# Kampala's urban accessibility challenge

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- Accessibility, traffic speed, and congestion are policy concerns in every large city worldwide. In African cities like Kampala, motor vehicle use is rising rapidly, but infrastructure has often not kept pace.
- This study compares vehicular mobility and accessibility in Kampala with that in other African cities. It identifies specific attributes of Kampala that explain its relative performance.
- Using data from 2019, this study reveals that even though Kampala's residents tend to live within relatively short distances from a variety of venues, accessibility in Kampala is compromised by travel speeds that are much lower than the African average.
- While Kampala is highly congested, speeds are very slow, even in the absence of traffic. This means that, in relative terms, congestion plays little role in explaining why Kampala is slower than other African cities, so policies targeted exclusively at congestion may not have the highest impact.
- Key policy recommendations include upgrading the city's road infrastructure to higher throughput roads, paying attention to the engineering challenges of the difficult geography, and upgrading traffic management to best practice in densely populated cities where many other road users compete for space with vehicles.


POLICY BRIEF UGA-23045

MARCH 2024

This project was funded by IGC Uganda

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# Introduction

Our report compares vehicular mobility and accessibility in Kampala with that in other African cities. We aim to identify the broad factors impeding the ability of Kampala residents to access destinations when travelling by motor vehicle. We also hope that our comparison with peer African cities highlights opportunities for urban policy.

Throughout the report, we define accessibility as the ability of city residents to physically reach the places they wish to visit. So, an area with high accessibility is located within a short travel time of many types of venues, including hospitals, banks, and retail. Accessibility, therefore, depends on how far people live from destinations (proximity) and on how fast they can travel to those destinations (mobility).

We first compare pure mobility outcomes, travel speed, and congestion in Kampala with that in other African cities. We identify the characteristics of Kampala, like its road infrastructure, that can explain why travel is relatively slow in this city. We then perform a similar comparative analysis for proximity to venues, which we measure as travel distance from a set of representative locations in Kampala to a wide variety of destinations. This comparative analysis underlines Kampala's performance relative to peer African cities. It also distinguishes the extent to which poor access is caused by slow travel speeds and congestion or by long travel distances to venues. Finally, our analysis uncovers some key factors driving accessibility performance more broadly across African cities.

To measure accessibility, we need information on travel time to venues. This measurement requires data on both travel speeds and venues' locations. We take information on travel speed and congestion from trips simulated on Google Maps in 2019. To measure proximity to destinations, we collect data on the location and characteristics of venues available on Google Places in 2022. Given the novelty of such global venue-level data, we conduct several validation exercises to compare Google Places' data with alternative venue-level censuses in Kampala, Dhaka (Bangladesh), and many cities in Mexico.

The research specifically addresses the following questions:

- How do travel speed, congestion, and accessibility in Kampala compare with that in other African cities?
- What are the key determinants of mobility and accessibility in African cities like Kampala?
- How does Kampala's road infrastructure and physical geography impact vehicular movement and access to services?

- How do the Greater Kampala Metropolitan Area (GKMA) master plan and the Third National Development Plan (NDPIII) align with Kampala's urban mobility needs?

This research is important for two main reasons. First, information on mobility and accessibility that is comparable across countries is not widely available. The detailed data on travel speed, as well as venue location and category that we use in our report, is not typically collected in government surveys or easily available from other sources. Therefore, the paucity of useful data limits the ability of urban policymakers to measure mobility and accessibility needs in their cities, especially in low- and middle-income countries. Second, these data and methods could give policymakers a first look at how their city performs relative to peer cities, as well as the broad reasons for its performance level. As such, the report contributes to ongoing discussions on urban development in Kampala by offering a benchmark based on peer African cities and evidence-based recommendations to policymakers for enhancing mobility and accessibility for all residents.

### Policy motivation for research

The motivation for this research stems from two primary concerns. First, ease of access to destinations is fundamental to the functioning of a capital city like Kampala, directly affecting its economic development, as well as residents' ability to commute to jobs and quality of life. Accessibility by motor vehicle is particularly important in Uganda, a landlocked country in which road transport accounts for over 90% of both freight and passenger traffic. Second, the rapid increase in Kampala's motorised vehicle fleet, coupled with inadequate road infrastructure, insufficient traffic management, and underfunded maintenance, have exacerbated slow traffic, congestion, and accessibility issues. These challenges not only hinder the city's growth prospects but also raise significant concerns regarding equitable access to urban services and amenities.

## Key findings

**TABLE 1: Summary of key findings**

| Key research questions | Key findings |
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| How do travel speed, congestion, and accessibility in Kampala compare with that in other African cities? | Kampala is considerably slower than the average African city, but its residents also enjoy much closer proximity to venues. However, slow speeds in Kampala almost entirely offset the positive impact of closer proximity to venues, making overall |

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| | accessibility in Kampala only slightly better than in the average African city, and substantially worse than in peer cities like Nairobi, Kenya. |
| What are the key determinants of mobility and accessibility in African cities like Kampala? | The key determinant of mobility and accessibility in Kampala is high population density, which means closer proximity to venues, but also lower travel speeds and higher congestion. High population density impedes road traffic in Kampala as many different users compete with vehicles for road space on its limited network of major roads. |
| How does Kampala's road infrastructure and physical geography impact vehicular movement and access to services? | Kampala's outdated road infrastructure and difficult geography, including irregular city shape and many water bodies, contribute to slower travel speeds. Most of the difference in travel speed between Kampala and peer African cities is due to low uncongested speeds in Kampala, i.e., low speed in the absence of traffic rather than higher congestion. This indicates a need for better and faster roads in Kampala, as the development of the main road network has not kept pace with the growth of the city's population. |
| How do the GKMA master plan and NDPIII align with Kampala's urban mobility needs? | The findings suggest that the focus of the GKMA master plan and NDPIII on building new and better road infrastructure is warranted. While focusing exclusively on congestion would have limited impact, innovative traffic management solutions and engineering could be a useful complement given Kampala's high population density and difficult geography. |

# Policy impact

This study aims to inform policy decisions by providing a comprehensive analysis of Kampala's urban accessibility and mobility challenges, highlighting how factors like high population density, an outdated road network, and difficult geography contribute to the city's transportation woes. By aligning our findings with ongoing efforts, such as the GKMA master plan and the objectives outlined in the NDPIII, we anticipate that the research will eventually contribute to actionable strategies to enhance Kampala's urban mobility framework. Ultimately, the research seeks to inform policymakers and stakeholders about the trade-offs and considerations critical to planning for Kampala's urban expansion and improving urban mobility and accessibility for all residents.

## Policy recommendations

**Upgrade and maintain network of major roads:** Kampala's struggle with slow travel speeds is primarily due to high population density, resulting from rapid population growth, and a major road network that has not kept pace with that growth. There is a pressing need to upgrade and properly maintain existing roads, as Kampala has fewer kilometres of major road types than similarly sized cities in Africa. This expansion should consider Kampala's specific geographical challenges, incorporating solutions like elevated roads or bypasses where applicable. Such policies would mostly contribute to improving travel speed in the absence of traffic, but they would also alleviate congestion.

**Introduce Intelligent Traffic Management Systems:** A large and dense population slows down travel speed, as many other users compete for road space with vehicles. This speed reduction is important enough to offset much of the accessibility gains from a higher density of establishments. Therefore, large and dense cities like Kampala require more sophisticated traffic management systems. Such systems might include synchronised traffic lights and real-time traffic monitoring, as well as the introduction and enforcement of social norms on how different users should share the road.

**Benchmark performance with peer cities:** Our study enables comparisons between Kampala and other large African cities in terms of traffic speed, congestion, and accessibility. There are many peer African cities with even larger populations that have better accessibility outcomes than Kampala (for instance, Nairobi), and these can be studied to gain policy insights.