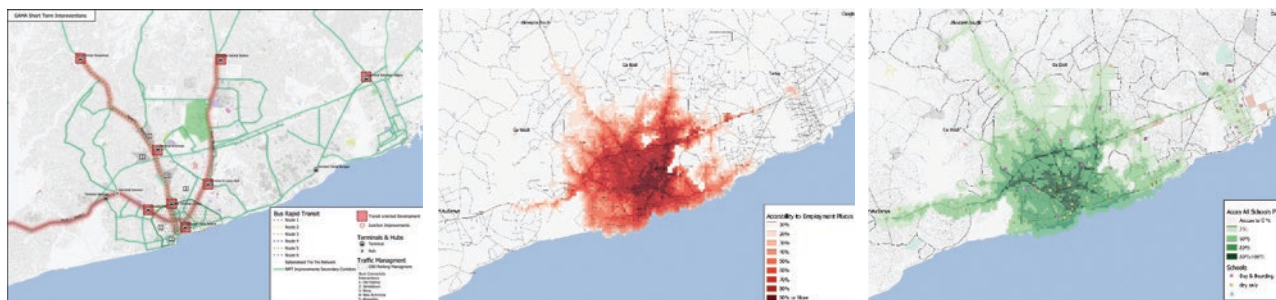
**a. Present conditions**



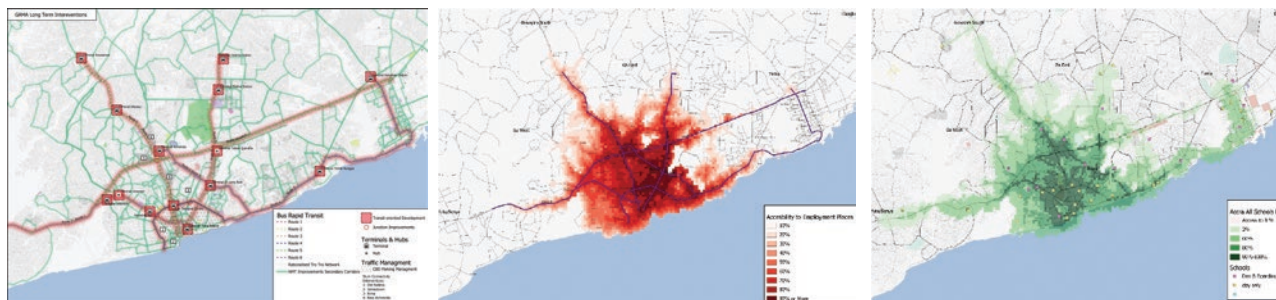
**b. Short-term interventions**



**c. Medium-term interventions**



**d. Long-term interventions**



Source: World Bank.

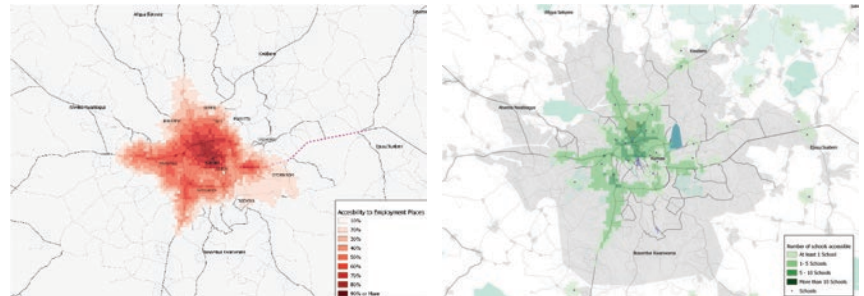
**MAP 7.2**

**Analysis of regional accessibility to jobs and schools: Kumasi**

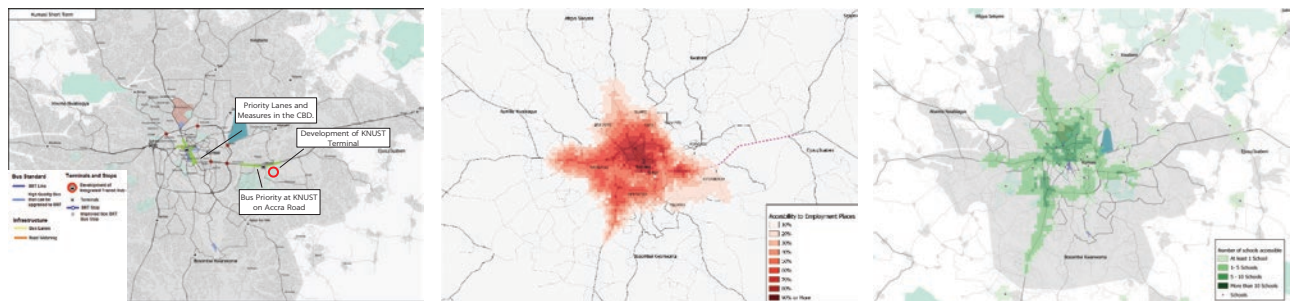
**Access to jobs**

**Access to schools**

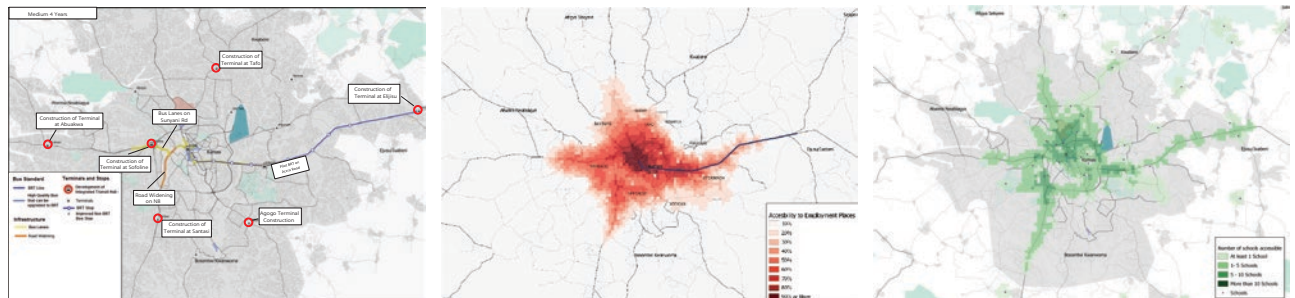
**a. Present conditions**



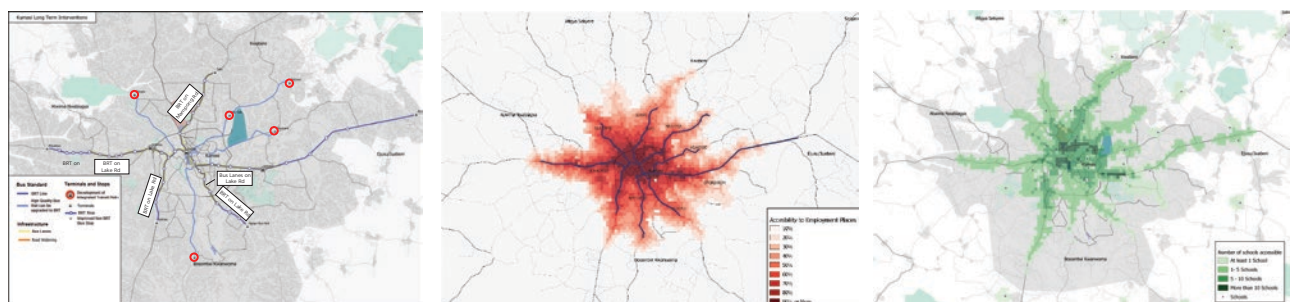
**b. Short-term interventions**



**c. Medium-term interventions**



**d. Long-term interventions**



Source: World Bank.

## CLOSING THE GAP FOR VULNERABLE GROUPS

In planning to improve urban mobility, Ghanaian cities will have significant opportunities to design public transport and nonmotorized transport that is inclusive for women, people with disabilities, and the elderly, among others. The study team modeled the changes in access using short-, medium-, and long-term scenarios (table 7.2) after identifying, through focus groups and surveys, the constraints to access for women and people with disabilities (table 2.1).

The gap between women and an average individual—modeled as a male commuter traveling during peak hours—can shrink from 35 percent to 5 percent in the long term (figure 7.3). Similarly, for people with a physical or visual impairment, the access gap would shrink from 60 percent to 32 percent in the long term (figure 7.4). Implementation of medium-term interventions have a significant and healthy impact on access to the central business district.

**TABLE 7.2 Modeling scenarios for vulnerable groups**

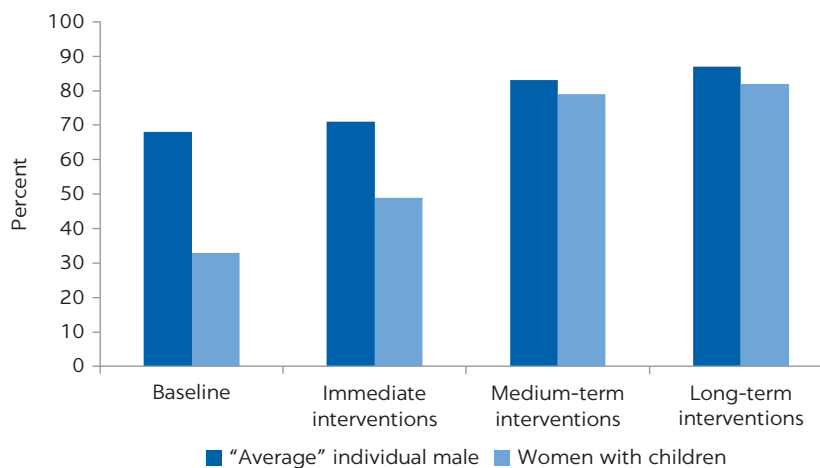
	WOMEN WITH CHILDREN	PERSONS WITH A MOBILITY OR VISUAL IMPAIRMENT
Present conditions	Reduced frequency by half to simulate women unable to board crowded buses or when traveling during off-peak hours; walking speed of 4 km/hr to simulate carrying baggage or pushing a baby carriage	Reduced walking speed to 2 km/hr to simulate poor and dangerous pavement conditions; maximum walk time of five minutes; modified public transport network with taxi routes used
Quick-win interventions	General increase in bus speed owing to quick-win interventions	Increase in walking speed to 3 km/hr to simulate improvements to footways and crossings; maximum walk time of 10 minutes
Medium-term interventions	Able to board all BRT vehicles in demonstration corridor because of sufficient capacity and safety enhancements	
Long-term interventions	Fully inclusive transportation system; vehicles equipped with specific seating for disabled users	

Source: World Bank.

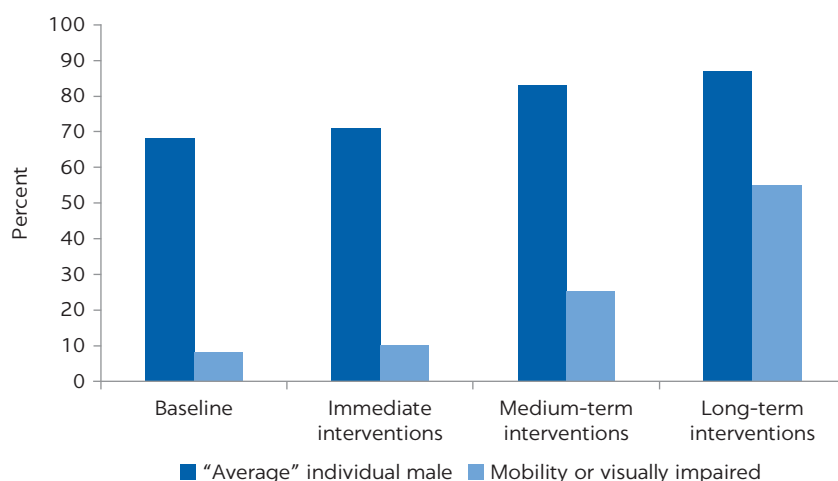
Note: BRT = bus rapid transit; km/hr = kilometers per hour.

**FIGURE 7.3**

**Level of access to central business district for an average individual male and a woman with children**



Source: World Bank.

**FIGURE 7.4****Level of access to central business district for an average individual male and a person with mobility or visual impairment**

Source: World Bank.

For women, accessibility increases from 33 percent to 79 percent, while people with a mobility or visual impairment would see their access increase from 8 percent to 55 percent. Map 7.3 presents the increased level of access for women and persons with disabilities, respectively, in Kumasi.

## IMPACT ON LOCAL AIR POLLUTION

Improvements in public transport will translate into a reduction in local and global emissions. The main contributing factors responsible are the modal shift to more efficient modes of transport and the improvements in vehicles' efficiency.

Fleet renewal of tro-tros (minibuses) so that new vehicles meet Euro 4 emissions standards would reduce local emissions in Accra by 76 percent and in Kumasi by 98 percent. The long-term interventions scenario (map 7.4) assumes that all public transport vehicles will meet Euro 4 standards.<sup>1</sup>

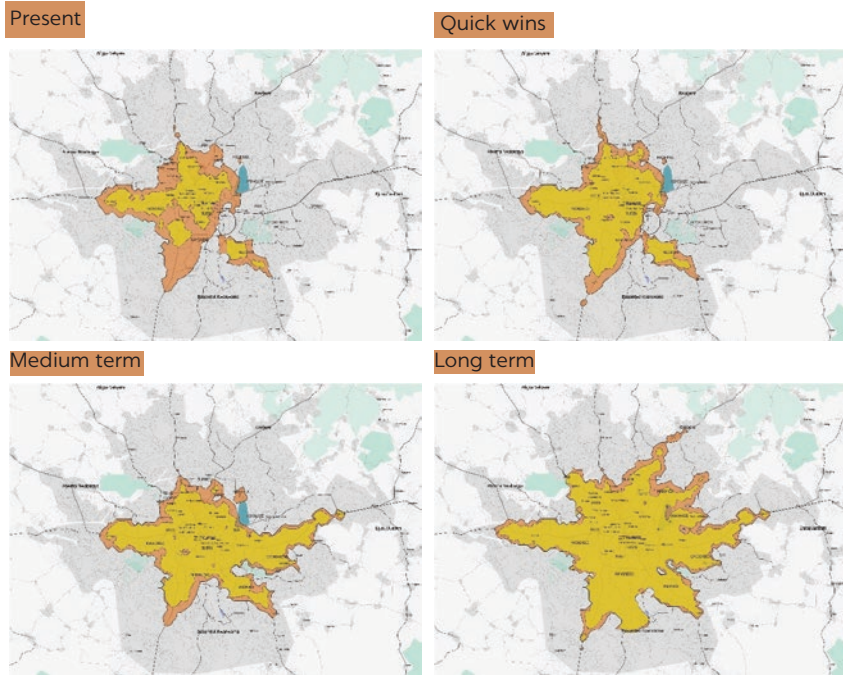
In Accra, the reduction of local emissions will be most profoundly felt in the central business district. The reduction of emissions will benefit some of the poorest neighborhoods such as Ademepko, Nima, and Sabon Zongo and the major corridors, including the National 1 and National 4 motorways (map 7.4).

In Kumasi, the western bypass and Accra Road, adjacent to Kwame Nkumah University of Science and Technology, are likely to see a significant reduction in emissions. Neighborhoods experiencing such reduction are Adum, Suntreso, and Ayigya (map 7.4).

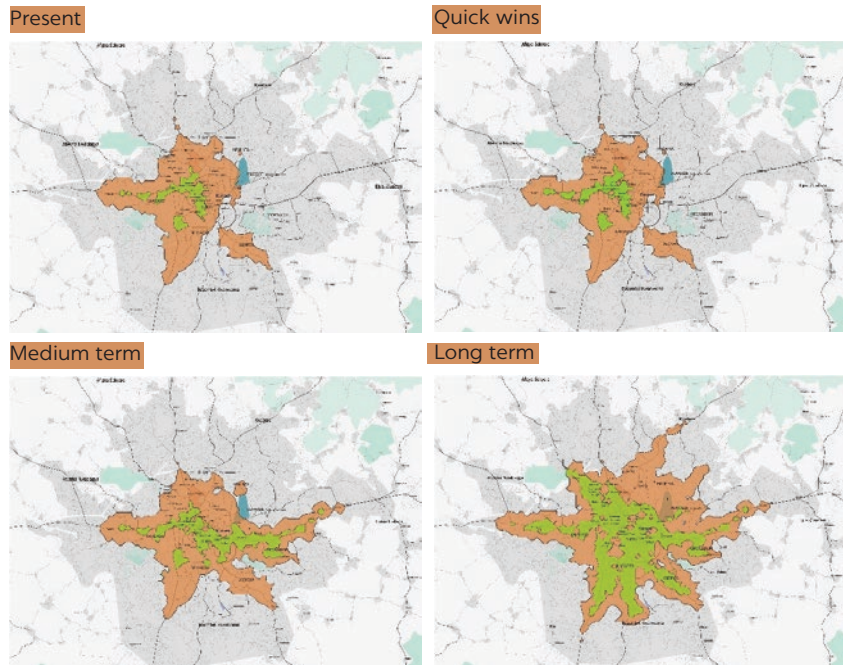
MAP 7.3

Level of access for women and persons with disabilities: Kumasi

a. Levels of access, women



b. Levels of access, disabled



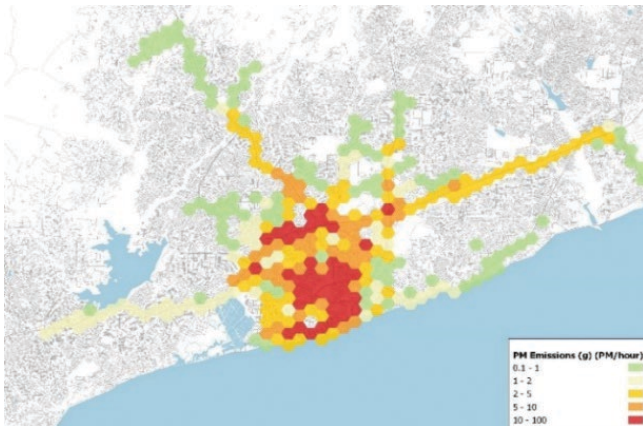
■ Access of women ■ Access of "average" individual male ■ Access of disabled

Source: World Bank.

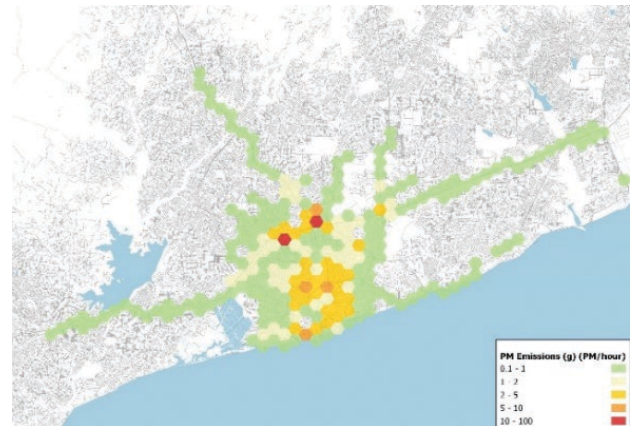
**MAP 7.4**

**Reductions in local emissions after fleet renewal of tro-tros: Accra and Kumasi**

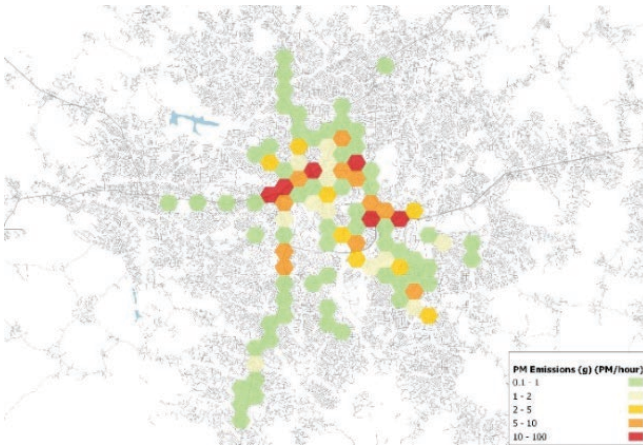
**a. Accra PM emissions at source, current situation**



**b. Euro 4 emissions**



**c. Kumasi PM emissions at source, current situation**



**d. Euro 4 emissions**



Source: World Bank.  
 Note: PM = particulate matter.

**NOTE**

1. The road map for the promotion of cleaner buses in Accra established Euro 4 as the minimum emissions standard for all vehicles.





## Conclusions



## Conclusions

Major Ghanaian cities are at a critical point that will determine whether they become an engine of or a burden on the country's development. Cities such as Accra, Kumasi, and Tamale have not been able to keep pace with the growing demands for mobility to connect people to jobs and social services and to connect firms with other firms, customers, and international markets. If nothing is done to change these trajectories, the cost of congestion will outweigh any productivity benefits the cities can deliver, and it will be too costly for these cities to become competitive, inclusive, and sustainable.

The path to transforming urban mobility in Ghanaian cities requires developing a programmatic approach to mobility and accessibility that is integrated with multiple sectors (education, health, tourism, urban development, economic diversification), while helping to build institutions and human capacity. In the phased approach needed, local and national governments would improve their institutional and operational frameworks and deliver demonstration projects in the medium term that would serve as the foundation for a longer-term transformation.

Indeed, institutional and operational frameworks are the foundation for any transformation in the urban mobility sector. They would rely on a clear understanding of ownership of the reform program and establishment of a formal basis to coordinate across multiple stakeholders at the central and local levels. Some of the key institutional building blocks need to be reinvigorated—the Centre for Urban Transport (CUT), Urban Transport Advisory Committee (UTAC), Greater Accra Passenger Transport Executive (GAPTE), and the metropolitan, municipal, and district assemblies (MMDAs), transport departments, and others—so they assume the obligation, direction, motivation, and capacity to deliver. The central government should support programs to build human capital in specialized skills in urban mobility at different levels of government. Finally, the government should explore further sources of financing for current and capital expenditures, including opportunities for private sector participation in urban mobility.

Although cities are undertaking a long-term plan of reforms and investments in the urban mobility sector, they should also implement quick-win interventions and demonstration projects in the short and medium term. An early

demonstration project could serve as an opportunity to acquaint residents, the private sector, and society overall with the beneficial impacts of such reforms while the government introduces improvements in the institutional and regulatory frameworks. Once the first project is developed and functional frameworks are in place, the government can use the lessons learned from the experience in scaling up interventions.

In Ghanaian cities, certain groups—low-income, the disabled, and women—are disproportionately excluded from accessing jobs and services. The needs of these groups merit careful consideration in planning urban transport in Ghanaian cities.

Furthermore, it is important to focus not only on the rapidly growing capital city, but also on intermediary cities. As in many other countries in the region, most of the attention and funding on urban transport have been directed at the capital city. However, intermediary cities such as Kumasi, Tamale, and Takoradi are in acute need of attention and funding to respond to their urbanization. These intermediary cities are growing faster than Accra, but any planning of urban transport is hampered by the very limited data on these cities and the clear neglect of urban transport. Intermediary cities in Ghana have the potential to become intermediary hubs, connecting rural areas, the capital city, and external markets, which would enhance the country's economic inclusion and reduce pressure on the Greater Accra area.

Finally, the COVID-19 pandemic has given rise to opportunities to rethink the role of urban mobility in preventing spread of the coronavirus as well as opportunities to transform the sector. Incentives aimed at achieving the needed structural changes in the sector should be introduced to deliver inclusive and competitive access to jobs and social services, while building a more resilient urban transport system.

## APPENDIX A

# Urban Mobility's Main Actors and Their Functions

This appendix describes the functions of the main actors in local urban mobility in Ghana, moving from the central agencies at the national level to agencies at the local level.

### NATIONAL-LEVEL URBAN MOBILITY ACTORS: MINISTRIES

#### Ministry of Transport (MoT)

MoT has the overall responsibility for formulating policy for road transport. Mobility became a shared responsibility of at least six ministries in 2017: MoT; Ministry of Roads and Highways; Ministry of Local Government and Rural Development; Ministry of Environment, Science Technology and Innovation; Ministry of Aviation; and Ministry of Railways Development.

#### Ministry of Roads and Highways (MRH)

The MRH is responsible for infrastructure development and maintenance and for financing national, urban, and feeder roads. Its responsibility also covers policy development, coordination, and oversight of the Department of Urban Roads (DUR), Department of Feeder Roads (DFR), Ghana Road Fund (GRF), and Ghana Highways Authority (GHA). DUR is responsible for the planning, design, and implementation of all nationally funded road projects in urbanized areas as well as the construction and maintenance of most of the arterial and collector road networks. DUR, a strong structured entity with an engineering culture, focuses on large investment projects.

#### Ministry of Local Government and Rural Development (MLGRD)

MLGRD plays a key role in the decentralization process because it contributes significantly to building the institutional capacity of the metropolitan, municipal, and district assemblies (MMDAs). MLGRD's mandate is to stimulate, monitor, and evaluate the actions and performance of MMDAs and provide them with technical and financial support. In practice, it also plays a guidance and

control role through the Policy, Planning, Budgeting, Monitoring, and Evaluation Department (PPBME), together with the Local Government Service (LGS). LGS handles the organizational and human resources of the local government across sectors and has initiated activities aimed at strengthening and harmonizing the role of the departments of transport of the MMDAs.

### **National Road Safety Authority (NRSA)**

Ghana's National Road Safety Authority Act, approved by Parliament in August 2019, established the NRSA to develop and promote road safety; coordinate and regulate activities, procedures, and standards related to road safety; and provide for related matters. NRSA seeks to reduce the incidence of road traffic crashes, fatalities, and injuries through (1) promotion of road safety; (2) development and coordination of policies related to road safety; and (3) implementation and enforcement of standards for road safety. In addition to leading the enhancement of road safety in Ghana, NRSA will collaborate with other relevant agencies to ensure attainment of the overarching objectives.

### **Ministry of Interior (Ghana Police Service)**

The Ghana Police Service is responsible for the enforcement of road and transport regulations.

## **REGIONAL-LEVEL URBAN MOBILITY ACTORS**

### **Regional Coordinating Councils (RCCs)**

The RCCs were established to coordinate the individual MMDAs (for example, those in the Greater Accra area). Such coordination has become increasingly important because the MMDAs are periodically subdivided, and so the number of MMDAs continues to increase, requiring even more coordination. This is especially true in Accra, which lacks to date a Greater Accra metropolitan authority.

### **Greater Accra Passenger Transport Executive (GAPTE)**

An important new actor in the urban transport sector, GAPTE, was introduced in Ghana in 2014 specifically for Accra by 13 of the Greater Accra Metropolitan Area (GAMA) MMDAs. It acts under the delegated authority of the assemblies in Greater Accra to handle the interjurisdictional issues in the public transport field. GAPTE was formally established with a small core staff. To date, it has primarily been responsible for initiating the Aayalolo bus services. The expectation is that once these services become established, GAPTE can disengage from operations and begin to develop its role as a transport authority.

GAPTE's main objectives are to develop and implement systems for urban transport management, network planning, permitting, and service contract management. In the pursuit of these goals, GAPTE's Members' Agreement lists its primary functions. These functions cover three main areas: (1) urban transport planning, data collection, and knowledge enhancement; (2) development of

standards and requirements for public transport services as well as coordination of and support of the departments of transport of the MMDAs; and (3) procurement of public transport infrastructure and services.

GAPTE's board of directors has succeeded the former Steering Committee on Urban Transportation in Accra (SCUTA) set up in 2011 to address cross-jurisdictional issues in the planning, development, and regulation of urban transport between the MMDAs in GAMA. In accordance with GAPTE's draft Members' Agreement, it is composed of representatives of the 13 assemblies as well as a representative of the Economic Planning Office of the Greater Accra Regional Coordinating Council, the chairman of the Ghana Private Roads Transport Union, the director of Department of Urban Roads in the Ministry of Roads and Highways, and the chairman of GAPTE.

## LOCAL-LEVEL URBAN MOBILITY ACTORS

### Metropolitan, municipal, and district assemblies (MMDAs)

MMDAs are the core units of local government in Ghana. They are also called "assemblies." The various functions, powers, and responsibilities of MMDAs are defined in the constitution by the 1993 Local Government Act 462, and subsequently by the 2016 Local Governance Act 936. By means of the first act, urban passenger transport became the responsibility of MMDAs covering the area in question. Ghana's constitution requires decentralization to local government, which is being implemented gradually. Thus MMDAs are mandated to plan, regulate, and manage transport infrastructure and services in their respective localities. In addition, MMDAs are responsible for land use planning.

Each MMDA associates with an assembly whose role is also defined by the constitution, such as the establishment of the legislative instruments for its particular MMDA. An assembly is composed of elected members and presidential nominees, as well as an executive who conducts the assembly's daily business and functions. In addition to interventions in tertiary roads, the responsibilities for urban transport are almost entirely allocated to the MMDAs, except for arterial and many collector roads in urbanized areas, which remain under the Ministry of Roads and Highways. In the area of urban mobility, the main roles and responsibilities of MMDAs are the following:

- Passage and oversight of bylaws and regulations, for example
- Regulation of public transport (under the bylaws)
- Issuance of permits for public transport service providers
- Regulation and ownership or management (or both) of terminals and truck parks
- Setting and collection of the relevant fees
- Enforcement of bylaws and regulations through City Guards
- Oversight of transport departments
- Oversight of traffic management

The institutional capacities of the 216 local assemblies may vary significantly. However, two departments play an important role in urban transport within each MMDA.

### **MMDA Departments of Transport (DoTs)**

DoTs focus on the registration and regulation of public transport operators, and in doing so they have tried to match the population's demands for mobility with the supply of public transport by tro-tros and taxis. Responsibilities of the DoTs are defined in broadly similar bylaws passed by all assemblies at the time of their creation. Those responsibilities include but are not limited to (1) regulating the urban passenger transport services within a department's jurisdiction; (2) establishing and implementing procedures for the operation of urban transport services within its jurisdiction; (3) establishing the required standards and guidelines for urban passenger transport services; (4) monitoring and ensuring compliance with the guidelines and enforcing urban passenger transport services with conditions as contained in the permit; (5) maintaining a register of operators of urban passenger transport services within its jurisdiction; and (6) carrying out the studies, investigations, data collection, and research on urban passenger transport services needed to improve services.

### **MMDA Urban Roads Departments (URDs)**

URDs are responsible for planning, developing, and maintaining road infrastructure in their jurisdiction. The responsibilities of URDs are as follows: (1) managing the road network through maintenance (notably with Rural Development Fund resources) and improvement of the proportion of road network in good condition; (2) developing road safety measures (such as safe walking and crossing areas and traffic calming facilities); and (3) parking management. The decentralization process assigned to these departments is under the authority of the MMDAs. However, the URDs maintain links with the central government because of their history of being part of the central administration (Department of Urban Roads within the Ministry of Roads and Highways).

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## ECO-AUDIT

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Major Ghanaian cities are at a critical point that will determine whether they become an engine of or a burden on the country's development. Ghana's urban areas contribute to more than two-thirds of the country's gross national product, and cities will continue to grow rapidly, especially those other than capital cities. Intermediary cities such as Kumasi and Tamale are expected to double their populations by 2030, demonstrating both their importance and their potential for contributing further to economic growth. However, if nothing is done to change the current trends, the cost of congestion and externalities will outweigh any productivity benefits the cities can deliver.

*Connecting the Dots: People, Jobs, and Social Services in Urban Ghana* aims to assess the constraints to accessing jobs and social services in Ghanaian cities, especially those faced by women, low-income groups, people with disabilities, and children, and proposes a path to transform urban mobility and public transport. The report focuses on two intermediary cities—Kumasi and Tamale—as well as on the Greater Accra region. It includes a comprehensive analysis of mobility and accessibility issues and recommends a programmatic phased approach to address these issues. Finally, in the context of COVID-19 (coronavirus), the report analyzes not only major challenges for the urban transport sector, but also opportunities to rethink the role of urban mobility for more inclusive and sustainable growth.



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