



T-SUM

Transitions to
Sustainable Urban Mobility



CITY PROFILE: Freetown

Base Conditions of Mobility, Accessibility and Land Use

February 2021





T-SUM

Transitions to
Sustainable Urban Mobility

Authors:

Braima Koroma
Joseph Macarthy
Sudie Austina Sellu

Sierra Leone Urban Research Centre

Daniel Oviedo
Clemence Cavoli
Peter Jones
Caren Levy
Yasmina Yusuf

University College London

February 2021

Preferred Citation: Koroma, B., Oviedo, D. Yusuf, Y., Macarthy, J., Cavoli, C., Jones, P., Levy, C., Sellu S. (2020) City Profile Freetown, Base conditions of mobility, accessibility and land use. T-SUM. UCL

Further information can be found at <https://www.t-sum.org/>



Executive Summary

Urban mobility in Freetown, Sierra Leone, is marked by low rates of car ownership in comparison to cities in many emerging and more industrialised countries, and a fragmented public transport dominated by paratransit. Given this landscape, Freetown is facing long-term choices about whether to remain on its current car-centred urban trajectory or follow a pathway that prioritises mass public and non-motorised transport.

Freetown has grown dramatically over the last 40 years. The built-up area between 1974 and 2014 expanded at an annual rate of 5.1%, with the largest expansion occurring between 2000-2014. Population growth has increased in the same period from 268,000 to just over 1 million. However, the city's unstructured growth, its dense population, in addition to its geography -surrounded by hills and the ocean-, brings with it a series of development challenges. There is a **lack of access to essential services** such as water, sanitation and healthcare. Informal settlements are developing across the city in unsafe areas, resulting in the urban poor being particularly susceptible to shocks such as flooding and diseases. The city has a **very vibrant informal economy**, with the **transport sector being the second-highest employment generator** and 85% of those jobs being informal.

These, among other characteristics, make Freetown one of the most inefficient users of land. Allocation of road space in Freetown reflects various degrees of inequalities across road users and transport injustice driven by increased exposure and vulnerability for those already at a disadvantage such as users of non-motorised modes of transport. Furthermore, a reduced operational section of the roads in part due to informal street traders accompanied by increasing passenger demand for private cars, okadas (two-wheelers) and kekehs (three-wheelers) has led to rising congestion, pollution and traffic fatalities.

While **Greenhouse Gas Emissions in Freetown are low** for the standard in the region, the city's current urban trajectory suggests that this will increase with the growing demand for private vehicles. Now, there is an opportunity to shift trajectories and incorporate more sustainable transport planning principles into current and future transport projects.

This city profile aims to provide an **overview of Freetown's urban development with a focus on the transport sector** to support pathways to sustainable urban mobility in the long term. It contributes to discussions in local, national and global arenas by drawing on debates about mobility transitions and sustainable development. The profile focuses on describing the base conditions from which to examine trajectories towards more sustainable mobility. A sustainable urban mobility transition refers to the capacity cities have to develop mobility and land-use systems that are efficient, ecologically sustainable and socially equitable.

The city profile is part of the **Transitions to Sustainable Urban Mobility (T-SUM) project.** T-SUM is an interdisciplinary and cross-sectoral collaborative project that aims to identify the conditions under which pathways to sustainable and inclusive transport and land use development can be developed and accelerated in growing cities in the Global South. The objective of the project is to co-produce, with local policymakers, citizens and practitioners, strategies for adopting sustainable urban mobility and land-use policies.



Acknowledgements

We would like to gratefully acknowledge the following individuals and organisations who have provided valuable inputs to this city profile. In particular, we are grateful for the support from T-SUM Steering Committee including: the Freetown City Council, the Ministry of Transport and Aviation, the Sierra Leone Road Safety Authority, the Sierra Leone Roads Authority, the Sierra Leone Road Transport Cooperation, the Sierra Leone Institution of Engineers, Fourah Bay College and the Directorate of Science, Technology and Economic Development.

A special thanks to Victoria Gonsior who commented on earlier versions of this document and to Maria Ricalde Cural for the design and formatting of this document.

Finally, we would also like to thank all those who have supported the T-SUM project over the last years.

Table of Contents

Executive Summary	III
Acknowledgements	IV
Table of Contents	V
Acronyms/abbreviations	VI
1. Introduction	1
2. Freetown: Background	4
2.1 Geography	6
2.2 Socio-demographics	7
2.3 Economy	8
2.4 Poverty and Inequality	9
3. Freetown's historical urban development trajectory	11
3.1 Historical Urban Expansion	12
3.2 Growth of informal settlements	13
3.3 Land Use and Spatial Planning	14
3.4 Environmental and health risk areas	16
4. Urban Transport Practices in Freetown	18
4.1 Transport Demand and Supply	19
4.2 The challenge of providing a fair allocation of road space	28
4.3 Costs and consequences of current urban mobility trajectories	31
4.4 Road fatalities and injuries	33
4.5 Impact of Urban Traffic on Air Quality in Freetown	34
4.6 Greenhouse Gas Emissions in Freetown	35
5. Current transport development agenda in Freetown	36
5.1 Governance: Actors and stakeholders in the transport	40
6. Data Gaps	43
7. Conclusions.....	46
8. References	50



Acronyms/abbreviations

AfDB	African Development Bank
DFID	Department for International Development
DHS	Demographic Health Survey
FCC	Freetown City Council
FGD	Focus Groups Discussion
GDP	Gross Domestic Product
GII	Gender Inequality Index
GOSL	Government of Sierra Leone
HIV	Human Immunodeficiency Virus
ICF	ICF International
IMF	International Monetary Fund
IRUMP	Integrated and Resilient Urban Mobility Project
ITOA	Indigenous Transport Owners Association
ITPSIP	Integrated Transport Policy, Strategy and Investment Plan
MICS	Multi-Indicator Cluster Survey
MLCPE	Ministry of Lands, Country Planning and the Environment
MoF	Ministry of Finance
MoTA	Ministry of Transport and Aviation
MTNDP	Medium Term National Development Plan
OPHDI	Oxford Poverty and Human Development Initiative
PRA	Petroleum Regulatory Agency
RMFA	Road Maintenance Fund Administration
SLPA	Sierra Leone Ports Authority
SLRA	Sierra Leone Roads Authority
SLRSA	Sierra Leone Roads Safety Authority
SLRTC	Sierra Leone Roads Transport Corporations
SSL	Statistics Sierra Leone
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNHDR	United Nations Human Development Report
WB	World Bank
WHO	World Health Organisations

01

Introduction

KEY TAKEAWAYS:

- African cities are facing long-term choices that need to be addressed about whether to **remain on a car-centred pathway or to follow a trajectory that gives precedence to public and non-motorised transport.**
- The city profile contributes to this discussion by **producing evidence-based knowledge to understand the main drivers of current development trajectories** and their influence on urban mobility, accessibility, social and environmental issues in Freetown.
- This document should act as an **instrument and a reference, informing future decision-making** and relevant deliberative and policy-oriented processes around transport and land-use planning both in Freetown and other cities in Sierra Leone.

The city profile is the first rigorous attempt at producing evidence-based knowledge to understand the main drivers of current development trajectories and their influence on urban mobility, accessibility, social and environmental issues in Freetown (Levy et al., 2017). Situated within the debates related to urban mobility transitions and sustainable development, the profile focuses on **describing the base conditions from which to examine trajectories towards more sustainable mobility.** Here the concept of a sustainable urban mobility transition refers to the capacity cities have to develop mobility and land-use systems that are efficient, ecologically sustainable and socially equitable. One dimension of such a transition is to change

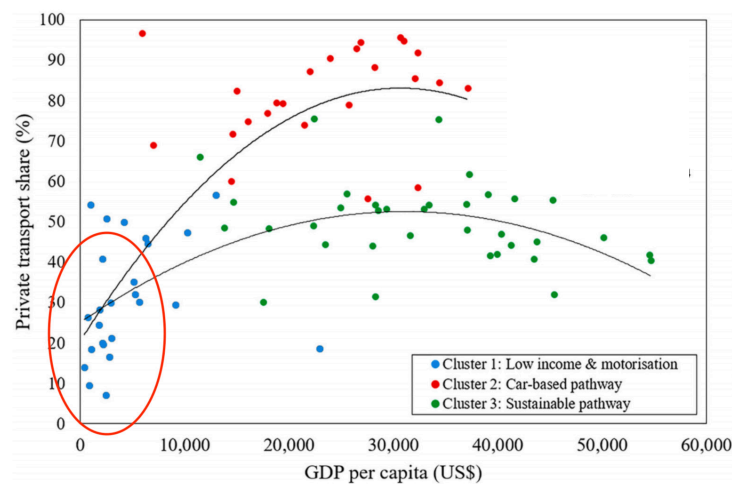


Figure 1 City level relationships between GDP per capita and private motorised mode share
Source: (Teoh et al., 2020)

A majority of cities in Africa are in a position where, despite the consolidation of unequal and exclusionary patterns of urban and transport development, opportunities to redefine urban trajectories towards more inclusive and accessible cities can be leveraged (Jones, 2016; Ortúzar, 2019; Venter, Mahendra, Hidalgo, 2019; Woolf & Joubert, 2013). Such opportunities include, among others, lower motorisation rates in comparison with cities in more industrialised settings and renewed local and global commitments to sustainable transport. The Sustainable Development Goals (SDGs) adopted by all United Nations Member States in 2015, argue that access and urban mobility are crucial to achieving the human development targets for the next decade. In particular, Goal 11 (Sustainable Cities and Communities) includes in one of its targets an aim to “provide access to safe, affordable, accessible and sustainable transport systems for all, [...] with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons” by 2030 (UN, 2015, p.21).

Beyond SDG 11, processes of developing sustainable urban mobility contribute to achieving at least 8 out of the 17 Sustainable Development Goals and the Paris Climate Agreement, amongst other national and international agreements.

Moreover, the global agenda for sustainable urban development embodied by the UN’s New Urban Agenda, targets the promotion of equitable access, with emphasis on low-income and peripheral urban populations, to sustainable transport that enables participation in both social and economic activities (UN-Habitat, 2016).



Picture 1 Central Business District (Amadu Labor, SLURC 2021)

In such a context, African cities are facing long-term choices that need to be addressed now (either implicitly or explicitly) about whether to remain on a car-centred pathway or to follow a trajectory that gives precedence to public and non-motorised transport, learning from the mistakes and successes that cities further along similar trajectories have experienced.

Despite emerging research in the African context, there is **limited evidence about the configuration and development patterns of urban transport in sub-Saharan African cities**. There are considerable gaps in the documentation and understanding of urban mobility and accessibility, their links with realised and non-realised travel, and the role of walking and the built environment in supporting inclusive and sustainable urban development (Bryceson et al., 2003; Venter et al., 2018; Weiss et al., 2018).

This city profile contributes to the understanding of such links in Freetown through city-wide mobility and land-use analysis, providing relevant evidence about past and current trajectories of transport and urban development and their links with structural factors such as the urban form, poverty and social identities. The profile mainly builds on secondary data, such as policy and technical documents. These documents have been collected from available public repositories and through partnerships with relevant national and local organisations in government, planning and international development.

Our approach involved setting up an inventory of available data. This allowed us to identify the main data gaps about urban transport, land-use and accessibility, which we present in section 6. Finally, a small amount of primary data was collected to (i) ascertain the price of critical routes in Freetown (ii) to document the traffic volumes of different modes of transportation during peak hours at the main junctions in Freetown.



Picture 2 Street traders (Amadu Labor, SLURC 2021)

This output of the T-SUM project is the result of interdisciplinary work by a team of local and international experts at the Sierra Leone Urban Research Centre (SLURC) and academics based at University College London (UCL). **T-SUM is an interdisciplinary and cross-sectoral collaborative project that aims to identify the conditions under which pathways to sustainable and inclusive transport and land use development can be developed and accelerated in growing cities in the Global South.** The project focusses on Freetown, Sierra Leone and Maputo, Mozambique.

This city profile targets national and local government officials in Sierra Leone, urban and transport planning practitioners, private sector, NGOs and international development agencies, and local communities with interests in urban transport and land-use planning and development. It should act as an instrument and a reference, informing future decision-making and relevant deliberative and policy-oriented processes around transport and land-use planning both in Freetown and other cities in Sierra Leone.

02

Freetown: Background



Freetown, located in the Western Area Urban District, houses the largest urban population in Sierra Leone (figure 2). It is one of the most densely populated cities in West-Africa, with a population growth rate of 4.2 which translates into approximately “45,000 new residents in the next year, and 535,000 residents in the next decade” (World Bank, 2018). **However, Freetown’s dense population, in addition to its geography - surrounded by hills and the ocean - brings with it a series of development challenges.** There is a lack of access to essential services such as water, sanitation and healthcare. Slums are developing across the city in unsafe areas, resulting in the urban poor being particularly susceptible to shocks such as flooding and diseases. The city has a very vibrant informal economy, with the transport sector being the second-highest generator of jobs, of which 85% are informal (World Bank, 2018). While COVID-19 did not result in an extensive lockdown as was seen in many other cities and countries, the disease still severely affected the economy, leaving informal workers and low wage employees particularly vulnerable. This section provides a brief overview of critical geographic, demographic and economic information, summarised in [Table 1](#) below.

Table 1 Key Demographic Information Freetown

	Western Area Urban (Freetown)	Source	National	Source
Geography				
Land area	82 sq km ¹	Freetown City Council	72,300 sq km	World Bank
Demography				
Population	1,055,964	Statistics SL	7,092,113	Statistics SL
Total population (age 15-35)	491,990	Statistics SL	2,794,301	Statistics SL
Population density (inhabitants per km²)	12,959	Own Calculation	98	Own Calculation
Child mortality rate (per 1000 live births)	55	Statistics Sierra Leone Data portal	40	MICS 2017
Adult literacy (%)	68%	Statistics SL: Sierra Leone Data Portal	41	UNDP 2016
Population Growth rate (%)	4.2	World Bank Report 2018	3.2	Statistics SL
Income & Economy				
Labour force	387,266	Statistics SL	2,557,718	Statistics SL
Unemployment rate (%)	3.68	Statistics SL	4.44	ILO 2020

¹ Please note there are disagreements about the land area of Freetown. Statistics Sierra Leone reports the land area to be 13km² whereas the World Bank notes that it is 142km² (this incorporates western area rural). We have verified the figure from the Freetown City Council through our own calculations (exact result: 81.48km²). Depending on

which figure you use this will also change the population density.

Contribution to national economy	28%	World Bank	n/a	
PRE COVID-Expected Economic Growth rate (%) (pre COVID-19)	4.22%	World Bank 2019	4.2%	QAERP
Post COVID-Expected Economic Growth rate			-2.2	UNDP 2020
Multidimensional Poverty (%)	35	Statistics SL Multidimensional Poverty Index	68.3	Statistics SL Multidimensional Poverty Index
Multidimensional Child Poverty (experience at least one deprivation) %	31.5	Multidimensional Child Poverty Index	66	Multidimensional Child Poverty Index
Country Income Classification			Low	

Source: World Bank 2018; 2019; UNDP, 2016,2017; Statistics Sierra Leone, 2016;2018; AfDB, 2019; MICS 2017

2.1 Geography

Freetown is located 8.48 latitude and 13.23 longitude and at an elevation of 49 meters above sea level. The city is situated in the province Western Area Urban on a mountainous peninsula, which is approximately 38 km long and 16km wide, with a topographic relief of over 700 meters above sea level. **It is placed between the sea and hills, which, coupled with climatic conditions, makes it particularly vulnerable to natural disasters.** Annual flooding during the rainy season (July – September) severely restricts the mobility of Freetonians. In August 2017, severe flooding led to mudslides where over 5,900 people lost their homes, with 500 confirmed deaths and over 800 people missing². Across Sierra Leone, between the period 1998-2018, natural disaster-related to intense rainfalls have killed more than 1,200 people and affected more than 50,000³.



Figure 2 Sierra Leone, Freetown Peninsula
Source: O’Kane and Ménard, 2015

² <https://reliefweb.int/disaster/ms-2017-000109-sle>

³ For further information refer to the EM-DAT International Disaster Database from the Center for Research on the Epidemiology of Disasters (CRED): <http://www.emdat.be> - Université Catholique de Louvain, Belgium.

2.2 Socio-Demographics

With a population of about 1.1 million (approximately 14.9% of the country's total population) and a surface area of 82 km² (less than 1% of the total land area of Sierra Leone), the city of Freetown is highly dense. **The population density of 12, 959 inhabitants per km² is high compared to the national average of 98 persons per km²** (Statistics Sierra Leone, 2017). If current patterns of population growth and urbanisation continue, estimates from local government say density is expected to rise to 25,000 persons per km² by 2028 (MLCPE&FCC, 2014a). This would result in the population of Freetown reaching close to 2 million residents by 2028 (GoSL, 2014a), which will account for 65% of the total urban population⁴ in Sierra Leone (Statistics Sierra Leone, 2017)⁵. Internal displacement during the civil war (1991-2002) and migration in search of employment opportunities in Freetown has contributed to the population growth of the city. While economic migration to Freetown has persisted over time, their impact on the city's population is further reinforced by rural-urban migration associated with climate change disruptions (UN-Habitat, 2011). For the latest trends in population growth in Freetown see [Table 2](#).

Table 2 Population Growth of Freetown (1963-2015)

Year	Freetown Population	Freetown Population as a % of National Population
1963	127,917	5.9
1974	276,247	10.1
1985	469,776	13.3
2004	772,873	15.5
2015	1,005,964	14.9

Source: Statistics Sierra Leone Population and Housing Census Report covering those periods

Neither public nor private actors involved in urban development in Freetown have been able to provide adequate housing, infrastructure, and service provision at the pace at which with the city's population has grown. The 2015 census lists 12% of dwellings in Freetown as impoverished homes/kiosks or in categories associated with informal housing (i.e. unnamed), reflecting the continuous expansion of low-income groups into marginal and vulnerable settlement areas (SSL, 2017) further explored in section 3.

⁴ Note that it is unclear to the authors how statistics sierra leone defines urban.

⁵ Projected population growth of Sierra Leone estimates an increase from 7 million in 2020 to 10 million by 2026 (MTNDP, 2019).

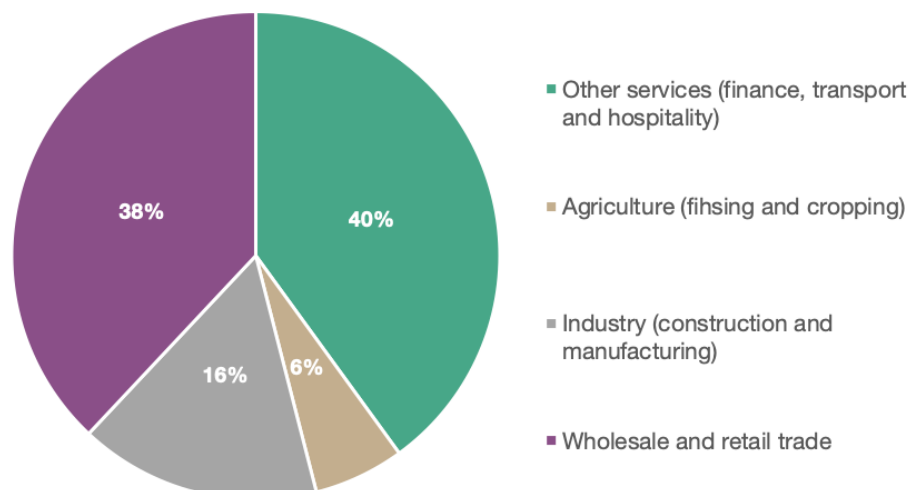
2.3 Economy

Recent studies show that Freetown contributes 28% to the country's GDP despite housing only 14.9% of its population (World Bank 2018). It is therefore not only of political importance, as the capital but also has an important economic significance for the country. Pre-COVID-19, the World Bank estimated the annual economic growth rate (2010-2020) of the city at 4.22% (World Urbanisation Prospects, 2011). These figures are now being revised, as urban areas have been significantly affected by COVID-19. Nationally the GDP growth rates were estimated at 4.2 in 2020 (QAERP 2020) however, due to COVID-19 this has been revised to – 2.2 (UNDP, 2020).

Freetown's economic importance is in part due it being the major port city in country. However, it is also the business centre of the country, housing the majority of businesses which benefit from agglomeration effects. Figure 3 below presents a breakdown of economic activities in Freetown. The capital and other urban areas such as Bo, Kenema and Makeni supply the majority (over 70%) of waged employment in Sierra Leone (MLCPE/FCC, 2014a). 87% of jobs in Freetown belong to the tertiary sector (MLCPE/FCC, 2014a). **The transport sector is the second-highest generator of jobs, although more than 85% of them are informal, which puts this group in a vulnerable position (World Bank, 2018).** The Freetown Structure Plan (MLCPE/FCC, 2014a) also notes that the construction sector employs a significant proportion of Freetown's working population, most of these jobs are either informal (72%) or unpaid (8%).

The Central Business District (CBD) is the main commercial centre in Freetown including offices of businesses, banks and insurance operations. **The concentration of qualified employment in Freetown's city centre has implications for accessibility and concentration of other less-qualified work such as street trading and other small-scale support economies that depend on such demand.** Conversely, other forms of unqualified and informal employment such as small-scale fishing and stone quarrying tend to be located in the outskirts of the city, creating an access divide between population and employment groups. Patterns of the spatial distribution of economic activities in Freetown have implications for the attraction of trips by private vehicles of wealthier population groups in higher-paid employment and for the demand for public transport across the city. These implications are discussed further in section 5.

Economic Activities in Freetown



Source: World Bank, 2018

2.4 Poverty and Inequality

In Freetown 37% of the population is multidimensionally poor, which is well below the national average of 68.3%⁶. A breakdown of the multidimensional poverty Index

(MPI) by socioeconomic characteristics indicates that Freetown has the lowest education deprivation with only 7% of the population deprived in literacy (compared with over 30% in all other districts, bar Kailahun and Western Rural), and 21% deprived in school attendance (compared to the national average of 42%). Furthermore, Freetown has the lowest deprivation in access to electricity, poor flooding material, and a precarious water situation. Despite performing comparatively well to the rest of the country on access to water, over 47% of Freetonians do not have access to running water according to a recent interview by the Mayor Yvonne Aki Sawyer, where she noted the danger this poses for fighting COVID-19⁷.

Unsurprisingly given the density, Freetown performs considerably worse on a range of indicators including the rate of overcrowding, which is at 63.9%, the second highest out of all districts. Deprivation of employment, currently at 14.6% is also almost three percentage points higher than the neighbouring district of western rural and almost 10 percentage points above other districts.

The high levels of poverty and social disadvantage make Freetonians vulnerable to health risks and inequalities. The prevalence of communicable diseases such as HIV/AIDS, tuberculosis, and malaria remain some of the leading causes of death in the city, particularly among the poor.

Building on the experience from the Ebola outbreak, the central government has made significant progress in raising awareness and fighting COVID-19. However, the pandemic has highlighted that much remains to be done in terms of providing access to healthcare facilities and improving sanitation. Access to education and health facilities differ significantly across the city, with low-income settlements having lower availability to local facilities for health, sanitation and education. Poor health service delivery is a severe constraint in the city. These vulnerabilities are likely to have been exasperated due to COVID-19. The impact of COVID-19 on Sierra Leone is outlined in box 2.



Picture 3 Downtown Freetown (Daniel Oviedo, UCL 2019)

⁶ https://www.statistics.sl/images/StatisticsSL/Documents/Census/2015/sl_2015_phc_thematic_report_on_poverty_and_durables.pdf

⁷ <https://www.who.int/news-room/feature-stories/detail/freetown-tackles-a-dual-challenge-to-protect-its-citizens-from-covid-19-amidst-food-insecurity>

BOX 1: COVID-19 IN SIERRA LEONE

Unlike most other countries, Sierra Leone did not impose an extended lockdown due to a deep concern about the negative economic consequences of comprehensive restrictions on economic activity. Instead, two 3-day lockdowns, policies of social distancing and a ban on international and inter-district travel were implemented. Despite these measures, voluntary compliance rates were low and there was a lack of capacity to enforce these policies.

The economy has been severely hit by COVID-19, which has also affected social services in the country. Pre COVID-19 real GDP growth for 2020 was estimated at 2.3-4%, the latest figures from UNDP show -2.2%.

COVID-19 has been more disruptive in urban settings, with Western Area Urban (Freetown) being the most affected. Social services, such as health and education were severely disrupted for several months. Headcount poverty has increased, despite social protection programmes being developed specifically targeted at urban informal workers and low wage services employees (the Emergency Cash Transfer). Limited funding however means that these programmes are unable to target all of those in need (Oxford Policy Management, forthcoming).

Initial findings from a UNDP report (p.43) suggest that the pandemic has disproportionately affected women and children. They note that in their survey women score lower in almost indicators– “from food insecurity to receipt of cash grants, from job losses to revenues earned, and dips into savings where these exist” (UNDP, 2020). This is line with experiences from Ebola that saw a rise in maternal deaths, adolescent pregnancy, gender-based violence, and avoidable child deaths.

For more information see: <https://maintainsprogramme.org/wp-content/uploads/FINAL-2707-Sierra-Leone-covid-rapid-study-.pdf> and <https://www.t-sum.org/covid-19>

Freetown's Historical Urban Development Trajectory

KEY TAKEAWAYS:

- Freetown's growth over the past decades has been fragmented and **constrained by its geographical boundaries**.
- The **rapid urbanisation** along with limited housing development and relatively **high poverty levels**, has led to the **creation of pockets of informal settlements**, which face continuous environmental and health risks.
- These factors in addition to others have led Freetown to have a low functional utilisation rate of land

In this paper, urban trajectories are defined as the city's patterns of spatial, socioeconomic and functional growth, which are influenced by, and have an effect on, socioeconomic differences, social status and positions of the population, and the politics of urban and transport development (Banister & Hickman, 2013; Levy et al., 2017; Uteng & Lucas, 2017). **Growth patterns are influenced by practices of urbanisation and planning driven by both the public sector and market forces** (e.g. developing along public transport corridors), which shape the way the city develops, and how opportunities are distributed.

The analysis of trajectories provides researchers with a practical lens to understand relevant development patterns, the main factors driving them, and their potential implications for sustainable urban development and mobility. For instance, compact and diverse land-use planning can lead to more equitable distribution of opportunities and shorter travel distances and costs and increases accessibility levels (Geurs & van Wee, 2004; Singh et al., 2017; van Wee, 2011). Similarly, the investment in high-capacity transport infrastructure, either for public or private operation, can lock cities in trajectories of urban development that foster specific transport modes and more disperse or compact land-uses, influencing the overall accessibility of the population (Cervero, 2013; Cervero & Dai, 2014; Kloosterman & Lambregts, 2001; Automobility, 2015).

This section examines Freetown's drivers and trends of urban and transport development. It provides insights into the constraints of accessibility in the city which include physical and topographical constraints, precarious living conditions, informality in transport, the economy and housing, and environmental risks such as flooding and other natural disasters. This section will also highlight the scope for addressing these challenges.

3.1 Historical Urban Expansion

Freetown's growth over the past decades has been fragmented. Expansion has mainly occurred along road infrastructure corridors growing towards the hills. The built-up area between 1974 and 2014 expanded on average at an annual rate of 5.1%. The largest expansion occurred between the period 2000-2014 when the built-up area expanded by more than 70%. This led the urbanised areas to extend into the surrounding hilly terrain and former foot slopes of central Freetown (World Bank, 2019).

As the city's population increases, due to both rural-urban migration and an increase in the city's population itself, more areas will be required for residential and commercial land-uses. However, the spatial expansion of the city is constrained by its geographical boundaries evident in figure 4.

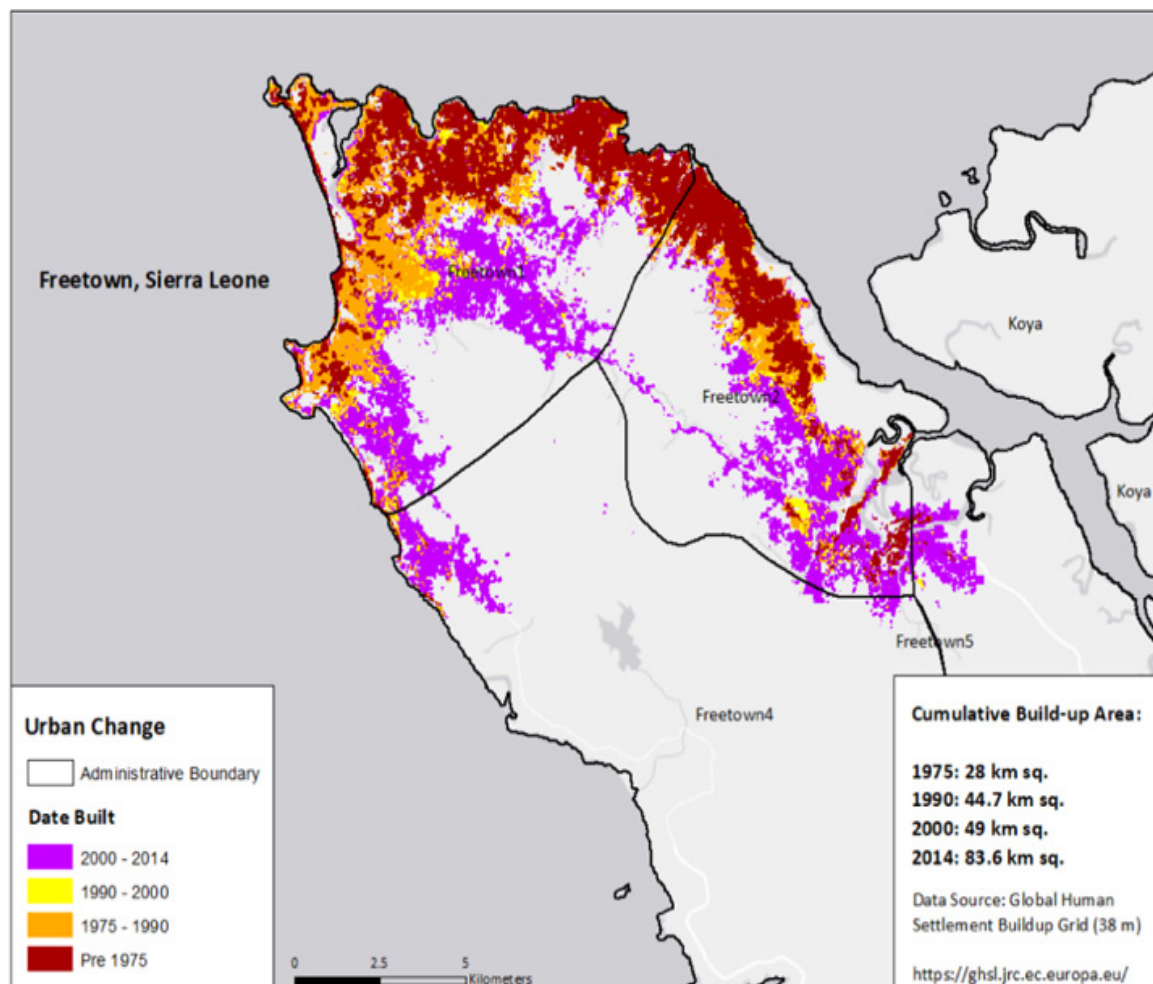


Figure 4 Historical Freetown Growth Map
Source: Mansaray et al., 2016; GHSL (1975-2015).

3.2 Growth of Informal Settlements

Sierra Leone's rapid rate of urbanisation, currently at 3%, along with limited housing development and relatively high poverty levels, has led to the creation of pockets of informal settlements. At present, over 68 informal settlements have been identified¹ (illustrated in Figure 5). The growth of informal settlements can be attributed to several factors. Most notably, the local economy, which is dominated by small scale and informal businesses (mainly petty trade²) and growing demand for proximal living to the workplace. Furthermore, the rapid population growth and Freetown's topography – located between sea and hills - limits the spatial expansion of the city, forcing low-income groups to settle mostly on marginal lands. (MLCPE/FCC 2014a, Allen et al., 2017)

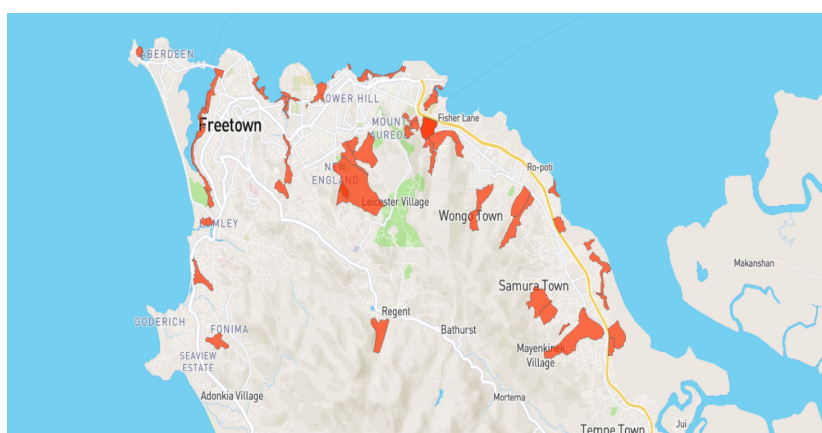


Figure 5 Freetown's informal settlements and their boundaries

Source: *Informal settlements in Freetown*. Adapted from CODOHSAPA/FEDURP, 2016

Informal settlements, which constitute 40% of all settlements in Freetown have primarily developed along three major spatial patterns: coastal settlement along the rocky beaches of the Atlantic Ocean; sprawling inland settlements along the Sierra Leone River estuary; and hillside settlements in the steep hills of the city, which are rapidly encroaching into vital forestland (Allen et al. 2017). **Given the topographical challenges of these areas, flooding, landslides, fires, as well as building collapses are common phenomena.** This results in significant socioeconomic losses, such as the destruction of property and infrastructure, as well as health consequences including injuries, diseases and fatalities. Informal settlements also present severe challenges for urban health and sanitation, as they have no waste disposal facilities and often limited access to running water.

⁸ The Federation of Urban and Rural Poor and Centre for Dialogue on Human Settlement and Poverty Alleviation, 2015
⁹ An economic activity that involves selling services and goods in small scale

3.3 Land Use and Spatial Planning

The city's land use/land cover consists of built-up areas, forest and farmlands (as illustrated in Figure 6). Due to both the increasing population and small-scale economic activities such as fishing, stone quarrying and sand mining, there has been **marked environmental degradation in Freetown** (Mansaray et al., 2016). For example, the coastal or low-lying areas of the city have experienced a decline in wetlands and mangroves due to the expansion of slums and the use of the wood for productive purposes. These trends have resulted in built up and bare land areas to increase drastically (Gbanie, 2014).

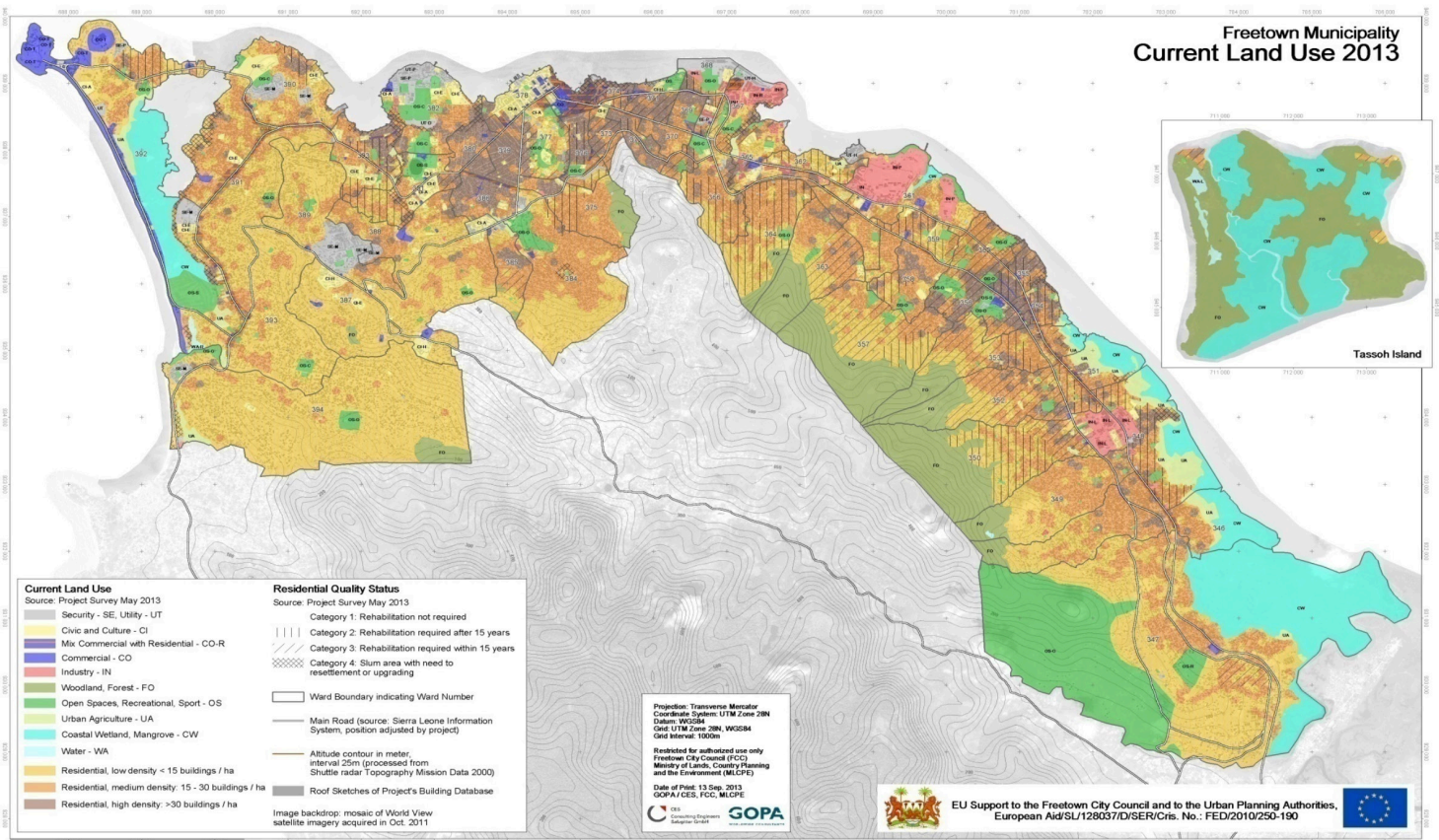


Figure 6 A spatial view of land use in Freetown.
 Source: Adapted from Kamara, 2014

In addition, the uncontrolled urban expansion and the lack of affordable housing have led spatial inequalities in the allocation of land-use within the city in terms of diversity, density and availability of public. Contrary to many cities of the developing world, informal settlements appear near the CBD while fringe developments are scattered in areas where connectivity is low (World Bank, 2009, 2018). The development of informal settlements in the proximity of the CBD has potentially positive implications for access to employment and essential goods and services for low-income populations in Freetown.

However, this irregular pattern of urban development, in part due to the growth of informal settlements has led to Freetown having one of the worst functional utilisation of land amongst 24 African cities -76% of the land within 5 kilometres of the central business district is residential, 4% commercial or industrial use and 15 % unbuilt (Antos et al., 2016).

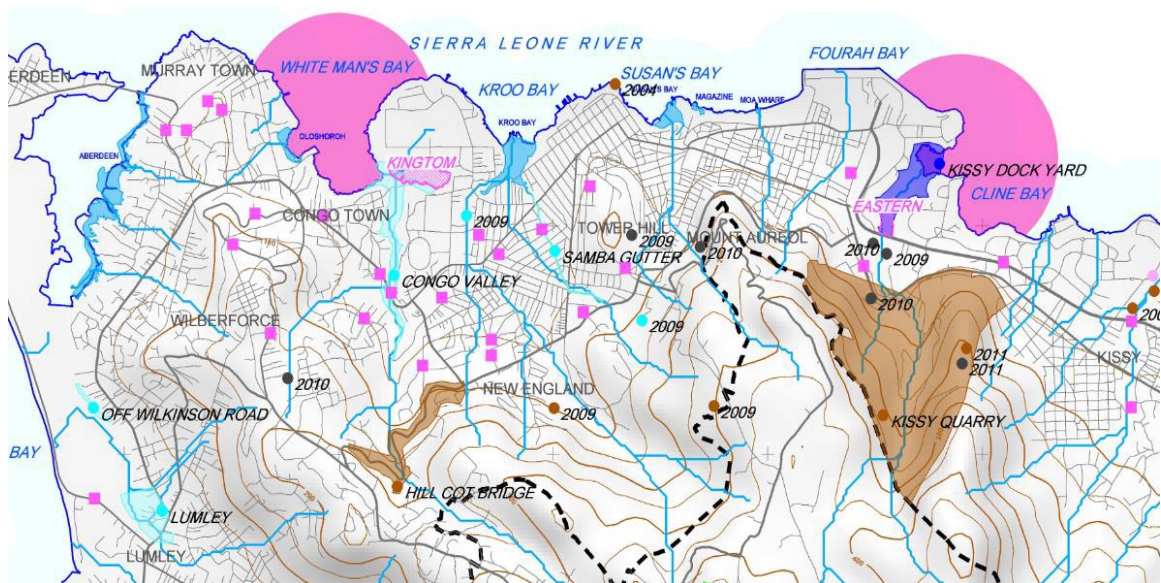
In March 2019, the Central Government devolved local strategic planning, issuance of building permits, and preparation of land use plans – and with such planning and building control amongst other responsibilities to local councils. These specific devolved functions placed the local councils (Freetown City Council) in a much better position to slow down some of these trends and achieve sustainable urban development in Freetown (Koroma et al., 2020).



*Figure 7 Location of the Central Business District of Freetown
Source: Own elaboration*

3.4 Environmental and Health Risk Areas

The growth and sprawl of informal settlements and the continuous rural-urban migration have led to a range of risks, from large episodic disasters of flooding and disease epidemics to smaller scale and everyday risks of waterborne diseases and frequent shack fires in informal settlements indicated in section two and highlighted in figure 8. These risks are more concentrated in informal settlements and are progressively becoming day-to-day realities of residents, with adverse effects. There are four environmental risks that are of particular concern to Freetown, which include: flooding, landslides, coastal erosion and sea level rise. Table 3 outlines which areas of Freetown are most affected by which risk.



Reported Hazard Prone Area

(indicating location name)
Source: Department of Housing

- Inland Flooding
- Landslide
- Flooding from the Sea

Documented Disaster Event

(indicating year of incident)
Source: Disaster Management Unit

- Construction Collapse
- Inland Flooding
- Industrial Contamination
- Landslide, Mudslide

Surveyed Hazard Prone Area

(indicating location name)
source: GPS-survey by
Project Team and City Councillors 2011

- Flood Prone Area
- Solid Waste Dump Site
- Solid Waste Dump Transition Point

- Water Pollution by
Solid Waste Dump Site Drainage

--- Municipality Boundary

Western Area National Park

Proposed Buffer Zone for National Park

Altitude contour in meter,
interval 50m (processed from
Shuttle Radar Topography
Mission data 2000)

Watercourse

Road Network

Source: SLIS, adjusted by project

Primary road

Secondary road

Tertiary road

Local road

Figure 8 Environmental Risks across Freetown

Source: Ministry of Lands, Country Planning and the Environment (MLCPE) and Freetown City Council (FCC) (2014) Environmental Assessment and Evaluation of Natural Disaster Risk and Mitigation in Freetown. Coordinated by Ronnie A. D. Frazer-Williams. Final Report. EuropeAid/SL/Cris. No: FED/2010/250-190.

The table below provides detail on the type and location of risk areas within Freetown.

Table 3 Risk Areas in Freetown

Source: T-SUM

High Risk	Risk Hotspot Area
Flooding	Mostly occur along the natural channels and bays along the coast including Lumley, Shell, Thunder hill, Shell, Cline Bay, Susan’s Bay, Kroo Bay, CKG, Congo Town.
Land sliding	Occurs where residents encroached upon steep high-relief mountain slopes and associated river channels including Tengbeh Town, Foulah Town, Magazine, Bombay, Ginger Hall, Quarry and Coconut Farm, New England-Hill Cot, Dworzack, Kassel Farm and Kissy Brook.
Coastal erosion	The coastal parts of the city, particularly the more developed northern and western areas including Aberdeen, Murray Town, Kingtom, Cline Town, Kissy
Sea-level rise	Lumley Beach in the Northeast, the small densely populated informal settlements on the deltas of the northeast coast including Kroo and Susan’s Bay and broad low-lying coastal areas of Allen Town in the South East

Environmental shocks are often compounded with health crises. Freetown regularly faces outbreaks of cholera and other waterborne diseases when disasters occur, which are especially dangerous for people living in informal settlements due to the lack of access to reliable and essential urban services such as water, healthcare sanitation and electricity. The 2014 Ebola outbreak did not only highlight the need to focus responses on urban areas, but also the need for responses to be tailored and to pay special attention to the constraints informal settlements face in health emergency responses. Similarly, the recent COVID-19 outbreak has brought to light issues of health security in informal settlements. The anticipated increase in health epidemics combined with rapid urbanisation is set to exert enormous pressure on city authorities to provide more land for housing, essential urban services and address the complex factors which underpin the vulnerability of informal settlements (Macarthy & Yusuf, 2020).

04

Urban Transport Practices in Freetown

KEY TAKEAWAYS:

- **The majority of residents depend on both formal and informal forms of public transport.**
- **Private vehicles account for a comparatively small share of the daily travel demand,** however this is growing.
- **Allocation of road space is problematic** and reflects various degrees of inequalities for road users and transport injustice driven by increased exposure and vulnerability for those users already at a disadvantage such as pedestrians.
- **Data on urban transport practices is incomplete,** with limited information on road traffic accidents, transport behaviour and demand and environmental impact of transport amongst other data.

Freetown's urban trajectory is marked by rapid urban, demographic growth and by significant social, physical and environmental challenges such as acute poverty, hilly topography and areas of high environmental risk, respectively. Such conditions have shaped the development of urban transport practices characterised by the negotiation urban residents face of a complex environment for daily urban mobility, and the constant reconfiguration of both formal and informal provision of urban transport infrastructure and services by the state and predominantly, the private sector. This section describes - to the extent possible by available information - the main features of urban transport supply and demand in Freetown, the distribution and access to transport and opportunities in the city, and the main political agendas underpinning the current and future urban transport trajectory of the city.

4.1 Transport Supply and Demand

The socio-economic development of the city has caused increased pressure on the existing passenger transport systems. As a result of limited, poorly maintained roads, and the uncontrolled expansion of private and informal collective transport, street trading, and inefficient traffic management, the city is experiencing high levels of congestion and poor conditions for basic access. Uncontrolled parking, lack of and disregard for formal passenger collection points are compounding the transport challenges in Freetown, leading to circulation problems at the main interchanges and terminals in the city. In addition, there are poor conditions for pedestrians as a result of blocked or damaged walkways, limited pavements and lack of formal crossings.

Available data on the public transport modes operating in Freetown is limited and provides an incomplete overview of the coverage and availability of urban transport alternatives in the city. The public modes of transportation in the city are outlined in table 4. Although there have been significant efforts from local and national governments to produce updated and reliable information about demand and supply for public and private transport, such efforts have not fully materialised, leaving substantial gaps in information that are identified in section 7.

As shown in figure 9, available figures for private motorisation at the national level and the modal split of passenger movements in Freetown suggest that private vehicles account for a comparatively small share of the daily travel demand, while a majority of residents depend on both formal and informal forms of public transport. As noted previously, the car ownership rate is still very low in Sierra Leone compared to other sub-Saharan Africa cities, with seven vehicles per 1000 people, compared to 30 vehicles in Ghana and 25 vehicles in Senegal¹. This presents a unique opportunity to improve public transport systems and restrict the growth and use of private cars.

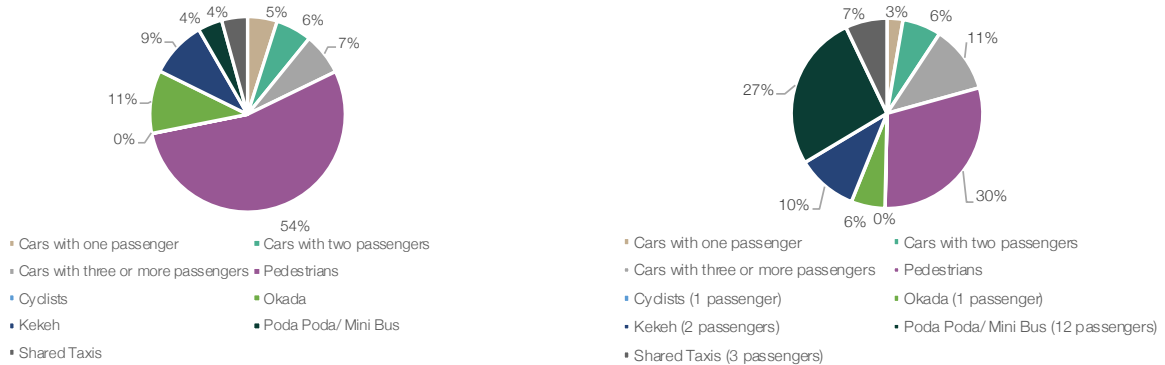
Rate of motorisation (per 1000 pop.)	Modal split
25 (total vehicles national figure-) 7 (private vehicles - national figure-)	18% private car/motorcycle 23% poda-poda (minibuses) 22% shared taxis 13% okadas (moto-taxi) 12% kekehs (rickshaws) 12% Buses**

Source: Statistics Sierra Leone, 2015; 2017.

Despite the comparatively low share of private transport across Freetown, data from traffic counts in the busiest intersections in the city shows the significant contribution of passenger cars to congestion during the morning peak hours.

Figure 9 highlights some of the busiest intersections such as Lumley Roundabout, Congo Cross, Kissy Ferry and Uppgun which are vital in enabling access to Freetown’s CBD. Private vehicles represent between 14% to 23% of observed traffic, contributing to congestion and air pollution and the overall loss of travel time for other road users. Across all junctions walking is the most popular means of travel, with between 31%-54% travel modes being walking, despite limited pedestrian infrastructure. The lack of cycling can in part be explained due to the lack of cycling infrastructure – nowhere in the city are there separate bike lanes. While the top diagram shows the share of vehicle demand across the main intersections, the lower diagram shows the share of passengers per transport mode. Here it is evident that the volume of passengers travelling by public transport still exceeds passengers travelling by car across all junctions.

Lumley Roundabout



Congo Cross

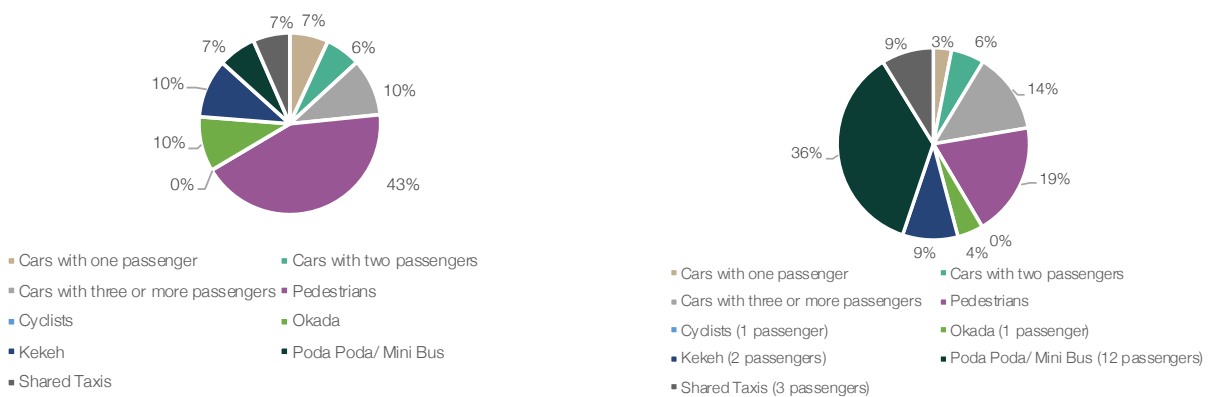
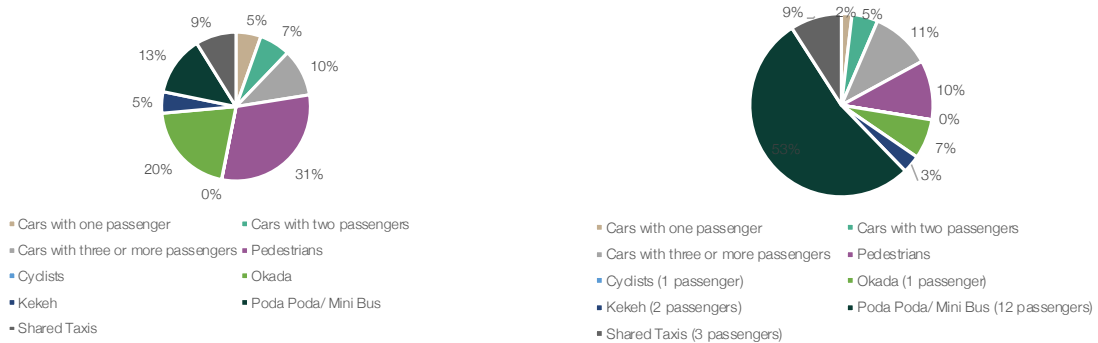


Figure 9 Share of vehicle demand across main intersections based on traffic counts and share of passengers per transport mode (2020)
Source: T-SUM, 2020

Kissy Ferry



Ungun

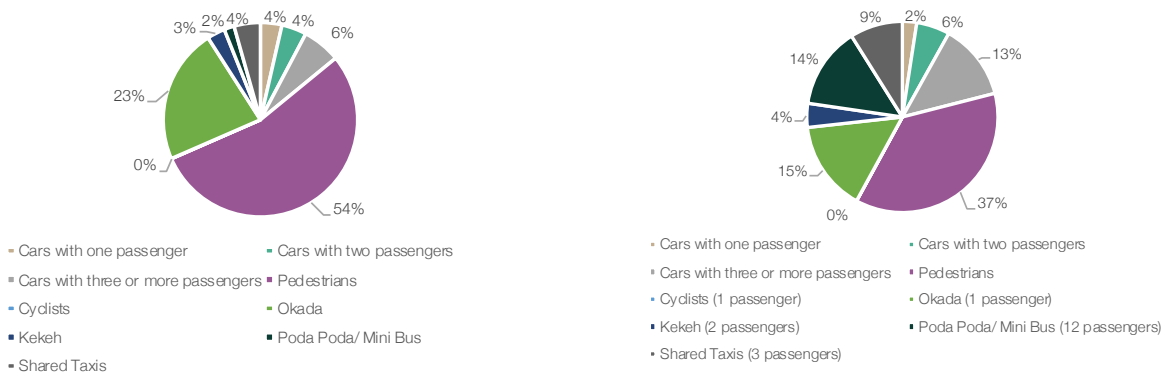


Figure 9 Share of vehicle demand across main intersections based on traffic counts and share of passengers per transport mode (2020)

Source: T-SUM, 2020

The private sector is the major supplier of passenger transport services in Freetown, accounting for almost 85% of the market share (World Bank, 2018¹¹). **Limited institutional capacity for planning and delivery of public transport services has created gaps in the market that unregulated private transport services have filled.** They are primarily provided by the semi-informal sector, through a mix of a small number of full-sized buses, poda-podas (minibuses), shared taxis operating on fixed routes, kekeh (three-wheelers) and okadas (motorcycles). Though these services provide an essential means of mobility across the city, their low capacity and irregular stops mean that they contribute significantly to congestion. Furthermore, citizens with physical and cognitive disabilities have limited mobility, both on and off-street, with inaccessible transport infrastructure and a large share of buildings with no design consideration for such population groups. Despite the majority of road space being occupied by private vehicles, the largest share of passengers at Freetown's main junctions depend on non-motorised transport i.e. walking and public transport to reach their main destinations (Figure 10).

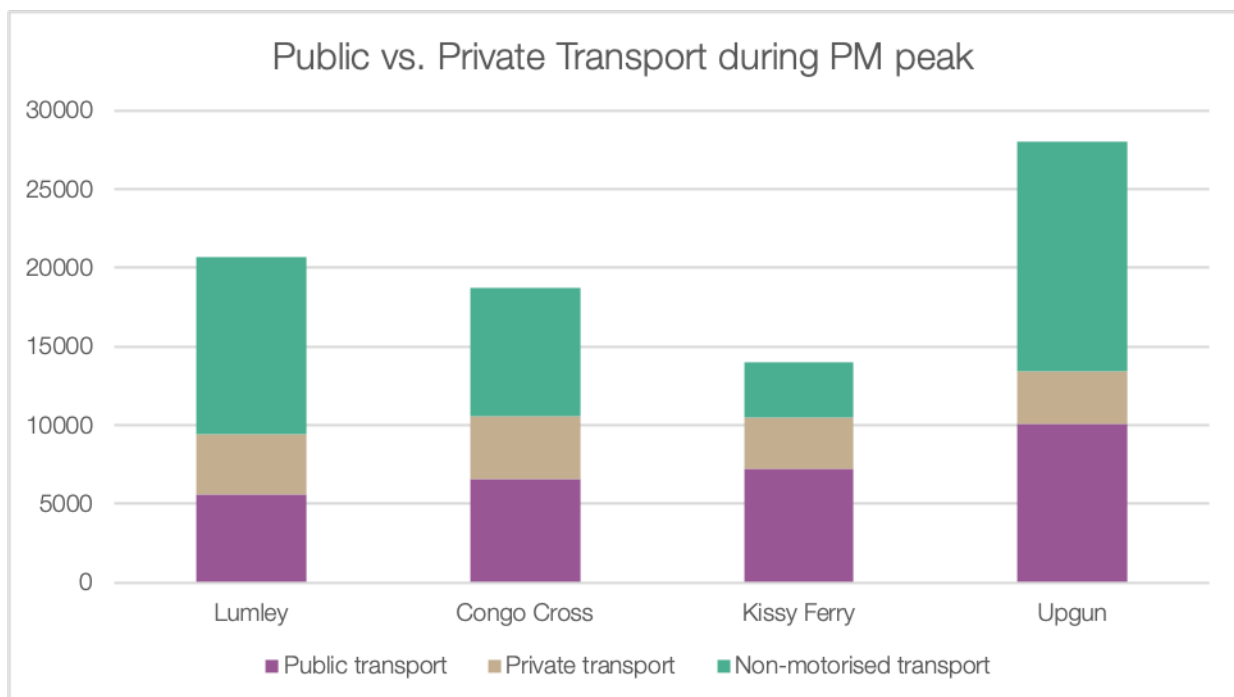


Figure 10 Modal Splits on public vs. private transport at PM peak based on passenger counts* (2020)
Source: T-SUM, 2020

11 World Bank Group. (2018). Reviving Urban Development: The Importance of Freetown for the National Economy (Issue 1). <http://documents.worldbank.org/curated/en/304841528737912303/pdf/127049-WP-PUBLIC-SierraLeoneEconomicUpdatev.pdf>

12 Public transport constitutes minibuses, shared taxis, and government buses. Private transport: cars. Non motorised transport: bicycle and walking

Demand continues to be syphoned off by low-occupancy vehicles providing semi-informal collective transport, despite efforts from the public sector to increase the supply of public transport. The state-owned Sierra Leone Road Transport Corporation operates public transport on a formal, scheduled basis in the city. It provides on-demand transport services for the public, such as shared taxi and jeeps respectively. Such configuration is intended to provide the level of flexibility expected by passengers but is struggling to compete with paratransit. Public transport provided by the government is designated to serve various communities through set routes, although their coverage remains considerably limited.

Over the last few years modal share of conventional public transport (large buses) has dropped sharply while there has been an exponential growth of okadas (motorcycle-taxis) and kekehs (three-wheelers), which appears to remain steady. The growing share is linked to low upfront cost, their ability to navigate congested and unpaved roads, and time-savings as the smaller vehicles are better able to navigate through the traffic in congested areas.

These highly inaccessible areas can be identified in Figure 12, where a 500-meter radius is plotted around public transport stops (SLRTC, poda poda and shared taxis routes). Middle- and low-income households that do not have access to private vehicles in areas such as Goderich, Gbendembu, Tangbeth Town and the area parallel to Bai Bureh Road, depend on okadas and kekehs as the only motorised option to access jobs and social services.



Picture 4 Men washing Kekeh (Yasmina Yusuf, UCL 2019)



Figure 11 Highly inaccessible areas by fixed-route modes – SLRTC, poda poda and shared taxis
Source: T-SUM, 2020

Although two and three-wheelers are the only motorised alternative for several areas in Freetown, low-income households cannot afford them in many cases and opt for walking long distances or staying in limited areas within their neighbourhoods. Our research estimated that the ratio of the average cost per okada trip to income for a household with the minimum wage for commuting is 18%, compared to modes with fixed routes (poda poda and shared taxis) where the ratio is 12%.

Semi-formal transport providers in Freetown are organised/operate through associations or unions (for example, motor drivers' unions, tricycle and motorbikes riders' associations). These unions represent the interests of specific semi-formal modes. To enable them to perform their transport services role, each of these associations or unions have established branches dividing up the network. They are typically based at a station (off-street parking) or stage (on-street parking), and routes are operated from or between these points (Figure 12). Each route is then operated on the principle of fill-in-turn before departure. Branch officials manage this process, and a departure levy is raised for this purpose.



Figure 12 Okadas and Kekehs in Freetown (SLURC, 2019)

In the face of the disconnection and inaccessibility resulting from the limited supply of routed public transport services, we developed a pilot method to determine the coverage of non-routed public transport provided by okadas and kekehs. The T-SUM team mapped all hubs of operation of these modes of transport using WhatsApp, finding 124 points across Freetown where these operators agglomerate to pick up and drop off passengers. Figure 13 presents the findings of the mapping exercise and the analysis of the spatial coverage of the services (% of the population within 500 to 3,000 metres of a collection/distribution point) in Freetown.

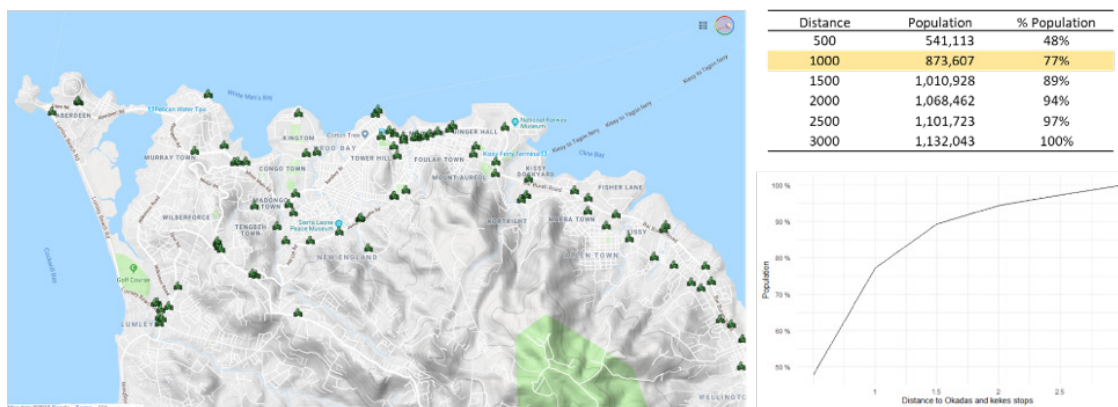


Figure 13 Okadas and Kekehs in Freetown Source: T-SUM (2020)

Semi-informal transport services supplied by two and three-wheelers increase considerably the access to motorised transport for the majority of the population in Freetown. 77% of the population can access an okada or kekeh hub within 1,000 m of their home. Depending on the topography, this is still an acceptable walking distance. Nearly 50% of the population can do so within 500 m. Even in areas characterised by disconnection and low degrees of accessibility by routed public transport, the evidence shows a good degree of availability of unrouted services. This suggests a much higher degree of flexibility and adaptability of these services to the challenges of the topography and infrastructure, as well as a more rapid response to new land developments, which require some degree of public transport supply even in areas of higher income and high private motorisation. This is a very important finding for Freetown, as no spatial inventory of these services has been carried out to date.

As part of this exercise, the team also collected pilot information on the cost and time of taking Okada's and Kekeh's along key routes in Freetown (table 4). Notably, drivers stated that the cost on average increases by 25% or more when there is heavy traffic, in the rainy season or in a holiday period.

Table 4 Costs and time of travel between different high-demand junctions in Freetown.

Source: TSUM, 2020

Kekeh	Lumley Roundabout		Aberdeen Roundabout		Congo Cross		The Lodge		Kingtom bridge		PZ	
	Cost (SLL)	Time (mins)	Cost (SLL)	Time (mins)	Cost (SLL)	Time (mins)	Cost (SLL)	Time (mins)	Cost (SLL)	Time (mins)	Cost (SLL)	Time (mins)
Lumley Roundabout			2000	10	3000	10	4000	21	5000	20	5000	21
Aberdeen Roundabout	2000	10			2000	9	4000	18	4000	22	5000	36
Congo Cross	3000	10	2000	9			2000	4	3000	9	5000	20
The Lodge	4000	21	4000	18	2000	4			2000	4	3000	18
Kingtom bridge	5000	20	4000	22	3000	9	2000	4			2000	22
PZ	5000	21	5000	36	5000	20	3000	18	2000	22		
Okada	Lumley Roundabout		Aberdeen Roundabout		Congo Cross		The Lodge		Kingtom bridge		PZ	
	Cost (SLL)	Time (mins)	Cost (SLL)	Time (mins)	Cost (SLL)	Time (mins)	Cost (SLL)	Time (mins)	Cost (SLL)	Time (mins)	Cost (SLL)	Time (mins)
Lumley Roundabout			5000	8	10000	9	10000	22	12000	15	25000	19
Aberdeen Roundabout	5000	8			6000	8	8000	11	10000	13	18000	18
Congo Cross	10000	9	6000	8			3000	3	5000	5	10000	14
The Lodge	10000	22	8000	11	3000	3			3000	4	8000	10
Kingtom bridge	12000	15	10000	13	4000	5	3000	4			5000	6
PZ	25000	19	18000	18	10000	14	8000	9	5000	6		

Other forms of on-demand transport supply have been identified, which in comparison are more expensive than informal transport. There are two leading app-based on-demand taxi companies in Freetown. Since April 2019 'Flash Vehicles' on-demand services provide inter-and-intra-city services using apps and web-based platforms (see picture below). Individuals or organisations can book it. They usually operate two forms of services – Flash Normal and Flash on-demand. Flash can be rented out for an entire day at US\$60 excluding fuel and VAT within Freetown and outside Freetown for US\$115. Flash on demand, which only operates from 7 am to 12 am in Freetown as a minimum trip fee of Le.30,000 (US\$3.43).

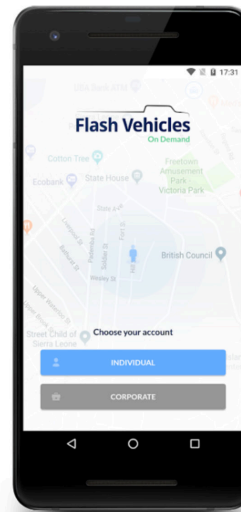
Getting around Freetown just got easier.

App and web-based on demand
vehicle booking.

Interested? Download the Flash App for
iOS and Android today!



Book Online



*Figure 14 Advertising of Flash vehicles on-demand transport service
Source: <https://www.flashvehiclesondemand.com/> (accessed online: 21/07/2-019)*

Taptap is another on-demand rider service app that was available in Freetown. The Taptap smart mobile apps provided some level of flexibility, safety and convenience on demand-service by the public. It allowed passengers to request a ride with just a tap anywhere, anytime using shared taxis, jeep, Okada and kekehs. However recently this service has stopped operating.

Such services are framed as an easy-to-use alternative to navigate the complex transportation system in Freetown, which, according to observation and anecdotal evidence - due to lack of adequate studies or data on the demand of such services - appeals to the rising middle class and higher-purchasing power population groups. The role of these transport alternatives is a relevant issue for further exploration in the development of strategies for adopting sustainable urban mobility trajectories.

4.2 The challenge of providing a fair allocation of road space

Allocation of road space in Freetown reflects various degrees of inequalities for road users and transport injustice driven by increased exposure and vulnerability for those users already at a disadvantage such as pedestrians. A pilot analysis of the distribution of road space for an area of 4.2 km² in a mixed land-use zone close to the main areas of economic activity of the city in the north-western side of Freetown helps illustrate the biases in development of different forms of infrastructure and public spaces for mobility in Freetown, shown in Figure 15. A recent estimate suggests that only 5 % of the total land in Freetown is allocated to roads, of which only 24 % paved compared with regional benchmarks of 10 % and 50 % respectively (DFID, 2018; World Bank Report, 2019). In the Western Area, road density per capita is about 165 meters of paved road per 1000 citizens in the Greater Freetown Area, which is around half of the average in low-income African countries (318m/1000 people) (AfDB, 2014 ; World Bank, 2018). The poor quality of the road network or narrow roads with high demand of private cars, and poor public transport service, considerably hinders accessibility within the city and significantly contributes to higher levels of congestion. This is further illustrated in figure 16.

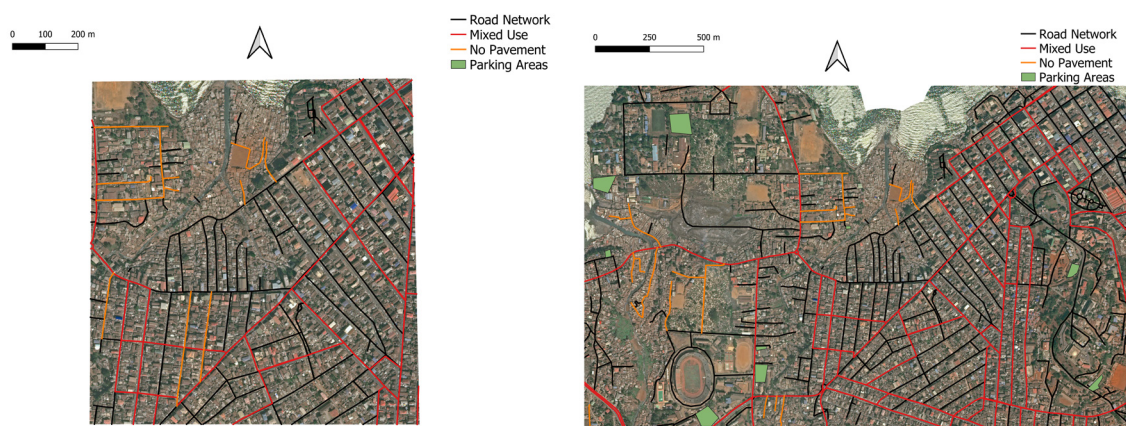


Figure 15 Mapping space distribution in Freetown (a) pilot study zone; and (b) map detail.

Source: T-SUM, 2020

The challenges Freetown faces including rapid population growth, challenging topography and growth of the informal sector all contribute to the fact that Freetown struggles to provide a fair allocation of road space. In addition, limited, poorly maintained roads and the uncontrolled expansion of private and informal public transport, and inefficient traffic management, means that the city is experiencing high levels of congestion. Compounding these factors is the problem of uncontrolled parking, with formal passenger collection points either not observed (owing to poor enforcement) or not clearly defined leading to circulation problems at the main interchanges and terminals in the city. This results in poor condition for pedestrians due to blocked walkways and damaged or non-existing pavements.

In contrast to other cities in Africa, such as Kigali, Accra and Addis Ababa, Freetown does not have one single km of segregated cycling infrastructure, which contributes to the **very low level of use of bicycles** as a regular transport mode. Moreover, **pedestrian footways in various road sections are very narrow** – if they exist at all. While there are wider sidewalks that can accommodate a large number of pedestrians, they are often only provided on one side of the main roads. In many cases, there are high levels of on-street parking (both on the footway and the carriageway) along secondary and main corridors, and sidewalks are often informal markets, with street traders setting up their stalls. These factors not only add to congestion but often make sidewalks unusable putting pedestrians at risk.

Furthermore, **mixed traffic road space is often blocked by minibuses, shared taxis and informal transport stopping and waiting for passengers**, which leads to a very unstable and almost always reduced operational space on the roads. Large spaces, particularly around the stadium (see detail in Figure 15) have been devoted exclusively for public parking, adding to traffic volumes and road safety issues in adjacent corridors. Finally, a large share of unpaved access roads (14% of the total study area) mix non-motorised and motorised use forcing the pedestrian to the edges of the roads, next to large drainage canals and exposing them to dust and dirt during the dry season and to flooding during the rainy season.

The city requires an increasing share of urban land for road infrastructure development as the majority of inhabitants rely on motorised transport.

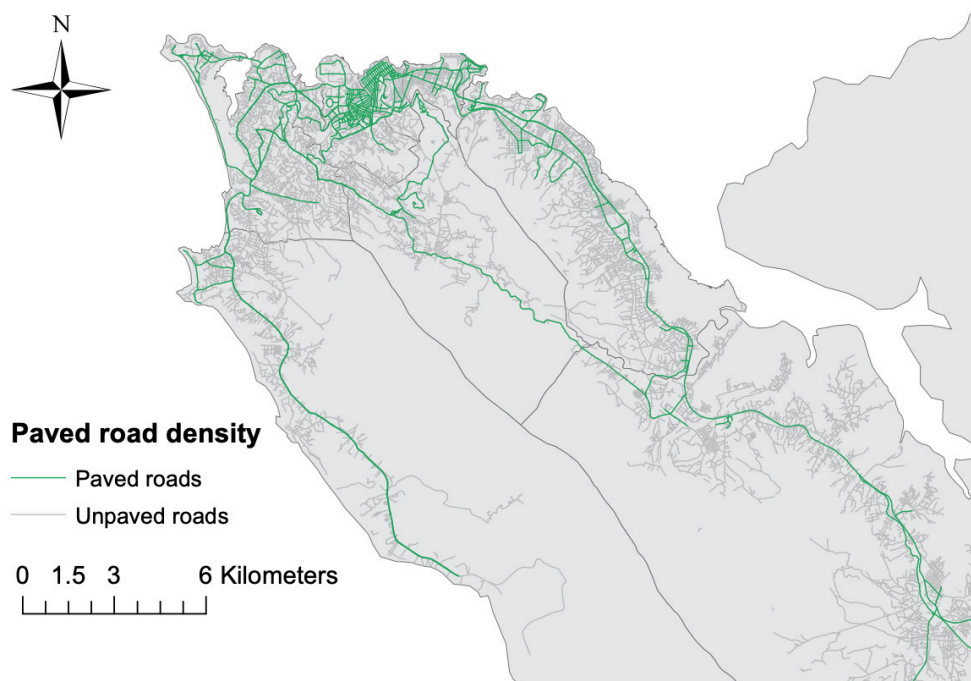


Figure 16 Paved and unpaved roads
Source: World Bank, 2019

In a World Bank report published in 2019, the cost of replacement value for paved roads in Freetown is US\$ 341,700/km, in contrast to the reported unpaved roads of US\$ 52,800/km (World Bank, 2019). The report identifies three main routes of paved roads within Freetown: along the western coast of the peninsula through Hamilton, Goderich and up towards Aberdeen; through Hastings and through the centre of the peninsula through Charlotte and Regent; and along the eastern coastline of the peninsula from Hastings up through Congo Water II and towards Cline Bay (ibid). In Freetown, the paved road network is cross-cut by unpaved roads connecting roads.

Fair allocation of road space is challenging in Freetown as indicated in this section. **Despite walking being the most accessible and used mode of transport in the city, little consideration is given to this in transport planning.** While there are sidewalks, these spaces are often used by street traders or as parking spaces, rather than pedestrians. No provision has been made for non-motorised forms of transport. With growing levels of car ownership, the city requires an increasing amount of road space, however replacing paved roads or paving new roads is costly.



Picture 5 Street traders in CBD (Amadu Labor, SLURC 2021)

4.3 Costs and consequences of current urban mobility trajectories

Fuel and diesel prices

In Sub-Saharan Africa, most countries, including Sierra Leone, regulate fuel prices with discretionary adjustments based on the international market price. More than 50% of African countries regulate fuel prices in a discretionary way, while 40% rely on automatic adjustment formulas (Kargbo, 2018). In Sierra Leone, for instance, the Petroleum Regulatory Agency (PRA) is charged with the responsibility to effectively monitor, supervise and coordinate the downstream petroleum sector of Sierra Leone within the present regulatory framework (Petroleum Regulatory Agency Act, 2014). PRA usually determines the petroleum pricing formula in close consultation with oil marketing companies, in addition to monitoring and managing pump price reviews. The pricing formula is often adjusted based on the actual cost of the product to which import duty of 5% is added on an ad valorem basis, with costs including port charges, demurrage, inspection, freight levy, storage cost and transfer and agency fees.

From April 2019 to 8 July 2019, the new Sierra Leone Government removed fuel subsidy and effectively increased the pump price from Le. 6000 (\$0.75) to Le.7000 (\$1) for petrol, diesel and Kerosene. By July 2019, fuel companies, together with the PRA, increased fuel pump price of petrol by more than 21% - from 7,000 to 8500 (Petrol (from 7000 per litre representing a 15% increment), diesel (from 7500), and kerosene (from Le.7600). Fuel is now Le 7500, after a series of changes responding to COVID-19. The continuous fuel price change can be tied to the exchange rate depreciation, Platt's price, low economic growth and factors prevalent in the international market. Sierra Leone still relies heavily on foreign aid and loans from the IMF, which comes with strict structural adjustment conditionality, including the removal of subsidy on fuel. The increment in pump prices fuel without government subsidy will force an increase in transportation fares, which in turn impact the prices of goods and services and make an already stressful situation more complicated for most Sierra Leoneans.

Products	Dec 2018	Jan 2019	Dec 2019	Jan 2020	March 2020	April-Nov 2020
Petrol	8000	7000	7500	9000	8500	7000
Diesel	8000	7500	7500	9000	8500	7000
Kerosene	8000	7600	7500	9000	8500	7000
Fuel Oil	8000	6500	7500	9000	8500	7000

Source: Sierra Leone Petroleum Regulatory Agency

BOX 2: HOW COVID-19 HAS AFFECTED TRANSPORT IN FREETOWN

- The first COVID-19 cases were registered on 31st March 2020
- **Freetown is the epicentre of the outbreak**, although there are now cases reported in all districts in Sierra Leone
- **Collective transport is essential for residents and workers to access basic services and employment**, whom they depend on to survive
- **However, collective transport has been a key vector for transmission.** This has led official restrictions to limit the capacity of passengers, reduction in fuel prices, reduction in operating hours amongst other social distancing restrictions.
- These measures have been challenging to implement, with a lack of voluntary compliance and limited enforcement measures taking place
- Recently restrictions have been relaxed, however the **loss in revenue generation both for public transport operators and the government** due to these measures are expected to be significant
- For more information on how COVID-19 is affecting the transport sector in Freetown see [here](#)
- For more information on how COVID-19 has impacted Sierra Leone, see [here](#)

4.4 Road fatalities and injuries

Sierra Leone is one of the most exposed countries in the world in terms of fatalities per person (27.3 fatalities per 100,000 population, while the average value in Africa is equal to 26.6 and in Europe is 9.3) (WHO, 2015). Sierra Leone's 1,661 (95% Statistics Confidence, Confidence Interval 1334 – 1988) deaths per 100,000 motor vehicles are ranked 13th out of 34 countries in Africa (ibid). Economically, an estimated 1.3% of the GDP is lost because of road traffic crashes. It is likely that these negative figures will continue to increase in the next few years, due to the current growth rate of vehicle registration in the country. Primarily, as more motor vehicles come into the country, and as more people have access to them, more people are likely to die. **However, the current process for collection and management of road traffic crash data is poor, so assessing the real road safety situation in Sierra Leone is challenging and highly uncertain** (Antonino et al., 2018). Based on available figures, fatalities in Freetown and its surrounding area account for nearly 70% of all collisions, and nearly 50% of all recorded fatalities and severe injury crashes in the country (World Bank, 2018). While these figures are grave, deaths are grossly under-reported, and the actual fatalities in WHO estimates may be nearly seven times higher (ibid).

The 2016 data obtained from the Sierra Leone Police Traffic Management and Road Safety Directorate, indicate that there were 4.70% (145) of road traffic fatalities, 19.0% (582) injuries and 76.3% slight injuries recorded resulting from road accidents (Figure 17). The report, as well as interviews conducted, highlighted the following factors responsible for this:

- Failure to observe traffic signs and signals
- Failure to adhere to traffic laws and regulations – speed limit
- Poorly designed road network to enhance safety, operations and allow the efficient movement of people and goods
- Lack of a proper system for training, testing and certification of drivers

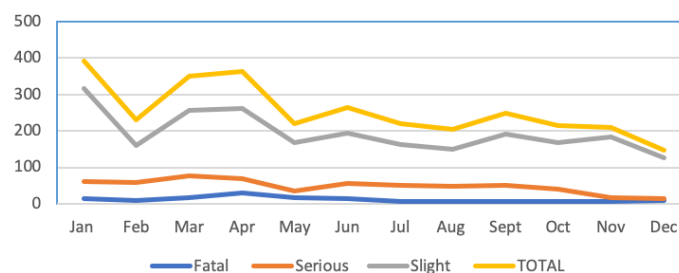


Figure 17 Trends in road traffic fatality rates in Freetown
Source: SLP Traffic Management and Road Safety Directorate, 2016

Although there has been significant progress made by governments in enacting and enforcing relevant legislation with appropriate penalties and there are public awareness campaigns on road traffic injuries and deaths associated with speed, drink-driving, and the non-use of occupant protection measures (helmets, seat-belts, and child restraints), the pace of change remains slow. There is an urgent need to achieve the compelling ambitious SDG target 3.6 by 2020, to halve the number of global deaths and injuries from road traffic accidents.

4.5 Impact of Urban Traffic on Air Quality in Freetown

Urban air pollution caused by automobiles is a notable global environmental hazard.

The most recent study by Taylor (2015) on the impact of urban traffic on ambient air quality measured the levels of nitrogen dioxide (NO₂), sulphur dioxide (SO₂), and carbon monoxide (CO), while quantifying traffic density on two major motorways in Freetown, Kissy Road and Wilkinson Road. The Figures below shows the hourly peak values of each pollutant.

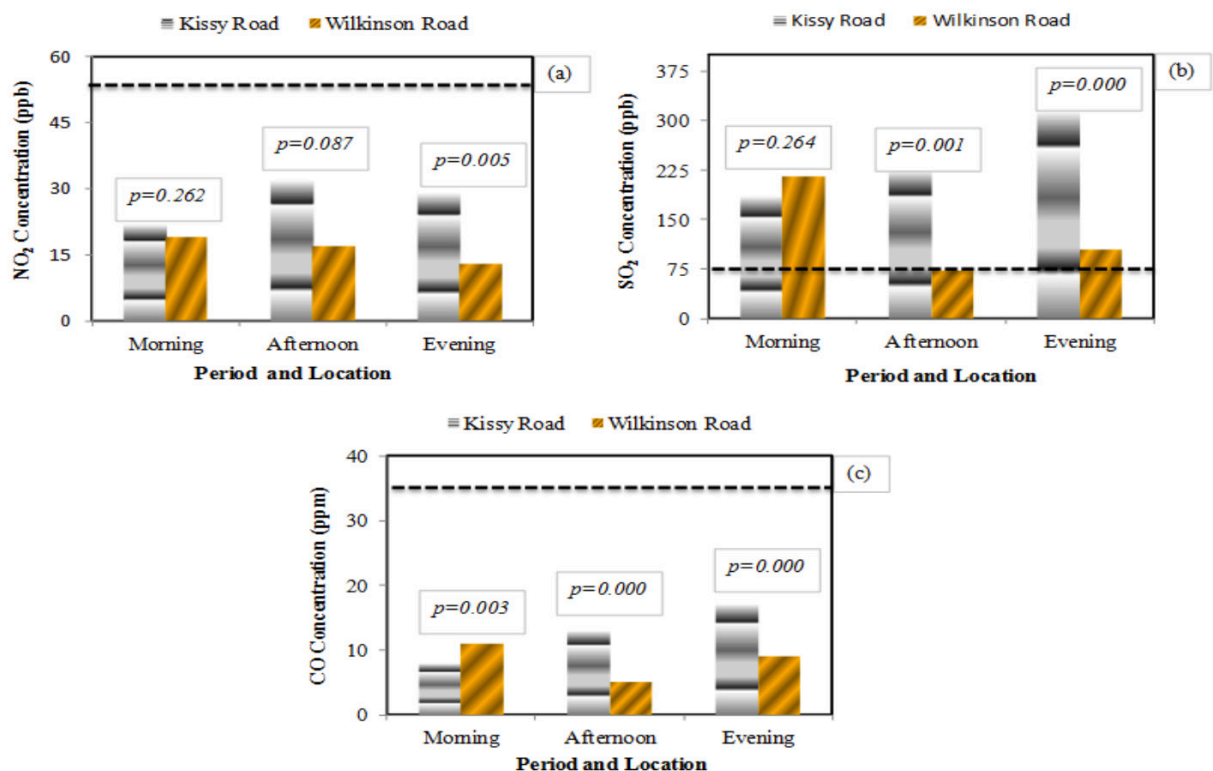


Figure 18 Critical Peak Values of Air Pollutants on Wilkinson and Kissy Road
Source: Taylor, 2015

The graphs show with the US EPA primary standard for NO₂ (53 parts per million by volume - ppm), SO₂ (75 ppm), and CO (35 ppm), which provides public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly. The results above are concerning as they suggest an increased risk of incidence of respiratory tract and cardiovascular diseases infections among sensitive populations. Potential policy options include mitigating traffic congestion, removing high-polluting vehicles (especially poorly maintained heavy tonnage vehicles above 3 tons) from the roads, and improving public transportation are feasible options.

4.6 Greenhouse Gas Emissions in Freetown

Freetown has recently published its greenhouse gas emissions (GHG) data as part of the C40 cities initiative. This is reported in line with the Global Protocol for Community Scale GHG Emission Inventories (GPC), which is the international best practice standard for city-level production based GHG emissions inventories. The reported emissions per capita are outlined in table 5.

Table 5 Emissions per capita in Freetown (2018)

Category	tCO ₂ e
Stationary	0.4
Transport	0.3
Waste	0.3

Source:

C40 https://www.c40knowledgehub.org/s/article/C40-cities-greenhouse-gas-emissions-interactive-dashboard?language=en_US

In comparison to the region, these figures are very low, which reflects the development trajectory of the city. There is limited large scale infrastructure and no mass-transit. While the ownership of cars is increasing, it is still not at the same level as compared to other countries in the region. While this provides some indication of GHG emissions, data is limited and a greater breakdown is needed within each category.

City comparison: emissions per capita by sector

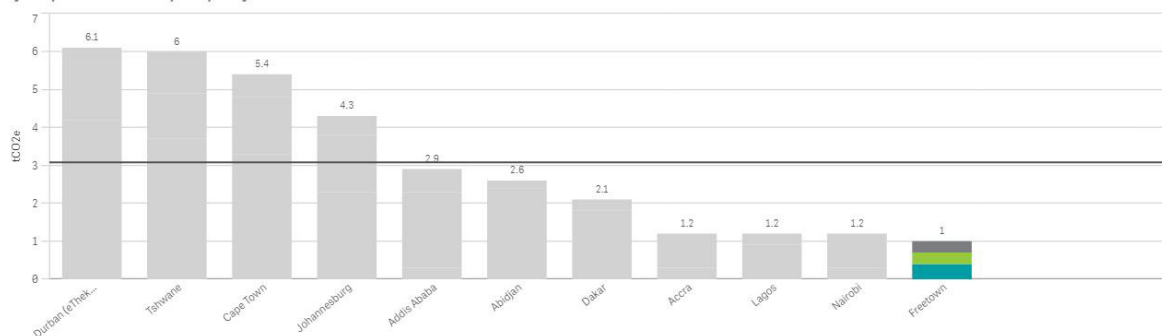


Figure 19 Emissions per capita in comparison to other African cities

Source:

C40 https://www.c40knowledgehub.org/s/article/C40-cities-greenhouse-gas-emissions-interactive-dashboard?language=en_US

Current Transport Development Agenda in Freetown

KEY TAKEAWAYS:

- Multiple government ministries, departments and agencies are responsible for planning, financing, service provision (formal and informal), management, implementation and enforcement in the urban transport sector.
- Multiple agencies all have responsibilities for various aspects of urban transport, that are often conflicting.
- In the long-term, the government's objective is to set up a National Urban Transport Authority, bringing all urban and transport-related functions, such as planning and regulating urban transport in Greater Freetown Area, under one umbrella.

Freetown's city government has embedded its vision to 'transform Freetown into a dynamic, efficient and clean city' into the current urban development agenda set until 2023. **There is a strong commitment from the national government to build resilient and sustainable transport infrastructure, both in terms of the political discourse and the allocation of financial and technical resources in the urban area of Freetown** (National Development Plan 2019-2023). Cluster 3 of the Medium-Term National Development Plan MTNDP (2019-2023), which is Infrastructure and Economic Competitiveness, specifically focuses on transforming the transport system across the country. Such an intended transformation has, as the main strategic objective, to 'plan, develop, and implement infrastructure development in an integrated, holistic and cross-sectoral manner that will increase connection and safety for better utilisation and broader benefit across the country'. The key targets of cluster 3 and policy actions are outlined in box 1, which emphasises not only expanding the physical infrastructure of transportation in the country, but also the policy environment and governance.

BOX 3: Key Targets and Policy Actions of Cluster 3 of the MTNDP (2019-2023)

Targets:

1. Expanded public transport facilities in all major cities, by upgrading jetties for water transport and launching a railway rehabilitation project, thereby expanding inter-urban transport
2. By 2023, all laws, rules, and regulations of direct importance to the sector are revised and reconciled, removing all conflicts in legislation that affect the smooth and effective governance of institutions within the transport sector
3. By 2023, domestication of all nine International Maritime Organisation mandatory instruments

Key Policy Actions:

1. Provide adequate transportation infrastructure for national development
2. Improve governance and strengthen oversight and coordination
3. Integrate and properly coordinate transportation infrastructure
4. Develop multi-modal connectivity of the transport system
5. Enhance and facilitate civil aviation safety and security to meet global standards

Source: MTNDP, 2019: 101

The FCC has sought to align its agenda with that of the National Development Plan.

The Mayor's foreword to the Freetown City Development Plan (Freetown City Council, 2016, p.6) states that "my major focus was to transform Freetown into a well-planned, modern, dynamic and vibrant metropolis". Improving urban mobility is one of the clusters of the Mayor's Transform Freetown Plan. At the heart of the Transform Freetown Plan, the Mayor's vision is to 'reduce congestion, increase public awareness and understanding of traffic and road safety by at least 50% by 2022'. Given the FCC's narrower remit, it has identified two key targets, with the first focussing on congestion and the second on public safety. Box 2 outlines a range of initiatives to support these targets.

BOX 4: Transform Freetown – Urban Mobility Targets

Target 1: reduce congestion by at least 50% in five locations by 2022 (Congo Cross, Eastern Police, Lumley/Juba, Wilberforce/Bottom Mango and Wellington/PMB Junction)

1. Eliminate parking and street trading at the identified locations by:

- Conducting a journey time survey study at identified junction locations during peak hours
- Improving the provision of dedicated public transport stops near identified locations
- Identifying suitable sites and constructing markets for the relocation of street traders
- Ensuring effective parking enforcement at key locations and routes
- Ensuring clear and unambiguous road signage at key locations

2. Work with the Ministry of Transport and Aviation to set up a single regulatory authority for urban mobility to:

- Undertake a study of the current government arrangements for transport related activity across central and local government
- Consolidate responsibility for public transportation along fixed routes under a single regulatory authority

Target 2: increase public awareness and understanding of traffic and road safety by at least 50% by 2022

1. Support SLRA to introduce, upgrade and maintain adequate and appropriate road signage and markings, by:

- Introducing junction markings (e.g. entry until road ahead is clear)
- Enforcing of penalty point system already in law books
- Erection of road signs, markings and enforcement
- Introducing requirement for every driver to take and pass a theory and practical drivers test by December 2019 before the issuance of drivers license.

2. Work with SLRSA to expand road safety campaigns in communities, targeting drivers and school children by:

- Introducing the concept of public awareness in school curriculum
- Introducing road safety messages in other FCC public awareness campaigns

Source: Transform Freetown, 2019: 26-27

Furthermore, to improve sustainable urban mobility in Freetown, some transport planning, policies and projects documents have identified a few key strategic visions. For instance, in 2019, the WB funded Integrated and Resilient Urban Mobility Project (IRUMP) had its aims geared towards “fostering changes in the way the city is growing: from a congested, vehicle-oriented city to a resilient, people-oriented city, where walking and public transport are at the core of the Metropolitan vision, and with a focus on vulnerable groups such as low-income residents, women and People Living with Disability”. The long-term objectives of IRUMP aims to strengthen institutional capacity and develop an appropriate regulatory framework to support the government strategic plan to promote public transport reform.

The Integrated Transport Policy, Strategy and Investment Plan (ITPSIP) (2013) sets a vision in the country as *“an efficient, accessible, safe and affordable transport system that minimises travel while ensuring sustainability, equity, poverty reduction and better quality of life for all citizens”* (GoSL, 2013: 24). It focuses on the *‘movement of people and goods by giving priority to public transport, goods transport, pedestrians and non-motorised transport while controlling the level of private transport use’*. It aims to achieve this through a high degree of private sector participation. The objective of the ITPSIP is to anticipate and respond appropriately to the growing and changing transport needs of the country in a sustainable manner. Both the Integrated Transport Policy, Strategy and Investment Strategy and the Sustainable Urban Mobility Policy seek to ensure absolute reductions of emissions by promoting the use of public transport for passenger journeys. In addition, the Nationally Determined Contributions (NDC) prepared by Sierra Leone, as per climate change agreements, prioritises activities that will support Sierra Leone to transition to a low-carbon and climate resilient economy and encourages a mobilisation of resources to enhance climate resilience.

In the long-term, the government’s objective is to set up a National Urban Transport Authority, bringing all urban and transport-related functions, such as planning and regulating urban transport in Greater Freetown Area, under one umbrella. The authority would be headed by a panel of representatives of all local authorities and councils within the Greater Freetown Area, relevant government agencies, police, and transport operators’ organisations and consumer groups, as well as relevant stakeholder organisations.

5.1 Governance: Actors and stakeholders in the transport

Multiple government ministries, departments and agencies are responsible for planning, financing, service provision (formal and informal), management, implementation and enforcement in the urban transport sector. The main actors and stakeholders involved in transport planning and delivery, land development and planning and their corresponding roles and responsibilities are outlined in [table 6](#).

Table 6 Transport Stakeholders in Freetown

Stakeholder	Role
Government	
Ministry of Transport and Aviation (MoTA)	Overall responsibility for planning and policy. It oversees the SLRSA and SLRTC, MoTA sets the fares to be charged by all transport operators
Ministry of Finance	Provides budget and policy guidance on road-user charging
The Ministry of Works and Public Assets (MoWPA)	Responsible for construction and maintenance of the main road network through the Sierra Leone Roads Authority (SLRA)
Ministry of Planning and Economic Development	Set national agenda
The Sierra Leone Roads Authority (SLRA)	A semi-autonomous institution responsible for managing and maintaining the national road network. It handles the execution of the works, including procurement, safeguards, and engineering on the primary road network
The Sierra Leone Road Safety Authority (SLRSA)	Responsible for testing and licensing all vehicles and drivers, and for traffic management
The Sierra Leone Road Transport Corporation (SLRTC)	Responsible for regulating public transport operations as well as operating the Government-owned fleet of public transport vehicles.
The Sierra Leone Ports Authority (SLPA)	Responsible for controlling ports and marine activities within the jurisdiction of Sierra Leone
The Freetown City Council (FCC)	Responsible for urban planning and management, parking, enforcement, street management
The Sierra Leone Traffic Police (SLTP)	Responsible for controlling operations and enforcing regulations. They also have the responsibility to record/collect transport accidents and fatality data.
The Road Maintenance Fund Administration (RMFA)	Oversees the management of road funds for periodic and routine maintenance of road assets. The SLRA and RMFA collectively manage all classified roads; the latter is primarily responsible for monitoring and financial management (FM) in the sector.
Ministry of Lands, Housing and Country Planning (MLHCP)	Responsible for managing and protecting the environment as well as land valuation and compensation. They are also responsible for physical planning, management of forest resources and ensuring the harmonious, sustainable and cost-effective development of human settlements.

Paratransit Associations	
Sierra Leone Traders Union (SLeTU)	Represents the members of country's main five traders' unions. A Trader's Council leads it. There are several unions that represent the owners and drivers of commercial passenger and freight transport vehicles in Sierra Leone.
Tricycle Union	Represents kekeh drivers in the city
Bike Riders Association	Represents okada drivers in the city
Passenger Welfare Association	Represents passenger needs in transportation
Indigenous Transport Owners Association	Represents the indigenous transport owners in the city
Motodivers Union	Represents okadas drivers in the city
Academic and Research Organisations	
Sierra Leone Institutions of Engineers	A network of engineers who work on all engineering projects, including transport
Universities and Research institutions	Such as Njala University, SLURC, Fourah Bay College,
International Organisations	
World Bank	Funder
European Union	Funder
African Development Bank	Funder
Kuwait Fund	Funder
Islamic Development Bank	Funder
UNDP	Funder
Chinese International Development Cooperation Agency	Funder

It can, therefore, be seen that **the institutional arrangements involve multiple agencies that have responsibilities for various aspects of urban transport, but who often have conflicting objectives, priorities and varying capabilities**, while some functions are not explicitly allocated to one single agency. For instance, the responsibility for road safety management is shared between two major agencies: (i) the traffic Police, who are mandated to report on traffic accidents and injuries, manage crash data, and arrest and charge traffic offenders, while (ii) the SLRSA is responsible for the vehicle and driver's testing and licensing, as well as traffic management.

Even though these institutions have undergone several changes in the city and nationally, there is still a lack of capacity, in terms of manpower, expertise, equipment and funding (Koroma et al., forthcoming). In addition, there appears to be no clear-cut institutional framework for the urban transport sector and the lack of a formal mechanism to coordinate the multiple agencies with overlapping responsibility in urban transport (MoTA, SLRA, SLRSA, Traffic Police, SLRTC, FCC). This lack of coordination is evidenced, for example, in traffic management, where the SLRA, SLRSA and Traffic Police all carry out various traffic management functions, with little or no coordination among them.

On the other hand, the role of the municipal local government authorities is limited only to ‘parking management’ as outlined in the Local Government Act 2004. The Mayor’s Transform Freetown Initiative has, however, considered urban mobility as one of the critical priority clusters. **However, at present, there is no formal mechanism in place to coordinate the multiple agencies involved in the provision of urban transport in the city.** It is therefore planned to establish an autonomous Metropolitan Transport Authority, which would take responsibility for all aspects of planning and regulating urban transport in the Greater Freetown Area. The Authority would be headed by a panel of representatives of all local authorities and councils within the Greater Freetown Area, relevant government agencies, police, and transport operators’ organisations and consumer groups, as well as relevant stakeholder organisations.



Picture 6 Road works (Yasmina Yusuf, UCL 2019)

06

Data Gaps

KEY TAKEAWAYS:

- There are substantial data gaps that urgently need to be addressed in Freetown especially on the:
 - o Structural drivers of current transport and land use trends and practices
 - o Travel behaviour and demand data
 - o Gender disaggregated data

The city profile presents the reader with an overview of the urban development and transport landscape in Freetown that builds on available information from secondary sources and data collected as part of the T-SUM project. It provides a solid foundation for further research, practical reflection and decision-making. However, it also puts into perspective many of the **current gaps in information about transport and land-use development in Freetown**. This section summarises some of such deficits in necessary data in the city.

It is relevant to note that while new information is being collected as part of the planning, monitoring and evaluation of ongoing and planned transport and urban projects in Freetown, such datasets often respond to project-specific needs and are not always openly available. As a consequence, ensuring that research-based evidence feeds into policy decisions becomes a priority. The data gaps listed in this section are not exhaustive. However, addressing them will improve our current understanding of relevant urban and transport dynamics that play a role in defining urban trajectories and enabling sustainable transitions.

First, more information is needed on the structural drivers of current transport and land-use trends and practices. While demographic data has been collected in the most recent census, not all such data is openly available. **Limitations of current datasets include, but are not limited to, lack of disaggregated records by gender, age, disability and ethnic identity.** Very little is known about how different sub-populations experience the city and what such experiences mean for their urban mobility and use of transport. Purpose-built sociodemographic and travel behaviour data can inform transport and urban research and practice to steer decisions to address the multiplicity of travel needs and preferences from different social groups in the city.

To a large extent, the distribution of land-use and activities responds to market-driven as well as needs-driven forces that lead to specific patterns of land development and concentration of activities such as emerging gated communities, informal settlements, and the consolidation of economies of agglomeration that lead to the concentration of economic activities in specific parts of the city. **Information about Freetown's distribution of social, cultural and economic activities is limited.** This is further

compounded by a limited understanding of complex land market dynamics and the practices of informal land developers that have contributed to the rapid growth of informal neighbourhoods both in proximity to the city centre and the peripheries. While efforts from research have contributed to the understanding of the genesis of various informal settlements, systematic efforts are required to understand the general drivers of land markets and their connection to transport infrastructure and services. The Freetown City Council has initiated a process for the documentation of land at the plot level using satellite imagery, intended not only to inform planning decisions but to initiate processes of land taxation and the creation of a land cadastre in the city. This information can be used for detailed analyses examining the links between transport and land-use development and to carry out comparative analyses of how markets have responded to varying levels of connectivity. Furthermore, there is an explicit need for making information about the areas of the planned expansion of Freetown openly available, which will give researchers further insight into where and how current trajectories might shift.

Data on transport practices is also considerably limited. Freetown faces a deficit in travel behaviour data in the form of household travel surveys or surveys about travel patterns to individuals in public transport stops or through an interception on the streets of the city. Data about traffic volumes is also scarce. The T-SUM project collected a small sample of traffic counts data to reflect on the distribution of traffic volumes, including motorised and non-motorised passengers during high-demand periods. While this information contributes to our understanding of levels of road usage in Freetown, such data is limited, and it does not reflect the contribution of freight transport to congestion, pollution and other negative externalities of urban transport. Among the contributions of the project is the first mapping of public transport hubs for unrouted services such as Okada and Kekeh, and data on the cost of travel in these modes for the most common origins and destinations. Some of the analysis that has been carried out as part of this and other studies in the T-SUM project address key concerns for urban transport and social equity such as public transport affordability and coverage through the analysis of secondary data and primary data collected at the pilot scale in Freetown. This, however, represents only a snapshot of the circumstances at the time of data collection and it is not representative of the whole city, the seasonality of urban transport supply and demand, or the distributional impacts of the interaction between transport and land use for different socioeconomic groups. The information presented in this city profile in regard to such dimensions of urban transport sets a relevant precedent for scaling up current efforts by local and international stakeholders in transport planning. By building on and replicating the methods developed both by the T-SUM project and other private and public initiatives for collecting information about transport supply and demand, it is possible to improve the current understanding of transport practices in Freetown and their social, economic and environmental implications.

Data related to the negative externalities of urban transport in Freetown is also limited. In response to the Freetown City Council's commitment to the C40 Cities Alliance, some information has been collected in relation to GHG emissions and its distribution into mobile and stationary sources. However, this data is too aggregated to

conduct detailed analysis on the associations between traffic and air pollution, and the spatial and social distribution of different air pollutants such as CO₂, NO_x, PM₁₀ and PM_{2.5}, which are the main contributors to respiratory illness and deaths. Closely linked to such data is the need for more information on the composition of the private and public fleet of passenger and freight vehicles, their age, and levels of fuel consumption, which can provide more significant insights on energy use in the transport sector.

Other key externalities of urban transport are traffic fatalities, injuries and damages. **At the moment, there are only aggregated figures on the number of traffic accidents in Freetown, with no exact data on their spatial or temporal distribution, or their evolution over time in both scale and severity.** There are also limited available records on traffic infractions associated with road safety such as speeding and drunk driving. More data is necessary on the distribution of victims of road accidents that enables decision-makers to identify vulnerable road users and hotspots of traffic casualties across the city. This data can inform planning and enforcement decisions such as the reduction of speed limits, pedestrianisation and improved road crossings and signalling, as well as the targeted introduction of programmes targeting vulnerable road users such as children.

Finally, although some of the identified data gaps in this report may be considered as part of current actions and plans currently underway in Freetown, it is essential to stress the need for open data and partnerships for knowledge sharing about transport and land-use in the city. In many cases, some of the information sources identified as part of this study were not publicly available and, in some cases, information might not even be available on request.

07

Conclusions

KEY TAKEAWAYS:

- **Poverty, vulnerability, and a large informal economy have influenced the distribution of economic opportunities and the spatial and functional structure of the city.**
- The analysis presented in this city profile in relation to the distribution of road space suggests that while a large share of public investments in transport has gone to the expansion of road infrastructure mainly dedicated to motorised vehicles, although **the largest share of demand -as reflected by traffic counts in the main junctions- is of pedestrians.**
- **The practices for urban transport in Freetown illustrate the consequences of the city's current urban and transport development trajectory.** On the one hand, while accessibility to unrouted forms of public transport is high, to meet the demand for public transport using such low-capacity vehicles would entail large negative externalities in terms of air quality and road safety.
- The overview of key policy documents and available information about urban transport governance and planning suggests that **inclusive, resilient and sustainable transport infrastructure has made their way into current political and policy discourses and plans in Freetown.** However more data is needed to ensure that future transit modes are accessible to all.

This city profile presents the reader with an overview of the recent trends in the development of land-use and transport in Freetown from the perspective of transitions to sustainable urban mobility. **This report sets the foundations for deeper reflections contesting Freetown's current urban trajectory and the choices the city faces about whether to remain locked into a car-centred pattern of development or to adopt actions that set it in a more sustainable pathway.** The city profile unpacks some of the complexities associated with the structural drivers, transport practices, and governance arrangements that underpin Freetown's urban mobility and its links with land-use and planning. This document also serves as a reference for relevant information for researchers and practitioners concerned with urban mobility and urban development in Freetown, providing the reader with a compendium of evidence and data sources not previously integrated into a single study.

Some of the primary reflections drawn from the information presented in the city profile can be categorised by using the main areas under which the report is structured: structural drivers, Freetown's urban trajectory, transport practices, and planning and governance. In relation to **the first, poverty, vulnerability, and a large informal economy have**

influenced the distribution of economic opportunities and the spatial and functional structure of the city. Large social and economic inequalities at the national and local level, compounded by Freetown's urban primacy in Sierra Leone, have led to a well-documented influx of rural populations to the city and the rapid demographic (annual population growth rate of 5.1%) and spatial growth of the city over the years. Such growth has imposed challenges for the provision of essential public services and basic connectivity, which are worsened by a steep topography in the hilly areas and high risks of flooding in the lower parts of the city. As a consequence, **a large share of Freetonians faces structural deficits in their ability to access water, sanitation and healthcare, as well as a limited capacity to reach and engage in opportunities for economic and social development.** Facing the need to secure and maintain livelihoods, many citizens engage in informal economic activities, with the transport sector being the second-highest employment generator and 85% of jobs in the sector being informal. Furthermore, the city's urban poor are also highly susceptible to shocks such as flooding and diseases and bear the highest-burden during health emergencies such as the Ebola epidemic and the more recent COVID-19 crisis.

Such demographic, social and economic dynamics play a key role in the definition of Freetown's urban and transport development trajectory. **The rapid expansion of the city is marked by an inefficient distribution of land and the concentration of specific economic, social and cultural opportunities in the CBD, along with the main centres of power and decision-making.** Many of the activities in the CBD employ the qualified and higher-income labour force of the city, which has a direct effect on the attractiveness of this part of the city, its land prices, and the concentration of other activities such as trade and formal and informal services that target populations with higher purchasing power working in the area. While not all opportunities are spatially concentrated, the consolidation of Freetown's CBD has led the city to develop patterns of transport connectivity in the form of road infrastructure and transport services that are largely unidirectional, connecting the peripheries with the city centre, and requiring the increasing capacity to accommodate the rising demand for travel to and from the CBD. By contrast, much informal and less-qualified employment such as quarrying, small-scale fishing, local markets and itinerant vending are commonly found in the peripheries, in areas less served by the city's main road corridors and public transport services, and with lower access to other opportunities for commercial and social interactions. This marks a self-reinforcing cycle of segregation and exclusion of some parts of the city, coupled with the growing demand for infrastructure and services that connect the qualified labour force with the opportunities in the CBD. This influences the distribution of the road space in Freetown, which reflects various degrees of inequalities across road users and heightened transport injustice driven by exposure and vulnerability for those already at a disadvantage such as users of non-motorised modes of transport such as walking and cycling.

The practices for urban transport in Freetown illustrate the consequences of the city's current urban and transport development trajectory. On the one hand, **while accessibility to unrouted forms of public transport is high by many standards**

-with over 75% of the population having access to a place where Okadas and Kekeh operate-, to meet the demand for public transport using such low-capacity vehicles would entail large negative externalities in terms of air quality and road safety. Available corridors of routed public transport do not show the same degree of coverage than unrouted paratransit services, which increases prices and walking times for users far from the main roads, where such services operate. The public transport landscape in Freetown suggests that with the current configuration of public transport supply, the city is incurring inefficiencies, social costs and risks that could be mitigated through progressive integration and improved planning that can lead to better coverage, affordability and complementarity between different forms of public transport. Findings suggest that the benefits of unrouted paratransit are larger in areas with the lower provision of road infrastructure and where access is more limited, particularly at times of lower demand. **However, given the highly unidirectional patterns of travel to the CBD and other hotspots of travel attraction, the T-SUM data shows affordability of public transport is limited at best in large part of the city, and it is highly dependent on the situation and the user's ability to negotiate the price.** While paratransit is recognised and has representation in planning, their highly unregulated practices and informal arrangements make them more expensive and unreliable for some users. By the same token, they can become the best alternative for other users that would otherwise become captive walkers. Maximising the benefits of such modes while reducing their negative externalities is one of the main challenges in Freetown's future urban and transport development.


From planning decisions to daily behaviour in the road space, transport practices in relation to private vehicles in Freetown reflect the persistent priority status of private vehicles and their users. On the one hand, the analysis presented in this city profile in relation to the distribution of road space suggests that while a large share of public investments in transport has gone to the expansion of road infrastructure mainly dedicated to motorised vehicles, although the largest share of demand -as reflected by traffic counts in the main junctions- is of pedestrians. Moreover, analyses of the distribution of road space in selected areas in the city centre suggest that not only there is provision for more space for the circulation of motorised vehicles, much of the available section of roads is also used for parking, often taking space away from the pedestrians and the handful of cyclists observed in Freetown, who are also the most vulnerable users. Available evidence shows that these practices have harmful consequences such as road accidents and associated fatalities becoming a regular occurrence in the city. While these can be prevented by more robust regulation and fairer distribution of the road space, there is little evidence of strong regulations and enforcement targeting particularly private vehicle users. Reduced space for road circulation is compounded by structural drivers such as the informal economy, which reduces the operational section of the roads in part due to informal street traders. **The increasing passenger demand for private cars, okadas and kekehs, along with the many practices that lead to misdistribution of available road space has unavoidable consequences in relation to rising congestion and pollution.**

The overview of key policy documents and available information about urban transport governance and planning suggests that inclusive, resilient and sustainable transport infrastructure has made their way into current political and policy discourses and plans in Freetown. Furthermore, there is a significant effort for strengthening the policy and governance environment in transport as a result of national and local initiatives supported by international development funding. These initiatives can be leveraged to catalyse changes in transport practices that can steer the current development trajectory towards a more inclusive system for urban mobility. One example of such catalysing governance and planning initiatives is the Mayor's Transform Freetown agenda, which seeks to promote a more environmentally friendly city, with reduced congestion and fairer distribution of the costs and benefits of transport. While much remains to be done to achieve a sustainable urban mobility transition, the existence of a diverse set of stakeholders with explicit interest on urban transport development and the achievement of high-level objectives such as the SDGs and the sustainable development agendas presents a unique opportunity for addressing many of the challenges and opportunities identified in this city profile and the overall T-SUM project.



A key challenge in advancing transport planning and infrastructure is the lack of accurate data. As outlined in section 7, there are considerable data gaps that need to be addressed urgently in all dimensions considered in this city profile. There is still a lack of information on the structural drivers of the city, transport demand and behaviour, and how this interacts with land use. Moreover, there are wide gaps in data related to road accidents and air pollution data. Without addressing such data gaps, it will be difficult to successfully implement and plan an inclusive and sustainable transport system in Freetown. While systematic efforts for data collection are a priority, so it is the development of partnerships for data sharing and systems for information management and distribution. A digital platform for storing and sharing information about transport in Freetown will contribute to transparency in planning and the promotion of research focusing on urban transport development in the city. Finally, it is essential to acknowledge the rapid pace of change in urban dynamics and the growth in demand and supply of motorised transport that requires continuous updating of available information. By setting up mechanisms for data management and well-documented instruments and methods for periodic data collection, it will be possible to strengthen planning and decision-making around urban transport and respond to the challenges associated with steering Freetown's urban transport trajectory towards a more sustainable and inclusive pathway.

08


References



AfDB (African Development Bank). (2020). 'Sierra Leone: country diagnostic note 2020', African Development Bank Group, <https://www.afdb.org/en/documents/sierra-leone-country-diagnostic-note-2020>



Allen, A; Koroma, B., Osuteye, E., & Rigon, A. (2017). Urban risk in Freetown's informal settlements: making the invisible visible. Urban Africa Risk Knowledge, Briefing No. 6, April 2017, International Institute for Environment and Development



Antos, S. E., Lall, S. V., & Lozano-Gracia, N. (2016). The morphology of African cities. World Bank Policy Research Working Paper, (7911).

Banister D., Hickman R. (2013). Transport futures: Thinking the unthinkable, Transport Policy, Volume 29, 2013, p. 283-293. <https://doi.org/10.1016/j.tranpol.2012.07.005>.

Bryceson, D. F., Mbara, T. C., & Maunder, D. (2003). Livelihoods, daily mobility and poverty in sub-saharan Africa. Transport Reviews, 23(2), 177–196. <https://doi.org/10.1080/01441640309891>

C40. (2020). 'C40 Cities Greenhouse Gas Emissions Interactive Dashboard', C40 Cities, https://www.c40knowledgehub.org/s/article/C40-cities-greenhouse-gas-emissions-interactive-dashboard?language=en_US

Cervero, R., and Dai, D. (2014). BRT TOD: Leveraging Transit Oriented Development with Bus Rapid Transit Investments. Transport Policy 36: 127-38. Web.

Cervero, Robert. (2013). Linking Urban Transport and Land Use in Developing Countries. Journal of Transport and Land Use 6.1: 7-24. Web.

Freetown City Council. (2015). Freetown City Development Plan 2016-2018. Freetown

Jones, P. M. (2016, July). The evolution of urban transport policy from car-based to people-based cities: is this development path universally applicable?. 14th World Conference on Transport Research.

Gbanie, S. P. (2014). 'The diamond of Western Area is land': Narratives of land use and land cover change in post-war Sierra Leone. African Studies Association of Australasia and the Pacific - AFSAAP 36th Annual Conference – Perth – Australia – 26-28 November 2013.

Geurs, Karst T, and Van Wee, Bert. (2004). Accessibility Evaluation of Land-use and Transport Strategies: Review and Research Directions." Journal of Transport Geography 12.2: 127-40. Web.

Government of Sierra Leone. (2013). Sierra Leone Integrated Transport Policy, Strategy and Investment Plan.

Government of Sierra Leone. (2015). National Report for the Habitat III, Ministry of Lands, Country Planning and the Environment in collaboration with the United Nations Conference on Housing and Sustainable Urban Development, December 2015, Sierra Leone.

Government of Sierra Leone. (2018). Sierra Leone National Population Policy 2018.

ITP. (2018). Freetown Sustainable Urban Transport Project: Draft Report. The World Bank Publication.

Kamara, S M. (2014). The Urban Planning Project 2011-2014. EU Support Project to Freetown City Council and Urban Planning Authorities Project No. FED/2010/250-190.

Kargbo, B I B., (2018). Exchange rate, petroleum price and price determination in Sierra Leone AERC Research Paper 353 African Economic Research Consortium, Nairobi, September, 2018. ISBN 978-9966-61-046-1. <https://aercafrica.org/wp-content/uploads/2019/05/Case-602-now-RP-353.pdf>

Koroma, B., Rigon, A., Walker, J., & Sellu, S A. (2019). Urban Livelihoods in Freetown's Informal Settlement. SLURC. URL: https://www.slurc.org/uploads/1/0/9/7/109761391/urban_livelihoods_in_informal_settlements_-_report_web_quality.pdf

Levy, C., & Dávila, J. D. (2017). Planning for mobility and socio-environmental justice: The case of Medellín, Colombia. In *Environmental Justice and Urban Resilience in the Global South* (pp. 37–56). Palgrave Macmillan. https://doi.org/10.1057/978-1-137-47354-7_3

Macarthy J., Yusuf, Y. (2020). Supporting Informal Settlements and the specific needs and risks to consider in relation to COVID-19: Lessons from the Ebola Outbreak in Freetown. SLURC. https://www.slurc.org/uploads/1/0/9/7/109761391/slurc_policy_brief_covid19_informal_settlements.pdf

Mansaray, L R; Huang, J; Kamara, A A. (2016). Mapping Deforestation and Urban Expansion in Freetown, Sierra Leone, from pre-to-post-war economic recovery. Environmental Monitoring Assessment 2016.

Ministry of Finance, Bank of Sierra Leone and National Revenue Authority. (2020). Government of Sierra Leone COVID-19 Quick Action Economic Response Program. http://www.statistics.sl/images/2020/Documents/GoSL_COVID_19_Quick-Action-Economic-Response-Programme.pdf

MLCPE [Ministry of Lands, Country Planning and the Environment]/FCC [Freetown City Council] (2014a). Sierra Leone Preparatory Components and Studies for the Freetown

MLCPE [Ministry of Lands, Country Planning and the Environment]/FCC [Freetown City Council] (2014b). Freetown City Council. Environmental Assessment and Evaluation of Natural

Disaster Risk and Mitigation in Freetown. Urban Planning Project 2011-2014. European Union.

MTNDP. (2019). Sierra Leone's Medium-Term National Development Plan 2019-2023:

O'Kane, D and Menard, A. (2015). The Frontier in Sierra Leone: Past Experience, Present Status and Future Trajectories. Max Planck Institute for Social Anthropology Working Paper Series No. 162. Halle/Saale 2015. ISSN 1615-4568

Ortúzar, Juan De. (2019). Sustainable Urban Mobility: What Can Be Done to Achieve It? Journal of the Indian Institute of Science 99.4: 683-93. Web.

Parnell, S. (2016). Defining a global urban development agenda. World Development, 78, 529-540.

Robert C. Kloosterman, and Bart Lambregts. (2001). "Clustering of Economic Activities in Polycentric Urban Regions: The Case of the Randstad." Urban Studies (Edinburgh, Scotland) 38.4: 717-32. Web.

Singh TN, Singh R, Singh B, Sharma LK, Singh R, Ansari MK. (2016). Investigations and stability analyses of Malin village landslide of Pune district, Maharashtra, India. Nat Hazards 81(3):2019–2030

Statistics Sierra Leone (SSL) and ICF International. (2014). Sierra Leone Demographic and Health Survey 2013, Freetown, Sierra Leone and Rockville, Maryland, USA: SSL and ICF International.

Statistics Sierra Leone. (2015). Population and Housing Census: Summary of Final Results. Planning a Better Future; Statistics Sierra Leone: Freetown, Sierra Leone.

Statistics Sierra Leone. (2016). Sierra Leone 2015 Population and Housing Census. Final Report, Freetown, Sierra Leone: Statistics Sierra Leone <https://www.statistics.sl/wp-content/uploads/2016/06/2015-Census-Provisional-Result.pdf>

Statistics Sierra Leone. (2017). Sierra Leone 2015 Housing and Population Census: National Analytical Report.' Sierra Leone.

Statistics Sierra Leone. (2018). Sierra Leone Multiple Indicator Cluster Survey 2017, Survey Findings Report. Freetown, Sierra Leone: Statistics Sierra Leone. https://www.statistics.sl/images/StatisticsSL/Documents/sierra_leone_mics6_2017_report.pdf

Statistics Sierra Leone. (2019). Oxford Poverty and Human Development Initiative, United Nations Development Programme, Sierra Leone Multidimensional Poverty Index

Statistics Sierra Leone. (2019). Sierra Leone Integrated Household Survey (SLIHS) Report 2018.

Statistics Sierra Leone. (2017). Sierra Leone 2015 Housing and Population Census: National Analytical Report.' Sierra Leone.

Teoh, R., Anciaes, P., & Jones, P. (2020). Urban mobility transitions through GDP growth: Policy choices facing cities in developing countries. *Journal of Transport Geography*, 88, 102832. <https://doi.org/10.1016/j.jtrangeo.2020.102832>

Tripodi, Antonino, Centro di ricerca per il Trasporto e la Logistica - FRED Engineering Srl, (2018). Pilot study to collect more robust accident data for Sierra Leone, Inception report, SLE2129A. London: ReCAP for DFID.

UNDP. (2014). Socioeconomic impact of the Ebola Virus Disease in Guinea, Liberia and Sierra Leone, UNDP

UNDP. (2020). Assessment of the Socio-Economic Impact of COVID-19 in Sierra Leone. UNDP

UN Habitat. (2011). Cities and climate change — Global report on human settlements 2011
UN Habitat and Earthscan, London & Washington

United Nations. (2011). World Urbanization Prospects: The 2011 Revision (pp.1-291). United Nations Department of Economic and Social Affairs/Population Division. https://www.un.org/en/development/desa/population/publications/pdf/urbanization/WUP2011_Report.pdf

Uteng, T.P., & Lucas, K. (Eds.). (2017). *Urban Mobilities in the Global South* (1st ed.). Routledge. <https://doi.org/10.4324/9781315265094>

Van Wee, B., & Geurs, K. (2011). Discussing equity and social exclusion in accessibility evaluations. *European journal of transport and infrastructure research*, 11(4).

Venter, C., Jennings, G., Hidalgo, D., & Valderrama Pineda, A. F. (2018). The equity impacts of bus rapid transit: A review of the evidence and implications for sustainable transport. In *International Journal of Sustainable Transportation* (Vol. 12, Issue 2, pp. 140–152). Taylor and Francis Ltd. <https://doi.org/10.1080/15568318.2017.1340528>

- Venter, Christo; Mahendra, Anjali; Hidalgo, D. (2019). From Mobility to Access for All: Expanding Urban Transportation Choices in the Global South. www.citiesforall.org.
- Walks, A. (Ed.). (2015). The urban political economy and ecology of automobility: Driving cities, driving inequality, driving politics. Routledge
- Weiss, D. J., Nelson, A., Gibson, H. S., Temperley, W., Peedell, S., Lieber, A., Hancher, M., Poyart, E., Belchior, S., Fullman, N., Mappin, B., Dalrymple, U., Rozier, J., Lucas, T. C. D., Howes, R. E., Tusting, L. S., Kang, S. Y., Cameron, E., Bisanzio, D., ... Gething, P. W. (2018). A global map of travel time to cities to assess inequalities in accessibility in 2015. *Nature*, 553(7688), 333–336. <https://doi.org/10.1038/nature25181>
- WHO. (2015). Global Status Report on Road Safety 2015. Geneva: World Health Organisation: 2015
- Woolf, S.E, and Joubert, J.W. (2013). A People-centred View on Paratransit in South Africa.” *Cities* 35: 284-93. Web.
- World Bank Group. (2009). World development report 2009: reshaping economic geography, Report No. 43738, Washington, DC.
- World Bank Group and Statistics Sierra Leone. (2013). A Poverty Profile for Sierra Leone. [file:///C:/Users/grace.campbell/Downloads/SLE%202011%20Poverty%20Profile%20\(2013-7-29\).pdf](file:///C:/Users/grace.campbell/Downloads/SLE%202011%20Poverty%20Profile%20(2013-7-29).pdf)
- World Bank Group. (2018). Reforming to Create Jobs Economy Profile Sierra Leone March. Washington, DC: World Bank
- World Bank Group. (2018). Republic of Sierra Leone Priorities for Sustainable Growth and Poverty Reduction, Systematic Country Diagnostic (SCD) February. Washington, DC: World Bank
- World Bank, 2017. Sierra Leone Rapid Damage and Loss Assessment of 14 August, 2017 – Landslides and Floods in the Western Area; The World Bank: Washington, DC, USA, 2017.
- World Bank Group. (2018). Final Report (Volume 2 of 5): Freetown City Hazard and Risk Assessment. 201809011-REP-04A-252746_Vol2_Issue.
- World Bank Group. (2018). Reviving Urban Development: The Importance of Freetown for the National Economy.
- World Food Program (WFP). (2018). Sierra Leone Food Security Monitoring System Report. Report No.1