Nairobi Metropolitan Area Infrastructure Note 2019

In 2018 we released our first Nairobi Metropolitan Area Infrastructure Report which sought to identify the distribution, supply, stock, deficit, needs, and investment opportunities in the Kenyan infrastructural sector with a bias to the Nairobi Metropolitan Area. According to the report, the Government of Kenya will have invested at least Kshs 3.9 tn in the infrastructure sector between 2012 and 2022. Electricity will have received the highest investment of approximately Kshs 1.7 tn, accounting for 41.9% of total funds invested driven by increased geothermal power generation and large scale projects such as The Last Mile Connectivity Program and the Rural Electrification Program. However, roads sector continues to have the highest number of projects, completed and upcoming, accounting for 67.3% of the total infrastructure projects. This year, we update the various infrastructural sectors as we track new developments and current trends in the various sub-sectors. In this note, therefore, we look at the following:

I. Overview of the Infrastructure Sector,
II. Infrastructure Sector Trends in 2019,
III. Impact of Infrastructure on Real Estate, and,
IV. Recommendation and Outlook.

I. Overview of the Infrastructure Sector

According to KNBS Economic Survey 2019, infrastructure sector's contribution to GDP increased by 0.4% points to 8.5% in 2018 from 8.1% in 2017, indicating the sector's growth, which has been facilitated by:

i. **Financing:** The sector has attracted various forms of financing enabling realization of key government infrastructural projects. These include:
   a) **Government Financing:** In line with the country's economic expansion goals to make Kenya the African hub for transportation, industrial, and service sectors, the government expenditure has continued to increase, albeit at a decreasing rate following the realization of majority of the projects. For the financial year 2019/20, government budget allocated infrastructural development Kshs 435.1 bn, 3.9% higher than 418.8 bn allocated for FY 2018/19,

(All Values in Kshs "mn" Unless Stated Otherwise)

Infrastructure Sub-Sectors Budget Allocation			
Sub-Sector	**2018/19**	**2019/20**	**% Change**
Roads	121.7	180.9	48.6%
Rail and Ports	87.4	75.4	(13.7%)
Energy	46.7	68.9	47.5%
Water Supplies	65.8	55.8	(15.2%)
Other	97.2	54.1	(44.3%)
Total	**418.8**	**435.1**	**3.9%**

Source: National Treasury

   b) **Development Partners:** The government has continued to rely on its bilateral development partners such as China, Germany and India, to finance expenditures for development of railways, roads as well as energy, with notable projects such as the Standard Gauge Railway. Additionally multilateral partners such as World Bank and African Development Bank have been the key financial partners behind huge projects such as the Kenya Electricity Expansion Project and National Urban Transport Improvement Project, and

c) **The Capital Markets:** Kenya's developing capital market has been a platform for national and county government to mobilize capital from the public and private sectors for essential infrastructural investments, for instance through issuance of infrastructure bonds. To this end, the national government has issued several infrastructure bonds in the past few years, such as the M-Akiba Bond

ii. **Public-Private Partnerships Unit:** The establishment of the government's PPP Unit has helped in promoting integrity and transparency in PPP projects, helping to attract private sector partners. Currently, the unit has a pipeline of 70 projects with notable projects under the PPP framework include the Nairobi- Nakuru - Mau Summit Toll Road Project and the JKIA-James Gichuru Nairobi Expressway Project,

iii. **Government Incentives:** Investors in commercial property who spend on social infrastructure such as power, water, sewer lines, and roads are allowed to recover their expenses within 4-years, through a 25.0% tax exemptions, according to the Finance Bill 2012. The tremendous growth seen in the real estate sector has seen more infrastructure put in place by private developers to meet government's shortages. This has been in the form of sewer treatments, better access roads, and water supply

However, despite the continued investments, Kenya's infrastructure is far from perfect especially in comparison to countries such as South Africa and Singapore. According to the World Bank's Global Competitiveness Report 2019, Kenya ranked position 110 in the infrastructure sector, from position 96 as of 2014 as other countries such as Singapore that adopt more innovative and sustainable approaches in the sector, thus surpassing Kenya. Below is the ranking for the various infrastructure sub-sectors:

Global Competitiveness Index - Kenya's Ranking						
	2014	**2015**	**2016**	**2017**	**2018**	**2019**
Overall Transport Infrastructure	**65**	**63**	**56**	**56**	**82**	**81**
Quality of Road Infrastructure	59	60	60	61	72	72
Quality of Railroad Infrastructure	71	72	56	61	58	60
Quality of Air Transport Infrastructure	54	49	47	48	58	67
Electricity Supply Quality	95	114	106	96	114	115

Despite continued investments in the sector, Kenya's rank dropped as other fast-climbing nations such as Mauritius and Namibia made bigger strides and surpassed Kenya in terms of quality of present infrastructure, indicating the need for more investment and innovative approaches

Source: World Bank

The key challenges affecting infrastructure sector in Kenya include:

i. Financial constraints as huge capital outlays are required to close Kenya's infrastructure gaps. According to AfDB, Kenya's growing need for infrastructure financing is estimated at between Kshs 740 bn and 830 bn per year, in comparison to the average investment of Kshs 250 bn, leaving a financing gap of approximately Kshs 500 bn,

ii. Project delays with some infrastructure projects stalling or taking unnecessarily long periods of time. Such projects include the enhancement of the Jomo Kenyatta International Airport, the Bus Rapid Transit System, among others,

iii. Political interference as seen in the tendering processes for various rolled out infrastructural projects, which has a negative impact on investor appetite,

iv. Lack of transparency which acts as a hindrance to attracting private sector funding coupled with the constant issues and prolonged periods in government procurement processes,

v. Insufficient local skill set appropriate for the infrastructural sector. This means lack of capacity to conduct project feasibility studies locally, weak project management and implementation, of the projects, and

vi. Limited availability of land for infrastructural projects, especially in urban areas due to population pressures coupled by poor land use planning,

II. Infrastructure Sector Trends in 2019

Below we discuss the various developments for each sub-sector:

A. Roads

In a bid to fast-track economic development, the government has continued to focus on improving transport infrastructure, especially roads, which are the most common means of transport in the country. As at 2018, roads accounted for 62.9% of the total value of output from the transport sector, according to the Kenya National Bureau of Statistics (KNBS). One of the key projects launched during the year is the Jomo Kenyatta International Airport (JKIA) -Westlands Expressway, an 18.6-kilometer road project, which will start at JKIA and terminate at James Gichuru, along Waiyaki Way Road, in Westlands.

Nevertheless, Kenya's tough financial environment continues to cripple the implementation of road projects in the country, given the constrained financing evidenced by a huge total public debt of approximately Kshs 5.9 trillion.

The table below shows a summary of roads within Nairobi Metropolitan Area that recorded activities during the year:

Summary of Roads Completed in 2019 Within Various Counties Within Nairobi Metropolitan Area

County	Scope (KM)	Value (Kshs)
Nairobi	9.1	9.6bn
Kiambu	2.7	0.3bn
Total	**11.8**	**10.bn**

Summary of Roads Under Construction Within Various Counties Within Nairobi Metropolitan Area

County	Scope (KM)	Value	% of Road Km	% of Amount Invested
Nairobi	167.9	690.4bn	36.2%	96.3%
Kiambu	252	21.bn	54.4%	2.9%
Machakos	43.5	5.7bn	9.4%	0.8%
Total	**463.4**	**717.1bn**	**100%**	**100%**

Source: Kenya Urban Roads Authority (KURA), Kenya National Highways Authority (KeNHA)

Construction of approximately 463 km of roads within the Nairobi Metropolitan Area is ongoing, with Kiambu County having the largest road kilometers under construction at 54.4% of the total road projects. In terms of value, Nairobi has the highest value of investments in roads at 96.3% of the total amounts invested, with majority of the roads being Class A roads such as the JKIA- Westlands Expressway, while on the other hand, those under construction in Kiambu and Machakos are mainly primary roads.

Some of the road projects completed recently within the region include dualling of Ngong Road Phase I, Outer Ring – Thika Road interlink, and the construction of the Interchange at City Cabanas. Key roads whose construction is on- going within the region include:

- ✓ Ngong Road Phase II (Dagoretti corner -Karen junction section) in Nairobi County,
- ✓ The 31 km Western Bypass, which starts from Ruaka Town to the Nakuru highway at Gitaru in Kiambu County, and
- ✓ The upgrading to bitumen standards of Syokimau – Katani Road Phase II, a 3.5 km road in Machakos County.

B. Railways

The President of the Republic of Kenya, His Excellency Uhuru Kenyatta, launched Phase 2 of the Standard Gauge Railway (SGR) project, bringing to operationalization the rail between Nairobi and Suswa, Naivasha. The 120.5 km (Phase 2A) project, which commenced in 2017, cuts across Nairobi, Kajiado, Nakuru and Narok with four passenger stations - Ongata Rongai, Ngong, Mai Mahiu and Suswa, and has seen the Madaraka Express passenger and freight services commence operation.

Other upcoming projects include:

- Standard Gauge Railway Phase 2B: Naivasha - Kisumu
- Upgrading of the Nairobi Railway Station
- Rehabilitation and Remodeling of Kenya Railway passenger sleeper coaches

C. Water

In 2019, the Nairobi Metropolitan Area recorded an increase in water coverage by 2.0% points to 61.0% in 2018 from 59% in 2017 according to the Water Services Regulatory Board (WASREB) 2019. The current coverage still remains a long way from the Vision 2030 goal of 100% coverage. The main sources of water within the region include piped water, borehole water and water vendors. Nairobi and Kiambu recorded the highest coverage at 78.0% and 77.0%, respectively while Machakos recorded the lowest coverage at 43.0%.

The table below shows the water coverage summary in the past two years:

Nairobi Metropolitan Water Coverage Summary 2018		
County	**2017**	**2018**
Nairobi	81%	78%
Kiambu	75%	77%
Murang’a	47%	52%
Kajiado	42%	43%
Machakos	48%	54%
Average	**59%**	**61%**

Source: Water Services Regulatory Board

In order to meet the rising demand for water services by the growing population, the government has facilitated several water service projects. Some of the proposed projects include:

i. Maragua Dam water supply project in Murang'a & Nairobi Counties,
ii. East Nairobi sewerage project in Nairobi County,
iii. Gatei Dam project in Kiambu County
iv. Thika and Githunguri water and sewerage project in Kiambu County

Nairobi County also announced plans on setting up a water connection network from Kabete in Kiambu County to Langata and Kibra constituencies within Nairobi County. The project set to commence in February 2020, is aimed at increasing water supply within Nairobi County, reducing the current water coverage deficit of 264,000 cubic meters, according to Nairobi City Water and Sewerage Company (NCWSC).

Other water projects in the pipeline include:

Ongoing Water Projects					
No.	Projects	Region	Status	Timeline (Year)	Value (Kshs) bn
1	Expansion of existing Thika wastewater treatment plant	Kiambu/Nairobi	Ongoing	2019	3.0
2	Construction of a sewerage and treatment systems for Ruaka town and water network	Kiambu	Ongoing	2020	0.2
3	Ruiru-Githurai Water Project	Kiambu	Ongoing	2020	1.3
4	Karimeno 2 Dam	Kiambu	Ongoing	2020	24.0
5	Limuru water and sewerage project	Nairobi	Ongoing	2020	0.8
6	Construction of the Western Transmission (Kabete-Uthiru-Karen) Pipeline	Nairobi	Ongoing	2019	1.2
7	Ithanga water supply project	Murang'a	Ongoing	2018	2.0

Source: Water Services Regulatory Board

D. Sewerage

In 2019, sewerage connectivity in the Nairobi Metropolitan area remained largely unchanged with coverage increasing marginally to 18% in 2018 from 17% in 2017. The pace of sewerage improvement is still a long way from the Vision 2030 goal of 80% coverage attributed to the large proportion of informal settlement with Nairobi and low sewerage funding. The existing sewer infrastructure in Nairobi serves areas such as Kilimani, Kileleshwa, and the CBD, with low-end areas such as in the informal settlements lacking access to sewer lines.

The table below shows sewerage coverage in the Nairobi Metropolitan Area is as shown below;

Sewer Coverage (%)		
County	2017	2018
Nairobi	50%	50%
Machakos	17%	19%
Kiambu	15%	16%
Murang'a	3%	5%
Kajiado	0%	0%
Average	**17%**	**18%**

Source: Water Services Regulatory Board

Ongoing sewerage projects within the Nairobi Metropolitan Area is as follows:

Ongoing Sewerage Projects in Nairobi Metropolitan Area				
Project	County	Areas of coverage	Length(km)	Value Kshs 'Mn'

Ruaka water and sewerage project	Kiambu	Ruaka	55	1.3
Gatundu water and sewerage project	Kiambu	Gatundu	35	1.8
Kikuyu water & sewerage project	Kiambu	Kikuyu, Waithaka	45.0	635
Thika - Juja Sewerage	Kiambu	Juja, Witeithei, Ngoingwa and Thika	77	3,000
Thika and Githunguri project*	Kiambu	Githunguri and Thika Towns	-	10000
**Value of project to be established*				

Source: Water Services Regulatory Board

E. Electricity

Kenya remains committed to universal access to modern forms of energy by year 2030, as articulated in the Vision 2030 with the Kenya National Electrification Strategy (KNES) aiming at attaining universal access to electricity by 2022. According to the Kenya National Electrification Strategy, for Kenya to achieve universal access by 2022, some 2.3 mn connections will need to be made through grid densification.

To this end, in 2018/19, Kenya improved the electricity access rate to around 75.0% from as low as 36.0% in 2014, becoming the highest in East Africa. The key projects for the period 2019/2020 include:

i. Construction of 1,432km of electricity transmission lines and connection of 2 million new customers to electricity in Kenya,
ii. Kenya Electricity System Improvement Project, whose proposed estimated timeframe for the project is from 2019 to 2024. The proposed project will aim to support mostly grid densification and intensification and some grid expansion to reach about 120, 000 new connections benefiting about 450,000 people. The exact lines and substations to be supported under the component will be determined during project implementation. The project will cover various geographical regions selected nationally including western Kenya covering North Rift, Central Rift and West Kenya; Nairobi covering Nairobi South, West and North; Mt. Kenya covering Mt. Kenya and Coast regions,

New developments during the period included:

i. Commissioning of the Kenya-Ethiopia Electricity Highway, which is funded by the Kenyan Government, World Bank, and the African Development Bank (AfDB) and set for completion by 2020,
ii. Commissioning of the Kenya-Tanzania Power Integration Project, which is financed by Japanese International Cooperation Agency (JICA) and AfDB,
iii. The government commissioned the construction of the Nairobi Ring sub-stations, which will connect Isinya, Ngong, and Athi River, and Kangundo areas. This is expected to increase the country's overall transformation capacity and improve reliance on the existing overloaded substations, and
iv. As part of the Kenya Electricity Modernization Project, Kenya Power Limited Company (KPLC) launched a live line maintenance service in Nairobi, which is set to reduce scheduled electricity outages by up to 40.0%.

Ongoing programs that encompass the country's development goals with respect to enabling universal electricity access include:

i. **Least Cost Power Development Plan**: The aim is to guide energy sector stakeholders on how to meet the energy needs of the nation for subsistence and development at least cost to the economy and the environment,

ii. **Last Mile Connectivity Project**: The aim is to increase electricity access to Kenyans and is implemented by the Kenya Power. Under this project, the entity will maximize the utilization of the 40,000 existing distribution transformers spread across the country as well as installation of new transformers, while Rural Electrification Authority will focus on expansion of the low voltage network lines to improve reticulation in rural areas, and

iii. **Nairobi City Centre Network Upgrade and Reinforcement Project**: The government aims at improving the quality of power supplied in the city and its environs. In line with this, earlier this year, the President of Kenya launched the Nairobi City Centre 220/66kV Gas Insulated station (GIS) sub-station that is set to boost the county's Bulk Power supply system. The Kshs 13.0 bn project serves the Industrial Area, Mombasa Road, Upperhill, Central Business District, and Kilimani areas; providing industries and investors with reliable and uninterrupted power supply.

F. Airports

Kenya's air transport continues to lead within the region and is ranked fourth most developed in the continent. The Nairobi Metropolitan Area is served by two major airports, the Jomo Kenyatta International Airport (JKIA), located along Mombasa Road, and has a capacity of 7.5 mn passengers annually and 43 aircraft, and the Wilson Airport, located along Lang'ata Road, and has a capacity of 120,000 passengers and 33 small-scale aircraft. Key developments during the year included:

- ✓ The Airports Council International (ACI) ranked JKIA the second Fastest Growing Airports globally in 2019 after handling over 342,000 metric tons of air cargo in 2018, a 25.0% growth from what was reported in the year 2017
- ✓ JKIA was also awarded the African Airport of the Year Award during the Air Cargo Africa 2019 Conference, in Johannesburg, South Africa Kenya, and
- ✓ With the global climate change, Kenya Airports Authority (KAA) launched its 'going green' initiative with a goal of becoming the greenest airport operator in Africa by 2022

In 2019, the government's focus in the sub-sector includes the remodeling and upgrading of Jomo Kenyatta International Airport's Terminal 1B, C and D in a bid to raise its total passenger handling capacity to 10.0 mn by the end of 2020.

In a bid to improve the country's overall air transport and enhance its competitiveness in the region, the government also announced plans to develop a number of airstrips to connect various neighboring countries within the region. To this end, the Kenya Airports Authority announced plans to spend Kshs 14 bn to upgrade airports and airstrips across the country including Malindi and Isiolo airports.

III. <u>Impact of Infrastructure on Real Estate</u>

Infrastructural development plays a key role in the development of the economy as a whole. Not only does investment in infrastructure lead to job creation and GDP growth, but it also acts as a catalyst, having significant knock-on impact to the surrounding real-estate. Transportation systems, strong telecommunications systems, clean water, good sewer connection, along with reliable and affordable energy are considered fundamental to most real estate developments, whether that be commercial, residential or industrial. Here, we look at the impact of infrastructure on the real estate sector, particularly in the Nairobi Metropolitan Area;

i. It opens up areas for development

People are likely to buy or rent properties in areas that are well developed. A developed neighborhood assures the buyer of property appreciation at a rate higher than the prevailing market rates, thus better returns in the case of an investor. Consequently, it opens up areas which were otherwise unattractive not only for settlement but also trade and commerce thus uplifting economic prospects.

For example, the expansion of Ngong road to a dual carriage way, has resulted in increased connectivity as people living in the nearby suburbs are able to connect easily with places like Lang'ata, thus reducing the time taken on the road moving from one place to the other tremendously. We thus expect areas such as Kilimani, Karen and Lang'ata to continue recording increased real estate activities, given the improving ease of access.

ii. Reduced Development Costs

Infrastructural costs in Kenya account for approximately 25.6% of construction costs, according a Centre for Affordable Housing Finance in Africa report. Thus provision of the same, relieves the cost burden that would have otherwise been incurred by the developer, and this has been noted to significantly facilitate the development of affordable housing units.

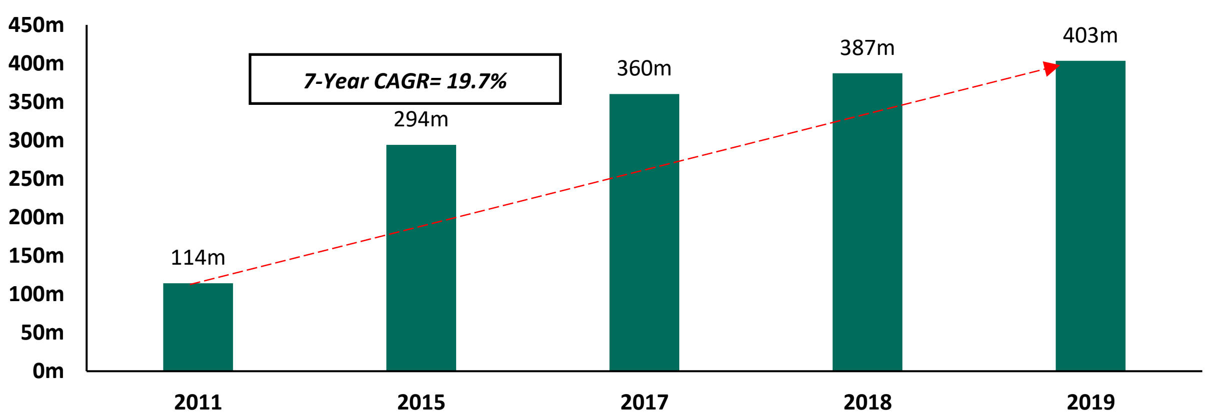
iii. Facilitate decongestion of the populous metropolitan

Kenya has a relatively high urbanization rate at 4.3%, compared to the global average of 2.3%, which has resulted in a notable human traffic in the capital city. Improving infrastructure mainly in emerging towns, encourages residential and commercial living in these city outskirts thus decongesting the city, and relieving pressure on the available limited resources and facilities.

iv. Higher Property Values

Improving infrastructure enhances accessibility of areas, in addition to availability of utilities and this enhances demand for property in the subject area, and a resultant increase in property value. For instance, the dualling of Ngong road, has significantly boosted property prices in Kilimani area, evidenced by the land value per acre which has grown with 7-CAGR of 19.7%, from Kshs 114 mn per acre in 2011 to Kshs 403 mn in 2019. With the Ngong Road Phase II of the project set for completion in 2020, we expect this to result in even higher property value in the area.

Kilimani Area Land Prices Growth Since 2011 (Per Acre) (Kshs)



Source: Cytonn Research

IV. Recommendation And Outlook

Infrastructure must precede development, and thus it is essential for any economy to grow and therefore, also vital for the growth of real estate market. With the continued government efforts to enhance improvement of the same, we expect this to support development and thus a resultant boost for the sector. Therefore, to gauge the investment opportunity based on infrastructure, we looked into key features as follows;

i) **Roads** – Accessibility of an area is a key factor prioritized by both investors and homebuyers. Thus, the county with the highest road coverage was ranked highest and vice versa,
ii) **Sewer Connectivity** – The county with the most sewer coverage got the highest weight, and vice versa,
iii) **Water** – Water is an essential utility and its availability is one of the key factors that homebuyers look for when investing in a home. Therefore, an area with availability of water was ranked highest,
iv) **Railway stations** – With a majority of the Kenyan working population commuting from their area of residence to work, railway stations have been a more efficient means of transport given the usual traffic congestion on the roads during peak hours. Thus railway transport plays a significant role in attracting real estate clients into an area as it provides an alternative means of transport to the commonly used roads. However, an area has to have a railway station for this to be effective, thus, the region with the highest number of railway stations got the highest weight,
v) **Proximity to airports** –The main airport serving NMA is the Jomo Kenyatta International Airport (JKIA). Therefore, more weight was given to areas in close proximity to the airport, compared to regions that are more than 20 Km away from an airport. This is mainly because air transport is crucial for commercial real estate.

The ranking was as shown below:

County Ranking based on the State of Infrastructure

Weights	*30%*	*25%*	*25%*	*10%*	*10%*		
County	**Roads**	**Water**	**Sewer Coverage**	**Railway Stations**	**Airport Proximity**	**Total Marks**	**Ranking**
Nairobi	5	5	5	5	5	5.0	1
Machakos	4	3	4	4	4	3.8	2
Kiambu	3	4	3	3	3	3.3	3
Murang'a	2	2	2	1	1	1.8	4
Kajiado	1	1	1	2	3	1.3	5

****The points are 1-5, with 5 being the highest and 1 the lowest.***

- *Based on the state of infrastructure, Nairobi offers the best investment opportunity due to a high paved road coverage within the county, availability of utilities such as water, with the coverage at approximately at above 70%, relatively high sewer connectivity, a high number of railway stations compared to other counties, in addition to proximity to main airports.*
- *In specific, in Nairobi, we recommend areas that will be served by the ongoing Western bypass such as Ruaka, and along Ngong Road, which is currently being upgraded, such as Kilimani, Karen and Upperhill. In addition to the improving ease of access, these areas also have good water and electricity connection, in addition to proximity of airports such as Moi International Airport and Jomo Kenyatta International Airport*
- *Kiambu County also presents an investment opportunity, in areas such as Ruiru, Ruaka and Kikuyu, supported by the relatively good state of infrastructure, in addition to having key improvements in the pipeline.*

In conclusion, infrastructure is a key factor influencing real estate investments, with areas having good infrastructure being highly preferred by both developers and home buyers. With the government's continued focus on infrastructural projects, especially with the aim of driving the Big Four Agenda and other long-term development goals, we expect this to result in the opening up areas for development and thus improving property value.