

Maseru Transport Problems

Case Study Leaders in Urban Transport Planning (LUTP) Program

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This case study was written by Ajay Kumar with contributions from Joanna Moody and Kate Henvey DeMoss. The case study was peer reviewed by Fatima Arroyo Arroyo (Senior Urban Transport Specialist, World Bank). The development of this case study was supported by the Public-Private Infrastructure Advisory Facility (PPIAF) and the Urban Transport Window of the Mobility and Logistics (MOLO) Multi-Donor Trust Fund (under P164859).

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In January 2018, policymakers in Maseru, Lesotho were examining results of a Maseru Urban Planning and Transport Study conducted in 2011 to determine what could be done to address increasing traffic congestion. This study was commissioned jointly by the Ministry of Planning, Works and Transport (MoPWT) and the Maseru City Council (MCC), with the support of development partners, to provide an integrated, balanced, sustainable, and effective urban planning and transportation framework to guide the city's development for 20 years (2011-2030). Between 2005 and 2015, the share of transport provided by buses (both publicly and privately operated) had declined from 74 percent to around 50 percent, while the share of transport by saloon cabs (shared taxis) increased from 6 percent to over 25 percent. As a result, congestion had worsened, especially during morning and afternoon peak periods, road accidents had increased, and air pollution had become a major concern. To address these issues, the Maseru Urban Planning and Transport Study recommended 69 investment projects over a 20-year time horizon. Given constrained resources (financial and human), city officials need to identify the best way to prioritize these projects to most efficiently address growing demand for motorized travel and related externalities.

As you read through the following background material, put yourself in the shoes of officials in the MCC and consider the following questions:

- Why is congestion increasing so rapidly in Maseru?
- Who in the government "owns" this investment program and is responsible for its implementation?
- To what extent would the investment plan be able to address the urban mobility constraints in the city? Are there other measures that should have been considered?
- Which of the 69 investment projects that the Study is recommending do you think are most likely to help address congestion in the city? Which do you think could be implemented given financial, human, and other constraints?

Country and City Context

Lesotho is a small, mountainous, and land-locked country, surrounded by its much larger neighbor, South Africa. It is a lower-middle-income country with a Gross Domestic Product (GDP) per capita of around USD 1,100 and a population of approximately two million. Pre-COVID economic growth averaged approximately 3 percent, driven primarily by textile manufacturing and agriculture, which experiences a strong recovery following severe droughts in 2015 and 2016.

Previously a British protectorate, Lesotho gained its independence in October 1966. It is an institutional monarchy ruled by a King as head of state and governed by an elected 33-member Senate and a 120-member National Assembly. Lesotho has struggled to maintain continuity in governance, making it difficult to implement policy reform. In June 2017 the country held elections for the third time in five years which resulted in the formation of a four-party coalition government.

Maseru is the capital, as well as the largest city in Lesotho. In 2018, the metropolitan area had a population over 350,000 and was growing at over 5 percent per annum. High mortality rates and out-migration were more than offset by mass in-migration of work-seekers from the rural hinterland. A large proportion of the urban population suffers abject poverty, having exchanged rural subsistence farming for sporadic, low-paying, informal employment in the city. Still others move to the city but are unable to find work; Maseru's unemployment is estimated between 24 and 28 percent, one of the highest in the world.

Maseru's Spatial Structure and Land Use

Maseru's urban form is highly dispersed (Image 1). The built-up area of the city has been sprawling outward and the density of development has declined. In 2006, Maseru's urban population density was around 2,220 people per square kilometer, which declined to only 1,650 people per square kilometer in 2015. Maseru's urban density is extremely low, even compared to peer African cities.

Sprawling development is a result of low land values and land allocation and development approval processes that are administered by traditional tribal leaders. Nominal land values at the periphery are low in the absence of commercial development pressure and effective regulation and enforcement. The type of residential development varies significantly by areas. Among fringe, peri-urban areas settled by poor migrants, building plots for private homes are usually sized to enable backyard gardening (400-900 m²). Closer-in wealthy neighborhoods have larger homes and plots, while moderate density neighborhoods are developed with a high proportion of small attached houses for rent rather than ownership. Given the absence of any significant multi-story housing or mixed-use developments, there are no high-density, walkable residential areas.

Maseru's sprawling land development has entrenched and exacerbated poverty. The very poor, frequently arriving from rural areas, tend to locate in informal settlements in the city's outer districts. These settlements often lack basic infrastructure and services and are far from employment, education, health care, and other opportunities. Access to these opportunities is

constrained not only by travel distance and time, but also by availability and affordability of transport options.

Image 1. View of sprawling residential developments around Lesotho city center



Source: John Hogg, 2009, World Bank Photo Collection.

Urban Planning and Transport Institutions

Institutional arrangements for transport in Maseru are fragmented and characterized by overlap and duplication. In particular, the authority and responsibility for land use planning and urban development between the Lesotho Department of Land Survey and Physical Planning (LSPP) at the national-level and the Maseru City Council (MCC) at the city-level are blurred. This has even resulted in contradictions in planning legislation at the national- and city-levels. Table 1 summarizes the main institutions in Maseru with responsibilities over urban planning and transport.

Lack of clear mandates, overlapping responsibilities and multiplicity of institutions responsible for planning, regulating, managing, financing, and constructing urban transport systems have made it difficult to address the growing problems of traffic congestion, road safety, and air pollution. The institutional fragmentation limits the possibility of efficiently developing and implementing multimodal transportation plans since there is no single authority and approving level for:

planning, funding, and regulating all transport modes; designing, financing, and constructing multimodal infrastructure improvements; service restructuring; or traffic management.

Table 1. Institutions in Maseru with responsibilities over urban planning and transport

Institution	Level	Responsibilities
Ministry of Public Works and Transport (MoPWT)	National	<ul style="list-style-type: none"> • Legal and regulatory issues pertaining to transport in general • Within the ministry, the Department of Planning is responsible for overall strategic transport planning
Ministry of Local Government and Chieftainship	National	<ul style="list-style-type: none"> • Land allocation, in coordination with traditional chiefs. • The Department of Lands, Surveys and Physical Planning (LSPP) is a key department within the Ministry responsible for planning and parcelization of land (along with the Lesotho Land Administration Authority) • The Deeds Registry is responsible for registration of land in Lesotho
Department of Traffic and Transportation (DTT)	National	<p>In charge of urban transport policy and regulations, including:</p> <ul style="list-style-type: none"> • Developing transport legislation • Developing transport plans, policies and codes • Regulation of fees and licensing • Developing and promulgating road safety policies • Safety coordination
Roads Fund (Ministry of Finance)	National	<ul style="list-style-type: none"> • Financing and audit for major roads construction and maintenance • Separate body administering dedicated financial resources collected from fuel levy, licensing fees, border toll-gate fees, and other sources
Maseru City Council (MCC)	Local	<ul style="list-style-type: none"> • Local roads, including construction and maintenance • Maseru does not have a dedicated transport department within its city government
Traffic police	Local	<ul style="list-style-type: none"> • Enforcement and traffic management

All these institutions are under-staffed and lack appropriate skills in specific fields—e.g., urban design, landscape planning, spatial analysis and Geographic Information Systems (GIS), social and economic planning, traffic operations management, etc.—when considering the scale of needed land and transport planning, registration, and development in the city.

In addition, the MCC remains almost entirely dependent upon budgetary inflows from the national government to fund and finance the urban transport system. Maseru’s primary tax base comes from a valuations-based property tax applied only to “gazetted” areas. Land values in the city are low and much of the land is not legally owned and therefore not covered by the system. Less than one third of properties in the city are covered by the system, valuations are often outdated, and estimates suggest only 15 percent of taxes are actually collected (since the legal base for enforcement of collection is reportedly questionable). Attempts by the MCC to update rolls with new plots or new valuations have been less than successful. Other service fees in the city also have very low collection rates. There is an urgent need to establish an appropriate, workable, and collectable revenue and tax system for both current and capital accounts for Maseru.

Urban Transport in Maseru

Walking

Walking is the primary mode of transport in Maseru, covering almost half (50 percent) of all daily trips in the city. The share of trips made by walking is even higher for the poorest in the city. Walking serves both door-to-door trips as well as trips to and from public transport.

Walking conditions are far from adequate despite the large number of pedestrians. Many areas of the city, particularly outside of the city center, do not have sidewalks. Where they exist, they are often non-contiguous, inadequate in scale, poorly maintained, overgrown and obstructed. Where dedicated pedestrian facilities don't exist, pedestrians are forced to occupy the road reserve or shoulder, placing them at risk and hindering traffic flow. Intersections are poorly designed for pedestrians and crossings are unprotected.

Public Transport

The public transport system of Maseru serves around 40 percent of daily trips in the city, carries an estimated 48 million passengers annually, and accounts for over 80 percent of *motorized* trips in the city. There are three classes of vehicles providing public transport service in Maseru: (1) government owned and operated buses, (2) privately owned and operated minibuses, and (3) private saloon cabs of up to four passengers plus a driver (referred to as "4+1").

During the 1960s and 1970s, public transport in Maseru was primarily provided by government-owned and operated "matchbox" buses (wooden passenger frames placed on the chassis of lorries). In 1987, the Lesotho Freight Services Corporation (LFBSC) was established, taking over bus operations from previous corporations. One of the main mandates of the new organization was to provide public transport in underserved areas of the country. However, declining subsidies and growing operational deficits gradually reduced services. Today, LFBSC services are mainly limited to longer, busier routes.

In the 1990s, developments in South Africa's motor vehicle manufacturing prompted introduction of small minibuses passenger vehicles—a hybrid of vans and larger minibuses that carry between 10 and 18 passengers—into the Lesotho market. These minibuses, owned and operated by private entities, were more comfortable than the larger buses and faster because they stopped less frequently; accordingly, passengers preferred these minibuses to the government-operated large buses. Competition from minibuses undermined revenues for the government-operated buses.

In 2006 and 2007, used saloon cars with a capacity of four passengers and a driver ("4+1") were imported into Lesotho from Japan. Due to their age (often 10-15 years old at time of import), these vehicles could be purchased at a cost of LSL 30,000 (~USD 2,000) to LSL 60,000 (~USD 4,000) and then driven as shared ride taxis. 4+1 saloon cabs quickly flooded the market, increasing in numbers at over 10 percent annually. In and around crowded, congested towns, the shared taxis

are dominant due to their size and maneuverability. Offering cheaper, more reliable, and more comfortable service than minibuses, 4+1 saloon cabs are preferred by 58 percent of public transport users in the city (according to a survey conducted in 2021-2022). While these services present advantages for users, they have distinct disadvantages from the perspective of the public interest. 4+1 saloon cabs account for almost 50 percent of all motorized traffic on some corridors and their proliferation has produced severe congestion, particularly during peak periods (Image 2).

Image 2. One of Maseru's few signalized intersections on a major downtown thoroughfare; note the chaotic mix of pedestrians, minibuses, 4+1 saloon cars, and private vehicles



Source: John Hogg, 2009, World Bank Photo Collection.

The market shift from large, publicly operated buses to privately operated minibuses and 4+1 saloon cabs did not result from a conscious decision to deregulate public transport. Rather, it was a market response to growing demand underserved by the limited supply of public buses and new commercial opportunities. Though these “informal” public transport services were originally operated as small enterprises in a regulatory vacuum. The underregulation of the market encouraged new entrants to the market, who were able to finance the minimal capital investment needed for small, second-hand vehicles from savings or small loans. High unemployment and the low requirements for business and technical knowledge needed to own or operate a vehicle further spurred growth in “informal” public transport services. To better control entrance to the

market, Lesotho's national government has since imposed and updated a route-based licensing system for both minibus and 4+1 saloon cab services.

Regulatory oversight and licensing. Regulatory oversight of minibuses and saloon cabs falls under the purview of the national government of Lesotho. The Road Transport Board issues public transport vehicle licenses for an annual fee of LSL 1,000 for minibuses and LSL 600 for saloon cabs. It is likely that many vehicles operated without licenses.

Operators can additionally obtain a route-specific license for LSL 180 for minibuses and LSL 110 for saloon cabs per year, to be renewed on an annual basis. Route-specific licenses include a clause that allows a minibus or saloon car association (or a group of associations' members) to pick-up passengers within a certain arbitrary radius (usually around 10 kilometers) from the taxi rank or city center specified in the license. In most cases, the same clause would apply on both ends of the route, though there are exceptions in some areas.

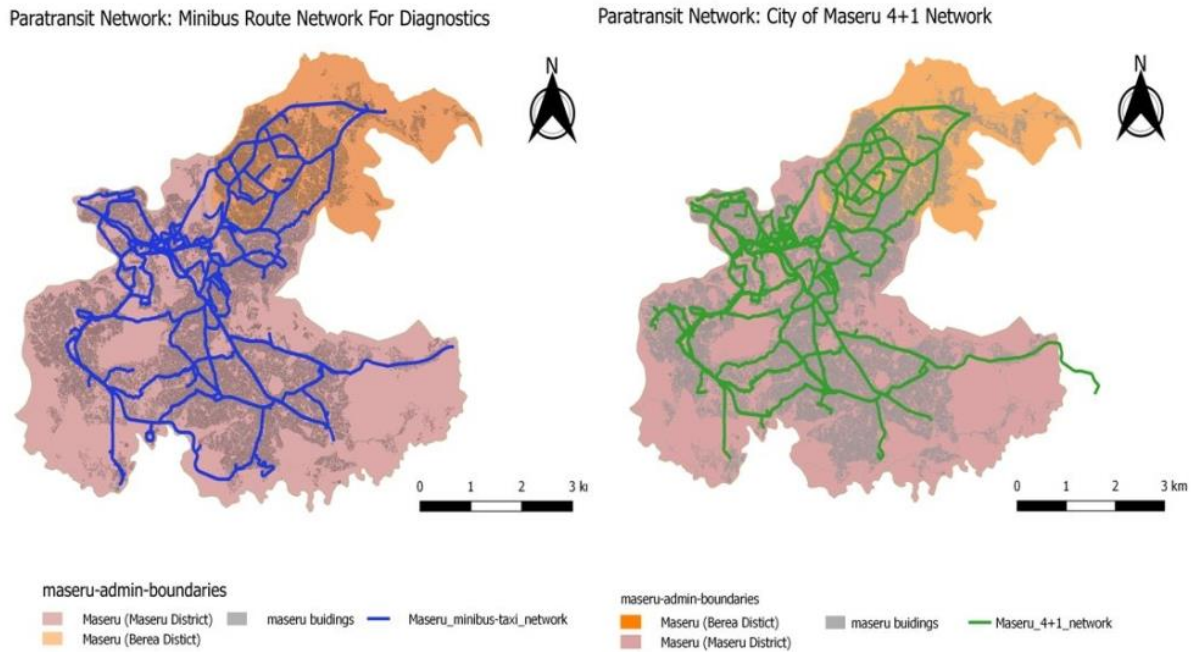
Ownership structure. Saloon cab and minibus services are typically owned by individual local entrepreneurs. Ownership is highly dispersed and competitive, with most individual entrepreneurs owning no more than one or two vehicles. Most fixed service costs, including vehicle maintenance and association fees are paid by the owners. Vehicles are rented out to drivers, who are paid a fixed monthly salary of about LSL 1,300 (~USD 90). Drivers bear variable service costs such as fuel, so they have a strong incentive to carry full loads of passengers to maximize revenues.

Operational organization. Operation of public transport services, particularly minibus services, is highly concentrated in three national operator associations: one representing the south, one the north, and one the central region. Maseru city is contained in the central region, which oversees 35 route associations and 100 members (typically vehicle owners). On common or shared routes, route associations agree on market restrictions to entry or allocations of licenses. The associations party to the agreement would usually be originating from the opposite ends of the routes in question. New entrants have the option of joining one of the owners' associations on the route, or not.

Network and service types. While the national government issues route-based licenses, there is no centralized network planning that defines the roles of minibuses versus saloon cabs or determines which mode is better suited for a specific corridor or market. This results in excessive service overlaps and destructive competitive behaviors between minibus and saloon cars (see Figure 1).

Minibuses and saloon cabs typically operate regular routes between terminals with on-call intermediate stops, that may not be marked. Point-to-point services with few or no intermediate stops are provided from residential areas to key employment centers (for commuters) and to markets. Saloon cabs also offer "feeder" connectors to/from other transport hubs. Minibus operator follows the market practice of queuing in designated ranks and touring along their allocated route. Saloon cab operators follow the market practice of queuing at ranks or terminals, leaving when full, and then picking up and delivering passengers along their assigned route.

Figure 1. Map of minibus and 4+1 saloon cab routes in Maseru



Source: Jia et al 2022.

Fleet characteristics and financing arrangements. Public transport vehicles operating in the city of Maseru are often well beyond the manufacturer’s useful life. In 2021, minibus vehicles averaged 18 years of age in Maseru. Vehicles are mainly financed using interest-free loans from personal savings, family, and friends, as well as earnings from operations. Bank finance is rarely used, as the banks are reluctant to accept the used, poor condition vehicles as security for loans, and revenue streams are not sufficiently reliable to assure the banks that loans will be repaid. Vehicles are often poorly maintained, operated for long hours, and highly polluting, which adversely impact road safety and air quality.

Infrastructure and facilities. The infrastructure and facilities that support the public transport system, such as roads or transit terminals, are in dire need of improvement. Bus terminals in the city center are open lots with essentially no amenities despite significant passenger activity. They are poorly managed and maintained, and public transport vehicles entering and exiting the terminals cause serious congestion in neighboring areas. In peripheral areas of the city, services operate on roads that are largely unsurfaced, which has a negative impact on safety and operating costs due to higher rates of wear and tear.

Service quality and user experience. Public transport services are uncomfortable, crowded, and unreliable. Waiting times are long and a disproportionate share of trips require interchanges, making people pay multiple fares and wait longer. Spotty enforcement of regulations on vehicle inspection, driver behavior, and traffic management is common practice, contributing to poor road safety and air pollution.

Despite significant competition among operators that put downward pressure on fares and service quality, affordability remains a critical issue for users. A travel habit survey conducted in 2010 indicated that as much as 20 percent of household income is spent on public transport in Maseru.¹ The employed poor spend an even greater share of their household income (25 percent) on public transport and others, particularly minimum wage earners, can spend as much as 30 percent. Since lower-income households are unable to afford a personal vehicle or other alternative to public transport, they are forced to spend a large portion of their household income on the services or confine themselves to employment and other opportunities only reachable on foot.

A study conducted in 2021 and 2022 confirmed that, despite continuing affordability challenges, users of minibuses and saloon cabs in Maseru are mostly lower-income individuals without access to alternative modes of motorized transport, such as private vehicles. 47 percent of users surveyed earned users earning less than LSL 3500 (USD 230) per month, only 26 percent were formally employed, and 63 percent have no car. Work is the dominant trip purpose, followed by education and personal trips. In Maseru, public transport is used more by females (57 percent of surveyed users) than males (43 percent). Yet, female riders are disproportionately impacted by lack of security with 71 percent of females reporting not feeling safe when traveling on public transport in the evening.

Private Vehicles and Roads

In Maseru, there are approximately 1,000 total kilometers of roads and as much as 80 percent of these roads is unpaved. The road infrastructure is designed and constructed to low standards, often defined for rural areas inappropriate for the urban environment (where, for example, adequate pedestrian facilities are even more critical). There are few urban streets and effectively no inner-city arterial highways. With the exception of major arterial roads, roads are poorly maintained. Less than 10 percent of roads in the city have dedicated drainage facilities so transport services are periodically disrupted by overflows and flooding. Moreover, very little lighting is in place to ensure safety and security in the residential areas.

Road intersections are poorly designed, due to lack of approach lanes, lack of free left turn lanes, poor or outdated signal programs, and unregulated parking in the city center. There are very few tools in place to provide information to drivers. In 2018, there were only 16 signal-controlled intersections in the entire city. These signals used an inefficient and outdated fixed program with preset timing allocating green, amber, and red light cycles regardless of prevailing traffic conditions. This leads to increased vehicle waiting times, additional fuel consumption and associated air pollution, and lack of compliance from drivers. On-street (and on-sidewalk) parking is unregulated and there is a shortage of parking in the city center.

¹ The average household expenditure on public transport was approximately LSL 500 per month (equivalent to LSL 20 per day) and the median expenditure was LSL 400 per month (equivalent to LSL 20 per day).

The majority of vehicle traffic on Maseru's roads come from public transport services via minibus and 4+1s. Public transport vehicles competing on-street for passengers uses far more road capacity than the number of vehicles in the city (maybe around 16,000) implies. Private vehicles serve only around 10 percent of daily trips in the city and car ownership is low (around 60-70 vehicles per 1,000 people). However, the number of private vehicles in Maseru is growing.

Increased demand for motorized travel, poor traffic management, poor road design, and an inadequate traffic signaling system all contribute to worsening traffic congestion.

Planning Efforts

At the time of the Maseru Urban Planning and Transport Study in 2011, the city's development was still directed by the Maseru Development Plan (MDP). The MDP, completed in 1990, was now two decades old and had yet to be fully implemented due to lack of political will, insufficient human and institutional capacity, and resource constraints. In addition to the MDP, various plans for specific areas or sectors of the city also existed. The Department of Lands, Surveys and Physical Planning (LSPP) planned and subdivided land in specific areas. The Lesotho National Housing Development Corporation (LNHDC) planned and developed new residential areas and housing developments. The Lesotho National Development Corporation (LNDC) planned and developed new industrial areas.

Without coordinated land development and the allocation of residential plots within "villages" by traditional tribal leaders, the city sprawled and transport systems were stretched thin. As environmental, social, and economic issues mounted, in 2011 the MoPWT of Lesotho and the MCC jointly commissioned the Maseru Urban Planning and Transport Study with the help of development partners.

The study determined that the city would need to serve approximately 300 million trips annually by 2030. Half of these trips would still be made by walking, but motorization rates would increase rapidly as the city's economy develops and over one quarter of trips would be made by private vehicles. Even with the increase in share of trips made by private vehicles, public transport would still need to serve over 70 million passenger trips annual by 2030, hopefully with improved service quality that provides reasonable trip times and costs.

To meet this demand for mobility, the Study identified 69 infrastructure investment projects, organized into categories, for the coming 20 years (Table 2). To support this infrastructure investment plan, the study also laid out a number of policy actions needed to catalyze reform in urban and transport planning in the city. Consistent with the policy direction laid out in the MCC's Strategic Plan and "Vision 2020," the study provided an integrated urban planning and transportation framework to guide the city's development on a planning horizon of 20 years with goals to:

- Establish an urban development cordon (boundary) to limit sprawl;
- Prioritize in-fill, densification and upgrading;
- Release inner-city land reserves for development;

- Develop and provide integrated multimodal transportation;
- Concentrate development along integrated transport corridors;
- Make Maseru “green;”
- Extend services and infrastructure to newly urbanized areas;
- Prepare and implement an integrated local economic development (LED) plan;
- Mobilize sufficient financial and human resources to accomplish all the above.

Table 2. Selection of proposed transportation investment projects for the city of Maseru, 2011-2030

Investment projects, by category	Estimated investment needs (million USD)
Active mobility facilities	5.2
<ul style="list-style-type: none"> • 350 km of city-scale sidewalks to be developed or upgraded, with 70 km of high standard pedestrian routes • 55 km of city-scale cycle routes to be developed • Hundreds of kilometers of local sidewalks and cycle routes 	
Public transport supply improvements	54.8
<ul style="list-style-type: none"> • A new Bus Rapid Transit system – consisting of 35 km of dedicated bus priority lanes, 450 bus stops, and 5 public transport termini • New and improved bus stop facilities • Bus procurement – 450 buses of assorted sizes to be acquired and operated, in addition to around 250 “15-seater” mini-buses that would remain in operation in and around Maseru. 	
Intersection upgrading	7.2
<ul style="list-style-type: none"> • Redesign of 28 intersections around the city 	
Traffic management	1.8
<ul style="list-style-type: none"> • Road humps • Electronic on-street parking system for city center • Road signs • Integrated ticketing system • Traffic signals 	
Road construction and rehabilitation	247.8
<ul style="list-style-type: none"> • North bypass • North ring • Airport extension • Construction of 25 km of new arterial roads and the upgrading/widening of a further 33 km of existing arterial roads • Upgrading and development of hundreds of km of local roads in the city center 	(of which 19.5 for new construction)
Capacity-building and planning	2.4
<ul style="list-style-type: none"> • BRT detailed design study • Develop transport demand management (TDM) • Multi-year transport survey • Establishment of a Metropolitan Transport Authority 	

Source: Government of the Kingdom of Lesotho, 2011. The Maseru Urban Planning and Transport Study, Final Report.

Discussion Questions

The Maseru Urban Planning and Transport Study recommended 69 investment projects over a 20-year time horizon. Given constrained resources (financial and human), city officials need to identify the best way to prioritize these projects to most efficiently address growing demand for motorized travel and related externalities. Put yourself in the shoes of officials in the MCC and consider the following questions:

- Why is congestion increasing so rapidly in Maseru?
- Who in the government "owns" this investment program and is responsible for its implementation?
- To what extent would the investment plan be able to address the urban mobility constraints in the city? Are there other measures that should have been considered?
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References

This case study summarizes material that also appear in the following publications:

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