

REPUBLIC OF KENYA



PROVISION OF CONSULTANCY SERVICES FOR STEERING OF THE PROPOSED NATIONAL ADDRESSING SYSTEM (NAS)

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NATIONAL ADDRESS SYSTEM POLICY

Submitted to:
The Communications Authority of Kenya

Submitted by:
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EXECUTIVE SUMMARY

The Constitution of Kenya 2010 prescribes that the State shall provide social and economic rights to Kenyans. Social and economic rights are referred to as “second generation rights” in the human rights naming system, and are one of the most significant achievements of the Constitution.

One of the ways of enhancing economic and social rights in Kenya is by the establishment of a National Address System. Worldwide, it has been accepted that addresses are an essential tool for economic and social development and that the existence of complete, correct and unique address data should be seen as being of fundamental importance for all countries.

The Government of Kenya acknowledges that effective addressing and integrated quality address data constitute an important part of a nation’s infrastructure. The Communications Authority of Kenya shall develop a National Address System, recognising that quality addressing and postcode systems are essential to the socio-economic development of the country. They also form the cornerstone of quality postal delivery services, in turn facilitating business transactions and hence the country's economic growth.

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ACRONYMS AND ABBREVIATIONS

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GLOSSARY OF TERMS

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1. INTRODUCTION

The purpose of this National Address System Policy is to establish standards for naming roadways, posting street signs and assigning numbers to all land parcels, dwellings, principal buildings, businesses and industries in Kenya. The Policy also aims to assist the public and agencies involved in emergency management, telecommunications, mail and courier services, other utility services, among other stakeholders in efficient service delivery. This Policy is designed to eliminate addressing confusion and to create a standard system by which addresses may be assigned and maintained in Kenya. It is not the objective of this Policy to change all previously addressed structures or existing named and numbered streets. Changes to existing addresses and road names will only be made when non-conformity interferes with the accurate provision of services as envisaged in this Policy.

A National Address System (NAS) is a framework that provides for, among others, the naming/numbering of streets, numbering of properties/parcels of land and/or buildings to facilitate the identification and location of a parcel or dwelling on the ground. It also involves the development of digitized maps for use in the management of settlements and urban communities. The maps with the information thereon can be developed into GIS (Geographical Information System) as a database.

Addresses are used for a wide variety of purposes, often with conflicting needs: postal delivery, emergency response, customer relationship management, land administration, utility planning and maintenance, etc. Sometimes a geographical overview of addresses is required for a large area, such as land administration and utility planning and maintenance. For mail delivery or emergency response planning, accurately identifying individual delivery points is a priority. In other instances, delivery points are ignored and only the place name in the address is of relevance, for example, when aggregating household survey information.

Addresses are also critical for services that are not necessarily performed at the address, such as for rates and taxes, opening bank accounts or buying on credit, obtaining an identity document or passport, voting and obtaining employment.

In some countries the requirement for an address is explicitly written into legislation, as in three South African Acts: the Financial Intelligence Centre Act (FICA), the Identification Act and the

Electoral Act. In other countries this requirement is implicit through a personal identification number, assigned to a child at birth in Denmark, for example, and to open a bank account, obtain a passport or social security card or vote for elections, one also needs to have a registered address in the Danish Civil Registration System.

Worldwide, it has been accepted that addresses are an essential tool for economic and social development and that the existence of complete, correct and unique address data should be seen as being of fundamental importance for all countries.

In Kenya, as in much of Africa, the absence of a coherent national addressing policy and an accompanying, overarching NAS have hampered planning and development. Most homes and many businesses remain without proper addresses. This is a drag on economic growth, both on the micro and macro scales. Accurate infrastructure and street addressing needs to be compiled, properly housed and continually updated. It also needs to be accessible not just to Kenya's national and county governments, but to Kenya's businesses and its citizens as well.

A simple, coherent and readily understandable addressing system is essential for the proper and timely deployment of police, fire and ambulance services and even military troop movements, particularly in emergency situations. Unreliable locational data is a major obstacle to the positive and prompt deployment of emergency services, including national emergency services. Police attempting to locate criminals, medics traveling to save lives and the deployment of anti-terrorism personnel all rely, in some form or another, on reliable and effective addresses. Costs associated with the lack of a NAS continue to rise as the range and use of street names and address information increases, using out-dated and unreliable systems. A precise and continuously updated national address system will ease the delivery of goods and services, to include mail and packages, and engender cost reductions across the board – from businesses to government to civil society - through improved efficiency and reliability.

Addressing schemes vary in different parts of the world. In European countries reference to a road network in the address is common. In eastern Asia a hierarchy of administrative areas without reference to a thoroughfare is used, and in informal settlements across the world the addresses are informal, variable and sometimes creative. This variety in schemes reflects the cultural connotation of addresses.

An address should be considered more broadly than just a set of directions for delivering post or for courier services. An address is also used for a wide range of private and public service delivery, including goods delivery, planning infrastructure delivery, land and property registration, connecting utilities, billing, emergency dispatch, household surveys and serving summonses. Addresses are also critical for services that are not necessarily performed at the address, such as for rates and taxes, opening bank accounts, buying on credit, securing an identity document, voting, obtaining employment, conducting household surveys and providing a context for presenting other information.

Many stakeholders are involved in both designing and maintaining an addressing scheme, including: town planners who assign addresses when an area is first developed or formalized; authorities who install and maintain place and street name signs; local authorities and/or utility companies who use the address when providing services and billing for them; postal operators who deliver mail to an address; and addressees, who can correct errors in their addresses. In fact, any user of an address is a potential provider of address corrections and thus a stakeholder in the addressing scheme.

1.1.OBJECTIVES AND SCOPE OF NATIONAL ADDRESS SYSTEM POLICY

The objectives of this Policy are to:

- i. Provide for the development and adoption of a NAS system for Kenya that is logical, unambiguous, reliable, expandable and updatable;
- ii. Ensure compatibility with international standards for addressing and facilitate interoperability within East Africa;
- iii. Ensure that the general public and providers of mail, utility and emergency services can quickly and easily locate individual properties;
- iv. Ensure consistent, reliable and effective street coding (numbering) and reduce inconsistencies in street number allocation and renumbering of properties;
- v. Facilitate consistency in adoption of NAS standards across the country;
- vi. Ensure on-going assigning of addresses to new developments;
- vii. Identify the costs and benefits of implementing a NAS; and
- viii. Provide for the development and maintenance a NAS database management system for the whole country.

The purpose of this Policy is to guide the Communications Authority and County governments in the establishment of a standards-based approach to the way address information is collected, verified, managed and exchanged across the country. This Policy applies to all existing and new addresses in Kenya.

The National Address Policy should be adopted by all National and County government ministries, departments and agencies that collect or use address information, to ensure consistency for the public and efficiency in interactions between National and County governments.

The Policy requires that:

- New addressing systems (those systems procured or developed subsequent to release of this Policy) should be compliant with the Policy; and
- Existing addressing systems should be reviewed by June 2019^[footnote – to provide for policy and legislation to be subject to public consultation and legislative process, and to undertake review] in order to conform to this Policy.

It is recommended that any agency planning changes to their systems and databases that include address information should give special consideration to adopting this Policy.

While this Policy articulates specific processes that should be undertaken in relation to address management functions, such as address verification, the Policy does not include the detail of technical solutions or approaches.

2. SITUATION ANALYSIS

Address information is a key component in the interactions between government and members of the public. There is a community expectation that government will manage those interactions efficiently and effectively.

Adoption of a standards-based approach to the management of address information will enable agencies to better capture, store, manage and exchange information that includes an address component. The benefits of this approach include:

- **Government business processes are efficient** – the exchange of address data between agencies is streamlined and the data is valid and accurate.
- **Integrated planning and implementation of government policies and programs** - the data, when updated regularly becomes vital information for planning investment, rehabilitation/ maintaining facilities and infrastructure and for effective mobilization of local resources (e.g. Integrated security, intelligence and surveillance system, Assets data hub/ management system, Vehicle registration tracking system, National population and housing census, National spatial data infrastructure (NSDI), Companies and investors portal, e-government services, etc.
- **Address information provided to government is accurate** – the incidence and related cost of incorrect addresses is reduced.
- **Safety of the public and emergency response officers is optimized** – the potential for delays in emergency response and the exposure of officers to risk is reduced.
- **Citizens can easily notify government of changes of address** – the notification process is streamlined, and in the long term, citizens are able to provide that information only once and all agencies are advised of the change.

2.1. HISTORICAL BACKGROUND

In Kenya, as in much of Africa, the absence of a coherent national addressing policy and an accompanying, overarching NAS have hampered planning and development. Most homes and many businesses remain without proper addresses. Mail delivery is restricted to P.O. boxes, and access by emergency services—including ambulances, fire fighters and police—is limited. It is also a barrier to efficient commerce and has a negative impact on small business and the country's economic growth as a whole.

This is a drag on economic growth, both on the micro and macro scales. Accurate infrastructure and street addressing needs to be compiled, properly housed and continually updated. It also needs to be accessible not just to Kenya's national and county governments, but to Kenya's businesses and its citizens.

In the past, development planning has largely been ineffective due to the over-centralization of planning and decision making, disconnect between spatial and economic planning, inadequate and disconnected budgetary support, uncoordinated sectoral planning and implementation, inadequate, unstructured and disjointed monitoring of planning and implementation.

A simple, coherent and readily understandable addressing system is essential for the proper and timely deployment of police, fire and ambulance services and even military troop movements, particularly in emergency situations. Unreliable locational data is a major obstacle to the positive and prompt deployment of emergency services – to include national emergency services. Police attempting to locate criminals, medics traveling to save lives and the deployment of anti-terrorism personnel all rely, in some form or another, on reliable and effective addressing systems. Costs associated with the lack of a NAS continue to rise as the range and use of street naming and addressing information increases, using out-dated and unreliable systems.

A precise and continuously updated national addressing system would ease the delivery of goods and services, to include mail and packages, and engender cost reductions across the board – from businesses to government to civil society - through improved efficiency on account of reliability

Kenya, like many African countries, is confronted with addressing challenges. Streets and properties (in both rural and urban areas) in most African countries are characterized mainly by

incomplete, inaccurate or missing names, numbers or other identifiers, inadequate or missing sign posting, and a duality of 'official' and 'popular' naming practices (UN ECA 2005).

2.2.THE LEGISLATIVE FRAMEWORK GUIDING THE ESTABLISHMENT OF A NATIONAL ADDRESS SYSTEM

The Constitution of Kenya 2010 apportions responsibility of planning to both National and County governments. The Constitution defines planning as a concurrent function. Articles 67(2)(h) and 186(1) of the Constitution and the Fourth Schedule assign planning functions to both the national and county governments.

The National Land Commission is responsible for monitoring and oversight of land use planning throughout the country, general principles of land planning and the coordination of planning by the counties. The County governments are responsible for county planning and development. Article 67(2)(h) of the Constitution and Section 5(1)(h) of the National Land Commission Act, 2012 prescribe that one of the functions of the Commission includes to monitor and have oversight responsibilities over land use planning throughout the country.

The functions of both the National and County Governments are prescribed in the Fourth Schedule to the Constitution as follows:

a. National Government:

- i. Transport and communications, in particular road traffic, postal services and telecommunications;
- ii. Security including defence and policing;
- iii. National economic policy and planning, and consumer protection;
- iv. National statistics;
- v. National elections;
- vi. General principles of land planning and the co-ordination of planning by the counties;
- vii. Protection of the environment and natural resources with a view to establishing a durable and sustainable system of development;
- viii. Disaster management; and
- ix. Capacity building and technical assistance to the counties.

b. The functions of counties, outlined in the Fourth Schedule include, *inter alia*:

- i. County planning and development, including statistics, land survey and mapping, boundaries and fencing, housing and electricity reticulation and energy regulation;
- ii. County transport, including county roads and traffic;
- iii. Trade development and regulation including trade licences;
- iv. County public works and services including storm water management systems and water and sanitation services;
- v. Fire fighting services and disaster management;
- vi. County health services including ambulance services and refuse removal;
- vii. Implementation of specific national government policies on natural resources and environmental conservation; and
- viii. Disaster management.

Legal authority to addressing is granted to the Communications Authority of Kenya (CA) pursuant to the Kenya Communications and Information Act and the Kenya Information and Communications (Numbering) Regulations 2010.

Section 5(1) of the Kenya Information and Communications Act prescribes that the object and purpose of CA shall be to licence and regulate postal, information and communication services. Section 47 further outlines the functions of the Authority in relation to postal services. These functions include to:

- i. Ensure provision throughout Kenya of good and sufficient postal and other related services, on such terms as the Commission may deem expedient;
- ii. Ensure that the public post licensee is able to provide postal services at rates consistent with efficient and continuous service and financing liability;
- iii. Promote development of postal systems and services in accordance with recognised international standards, practices and public demands;
- iv. Ensure that reasonable demands for postal services are satisfied;
- v. Promote and encourage the expansion of postal services in Kenya; and
- vi. Further the advancement of technology relating to the post and postal services.

The Kenya Information and Communications (Numbering) Regulations of 2010 mandate the Communications Authority to set standards and establish a National Communications

Numbering and Address Plan (NCNAP) to manage a National Addressing System for Kenya. These regulations also mandate the Communications Authority to manage and approve addressing and numbering systems, and to control, plan, administer and manage addressing and numbering of communications systems and services.

Under these regulations, CA is mandated to establish a National Communication Numbering and Address Plan and control of all communication numbers and addresses to ensure fairness and efficiency by among others:

- i. Undertaking planning, allocations and monitoring;
- ii. Maintaining the national communication numbering and address register for all licensees in respect of resources which have been assigned;
- iii. Facilitating maintenance of the national electronic address and users register; and
- iv. Managing postal codes and national addressing systems.

The County Governments Act, 2012 entails some key elements in regard to urban management and planning. Section 104(1) provides that a county government shall plan for the county and no public funds shall be appropriated outside a planning framework developed by the county executive committee and approved by the county assembly. Section 107(1) prescribes that to guide, harmonize and facilitate development within each county there shall be the following plans:

- County integrated development plan;
- County sectoral plans;
- County spatial plan; and
- Cities and urban areas plans as provided for under the Urban Areas and Cities Act.

Section 36 of the Urban Areas and Cities Act, 2011 provides for integrated development planning. For Counties classified as urban areas, the Act specifies that the integrated development planning shall be the basis for:

- The preparation of environmental management plans;
- The preparation of valuation rolls for property taxation;
- Provision of physical and social infrastructure and transportation;
- Preparation of annual strategic plans for a city or municipality;
- Disaster preparedness and response;

- Overall delivery of service including provision of water, electricity, health, telecommunications and solid waste management, and
- Preparation of a geographic information system for a city and municipality.

The Survey Act, 1961, provides for the establishment of the Director of Surveys and such other officers as may be deemed to be necessary for the purposes of this Act. The act provides for the sole role of the surveying works by the Director of Surveys and his agents, and the sole power to authenticate survey plans prepared by any private registered surveyor. This overreaching mandate spans to issues like aerial photography. In terms of infrastructure provision, the survey act is important to help in production of reliable spatial data, now and in the future. The various sectoral bodies in conjunction with the Survey of Kenya may prepare maps but validation needs to be done by the Survey of Kenya.

For purposes of the National Addressing System, there is need for cooperation between the Director of Survey with the Communications Authority of Kenya and County governments for the production of accurate maps and plans for the purposes of planning. The Director of Surveys also has the powers to furnish the both CA and County Governments with up-to-date aerial images for preparation of maps. The Director of Surveys will help in authenticating maps, accuracy of maps produced for the reference and use by CA and County Governments.

Physical Planning Act Cap 286, 1996 (revised in 2010) provides for preparation and implementation of physical development plans and for connected purposes. This Act is a base for physical planning and development control (building construction permit and land development permit). It provides guidelines for preparation of regional physical development plans and local physical development plans. It also gives guidance on realization of urban development control. It outlines in the schedules, matters to be dealt with in regional and local physical development plans. It also provides guidance on renewal and redevelopment permission and approval of development permission.

The Act provides for the formulation of National, Regional and Local physical planning guidelines, policies and strategies. It further provides for the preparation of regional and local physical development plans in its section 16 and 24 respectively. In its section 5 the Act requires Director of Physical Planning to:

- a. Formulate national, regional and local physical development policies, guidelines and strategies;

- b. Be responsible for the preparation of all regional and local physical development plans;
- c. To initiate, undertake or direct studies and research into matters concerning physical planning from time to time;
- d. Advise the Commissioner of Lands on matters concerning alienation of land under the Government Lands Act and the Trust Land Act respectively;
- e. Advise the Commissioner of Lands and local authorities on the most appropriate use of land including land management such as change of user, extension of user, extension of leases, subdivision of land and amalgamation of land; and
- f. Require local authorities to ensure the proper execution of physical development control and preservation orders.

In line with section 5 (f) the Act empowers the *local authorities* in its section 29 to:

- a. Prohibit or control the use and development of land and building in the interests of proper and orderly development of an area;
- b. Control or prohibit the subdivision of land or existing plots;
- c. Consider and approve all development applications and grant all development permissions;
- d. Ensure proper execution and implementation of approved physical development plans;
- e. Formulate by-laws to regulate zoning in respect of use and density of development and;
- f. Reserve and maintain all land planned for open spaces, parks, urban forests and green belts in accordance with approved physical development plans.

It should be noted that the Physical Planning Act is inconsistent with the letter and spirit of the Constitution. The Act does not assign physical planning functions to the National and County Governments as provided for in the Fourth Schedule of the Constitution. County Governments are Planning Authorities and are responsible for development control. County and Local Physical Development Plans will be prepared and approved by County governments and not the National Government.

There are current efforts to review this law through the Physical Planning Bill, 2015. The Bill has been passed by National Assembly and forwarded to the Senate for the same. It is important to note that it is imperative that efforts are channelled towards ensuring this Bill is enacted in order to effectively address developmental control in the country.

The harmonization of all policies, laws and regulations that govern the planning and building sector must of necessity happen. As a first step the enactment of the proposed draft Bill should be fast tracked to provide for policy and regulation at National and County Government levels in line with the Constitution. There is need to establish various necessary institutional structures at both national and County Government levels for better carrying out of the function of physical planning.

The Vision 2030 - This is Kenya's long-term national planning strategy. Vision 2030 considers poor planning as a key inhibition for realization of socio-economic potential of the country. Most of the visions flagship projects require prudent spatial planning. The vision is implemented in successive five year Medium Term Plans.

3. INTERNATIONAL BEST PRACTICE REVIEW ON NATIONAL ADDRESSING SYSTEMS

GHANA

In 2010, Ghana launched the National Policy Document and Operational Guidelines on Street Naming and Property Addressing System. These policy documents provide local metropolitan, municipal and district assemblies (MMDAs) with guidance to develop land-use plans for their cities as well as to name existing thoroughfares.

The Street Naming and Property Numbering System (Street Addressing System) Operational Guidelines is a guide to the naming of streets and numbering properties (Street Addressing System) in Ghana. It is **designed to assist Metropolitan, Municipal and District Assemblies (MMDAs) to manage the processes for establishing a coherent Street Addressing System nationally. It seeks to assist MMDA actors to own, implement and manage the Street Addressing System by providing a common understanding of the standards and processes involved.** It also outlines the processes for carrying out Street Addressing within a settlement, community, city or district, as well as details the roles and responsibilities of all the actors involved in implementation and management of the System.

a) The Issue

The mandate of MMDAs to manage spatial development at the local level requires a system of efficient planning of activities in space and effective coordination of physical developments. The Assemblies are to execute the spatial planning responsibilities partly by issuing building permits for all physical development. The issuing of the permits is informed by approved Sector Plans or Layouts which takes into account the nature of land and how spatial activities should function effectively and efficiently for the overall welfare of the population and the environment. In recent past, Assemblies have lagged behind in the preparation of Layouts and even where they are prepared; enforcement has been an area of grave concern.

b) The Legal Basis for Street Addressing

The Local Government Act 1993, Act 462 (LGA) which established the MMDAs also designates them as Planning and Rating Authorities. As Planning Authorities, they have responsibility for spatial planning to primarily address the issue of orderly human settlement development. As part

of this mandate, Section 49 of the LGA requires that all physical developments should have written permits from the Assemblies with the Statutory Planning Committees as the arm of the MMDAs charged specifically with this responsibility. Also, LI 1589 {Local Government (Urban, Zonal and Town Councils and Unit Committees) (Establishment) Instrument, 1994}, has the fourth function of the Second Schedule stipulating that sub-districts are “to recommend to the District Assembly the naming of all roads in its area of authority and cause all buildings in the streets to be numbered”. In line with the Planning mandate of MMDAs therefore, streets are to be named and properties numbered to serve as a basis for issuing addresses for easy identification of places, delivery of service and the overall management of urban settlements and communities in general.

The operational guide defines Street Addressing as a system which involves naming streets and then numbering the properties along them. Street addressing is an exercise that makes it possible to identify the location of a plot or dwelling on the ground. That is, to “assign an address” using a system of maps and signs that gives numbers or names of streets and buildings/parcels of land.

c) Rationale for Street Addressing System

- i) For the Metropolitan, Municipal and District Assemblies (MMDAs):
 - It facilitates increase in internally generated revenue (IGF) and the management of the urban settings and services.
 - It is a tool for planning and managing municipal services by making it possible for agencies, either centralised and decentralised departments, to identify and monitor public assets in respect of their length, number, and condition to facilitate urban planning and programming of investments as well as management; and
 - To improve local tax collection where information gathered by the initiative makes it possible to compile a register of taxable individuals and businesses and locate them thereby making the determination of the tax base more realistic.
- ii) For the general public, it makes the urban setting more “user-friendly” by:
 - Improving the system of street coordinates which makes it easier for people to find their way around in the urban areas,
 - Assisting with the delivery of health, fire, and police services in times of emergencies, and

- Facilitating easy location of critical facilities in town and cities. For inhabitants, the operation:
- Facilitates identification and location by means of a simple, low-cost, user-friendly identification system;
- Assists emergency services (ambulances, fire services, police, etc.);
- Helps various urban services locate destinations: taxis, mail delivery and home delivery of goods and services, etc.

iii) The private sector is enabled by the system to provide targeted services to clients as well as tracking their location for the relevant follow-ups and maintenance of infrastructure and business transactions.

SOUTH AFRICA

During 2004, Standards South Africa, a division of the South African Bureau of Standards (SABS), began a project to develop a South African National Standard (SANS) for “*a standard framework for South African addresses*”, subsequently given the designation SANS 1883. The aim of the standard is not to devise a new system of addressing or to build a national address database, but rather to enable interoperability in address data sets and geographical information systems (GISs), which will facilitate developing a national address database. SANS 1883 consists of three parts, all currently in Working Draft stage:

- SANS/WD 1883-1, *Geographic Information – Address Standard, Part 1: Data format of addresses*.
- SANS/WD 1883-2, *Geographic information – Guidelines for addresses in data bases, data transfer, exchange and interoperability*.
- SANS/WD 1883-3, *Geographic information – Guidelines for address allocation and updates*

SANS 1883-1 defines an address as:

- ❖ **Address:** *an unambiguous specification of a point of service delivery.*
- ❖ **Point of service delivery** (or service delivery point): *actual location where a service could be provided.*

Hence, an address is used to facilitate the delivery of one or more services by one or more providers of services. Service delivery includes anything from utility services such as water, sewerage, telecommunications and electricity supply; refuse collection; billing; postal and courier

delivery; to emergency response; goods delivery; serving summonses; household surveys; and visiting. Addresses are also critical for services that are not necessarily performed at the address, such as opening bank accounts or buying on credit (as is required by the Financial Intelligence Centre Act (FICA)); obtaining an identity document or passport (as required by the Identification Act); voting (the Electoral Act requires one to have an identity document to be registered as a voter); obtaining employment; and for rates and taxes. As a result of apartheid, for many in South Africa, having an address has a social status, providing a sense of identity and of being recognized as a proper citizen.

Addresses complement a land information system that maintains information about land parcels and associated legal interests in, and legal rights on, the land parcels. There is not necessarily a one-to-one relationship between a land parcel and an address: one land parcel could have many addresses and a number of land parcels could share the same address. In South Africa, a land parcel description consists of a land parcel number together with a registered name and registration division, and is recorded at a Surveyor-General's office. An address complements a land parcel description with information such as the street name and the street number which are usually visible on or in the vicinity of the dwelling or building, while the land parcel description is not.

The South African Bureau of Standards (SABS), through Standards South Africa (StanSA), prepares and publishes South African National Standards, identified by the letters SANS. These standards reflect national consensus on a wide range of subjects, and are aimed at improving the quality of life of all South Africans. Experts in the field across government develop the standards, industry and academia, working through StanSA Technical Committees (TCs) and Sub-Committees (SCs). StanSA SC 71E, *Geographic Information*, deals with standards for geographic information for South Africa.

In August 2004, SC 71E voted for a new work item proposal on "A standard framework for South African addresses", subsequently given the designation SANS 1883. It was decided that the standard should support:

1. The allocation and management of addresses;
2. The recording and interchange of addresses;
3. The geo-coding and spatial representation of addresses;
4. The delivery of services throughout South Africa; and

5. The national developmental objectives.

The aim of the address standard is not to devise a new system of addressing or to build a national address database, but rather to enable interoperability in address datasets, which will facilitate developing a national address database.

The South African address standard (SANS1883) has drawn from similar standards elsewhere and the widespread expertise of its project members to describe the plethora of address types used in South Africa. The current standard includes eleven types of addresses: a street address, a building address, an intersection address, a site address, four types of SA Post Office addresses, a landmark address, a farm address, and an informal address.

The following paragraphs describe each one of the address types, and list a few examples. It must be emphasized that SANS 1883-1 aims at documenting all forms of addresses used in South Africa, rather than prescribing a narrow set of addresses that shall be used. SANS 1883-3 provides guidelines on which types of addresses should preferably be used, and how they should be allocated.

Street Address: In its most basic form the street address consists of a street name and a locality. An indication of street numbering is optional, ie, the 1736 in *1736 Pretorius Street* is optional or the 938B in *938B Nelson Mandela Drive* is optional. The locality can include suburb, town, municipal, provincial and country names. The inclusion of a postcode is optional.

Dr Lategan Road, Groenkloof
1736 Pretorius Street, Arcadia, 0083
70 Park Street West, Hatfield, City of Tshwane, Gauteng
938B Nelson Mandela Drive, Rustenburg, South Africa
18-20 Settlers Avenue, Rhodes

Intersection Address: This address type describes a location at the corner of two intersecting streets without any street number information.

Corner of Mulders Mile and Swart Street, Eldoraigne
Corner of Festival and Schoeman Streets, Hatfield
Festival Avenue and Schoeman Street, Hatfield

Landmark Address: In some instances the name of a landmark together with a locality is enough to be an unambiguous description of the location. The landmark address type provides for these addresses. Note that it does not always include street information.

Parliament, Cape Town
Voortrekker Monument, Pretoria
University of Pretoria, Lynnwood Rd, Lynnwood
Room 4-66, IT Building, University of Pretoria, Pretoria
Church Square, Pretoria, City of Tshwane

Building Address: This is a composite address type that consists of building information (in italics in the examples below) together with a street identifier or intersection identifier. The building information comprises unit and floor information together with a unique building identifier. Provision is made for a number of buildings that are grouped together and referred to by a common name, such as the complex's name.

Block 816 Diamond House, Eloff Street, Braamfontein
Election House, 260 Walker Street, Sunnyside
Room C212 2nd Floor Asterhof House, South Street, Hatfield
ABSA Towers North 4th Floor, Marshall Street, Marshalls Town
101 1st Floor Maroela Strubenpark Complex Pretoria
Commission House, corner of Church and Hill Streets, Pretoria

Site Address: The address types described above include either a street name or a landmark name in the address. However in South Africa, there are addresses (unambiguous descriptions of service delivery points) that consist of an address number and locality only. Site addresses occur primarily in townships established during the apartheid years when house numbers were allocated per block or section in a township, but no street names were assigned. Today there is a big drive by municipalities in South Africa to assign street names in the former townships. Unfortunately, it is a slow process because of sensitivity over names and the need for community participation, and site addresses in townships will continue to exist in the foreseeable future.

The second type of a site address occurs in rural areas and describes the location of a farm or agricultural holding by referring to the Surveyor General's cadastral description of the property.

The third type of a site address is quite recent, and occurs in security estates where the property is described by means of a cadastral ERF number together with a name for the locality. In this case, the locality name is not necessarily the same as the name registered at the Surveyor General (i.e. the official name), but is assigned and used by the property developer of the estate, and then becomes the de facto name for the area.

25436 Soshanguve CC (*former township*)
Plot 1/45 Waterkloof AH (*non-urban area*)
Farm 938 Rietfontein 341-JR (*non-urban area*)
Farm 1/394 Rietfontein Bloemfontein RD (*non-urban area*)
Erf 402/2 Woodlands (*security estate*)
Portion 938 Mooikloof (*security estate*)

Farm Address: A farm address consists of a farm name (in italics in the examples below), which is assigned by the occupant or owner of the farm, together with a town or colloquial area name. The farm address also provides for an optional building name, similar to the building name in the building address type, which identifies either the specific dwelling of a tenant or another structure on the farm that acts as a service delivery point.

My Geluk, S935, opposite farm dam, Koffiefontein, Letsemeng Local Municipality
Blommeplaas, Koue Bokkeveld
Tabakskuur, *Grootgeluk*, Kimberley Road, Bloemfontein

Informal Address: Delegates to the SANS 1883 project meetings provided various examples of the use of descriptive free format text addresses, such as a cell phone service provider delivering a pre-paid voucher to an address of the form: “*Under the tree at the entrance to the village of Feni?*”. This kind of address also has to be stored in a database, and the informal address type provides for these addresses. The minimum requirements for an informal address are a free format description together with a locality. The address type provides for optional street, street intersection or landmark information. Although this address type is useful for data exchange, official allocation of informal addresses is not encouraged.

First house on the right after the Vodacom booth, Olievenhoutbosch
Opposite the butcher shop, Tsamaya Street, Mamelodi

SA Post Office Address Types: The SA Post Office specifies four address types for postal mail delivery: the PO Box address, street address, *poste restante* address, and the SAPO-type rural village address. These address types are also recognized by the Postal Address Management Service Suppliers (PAMSS), who are accredited by the SA Post office to certify addresses for bulk mailing (a considerable rebate on postage applies to PAMSS-certified addresses).

SAPO Box Address: This consists of a PO Box or Private Bag description together with a post office name and postcode. The country name or code is optional. Below are some examples:

PO Box 2947, Hatfield, 0028, ZA
Private Bag X2438, Glenstantia, 0010
Postnet Suite 29487, Private Bag 10, Menlo Park, 0102

SAPO Street Address: The three addresses below represent *street addresses* as used for delivery by the SA Post Office. There are two subtle differences between the street address type described earlier and this SA Post Office street address type:

1. The postcode is mandatory in the SA Post Office street address type, whereas in the street address type the postcode is optional.
2. The locality name in the SA Post Office street address type has to be one of the names as provided by the SA Post Office. This locality name refers either to a place name or a post office name, whereas in the street address type the locality name always refers to a place name. The street address type also provides for colloquial place names, whereas the locality name in the SA Post office street address is restricted to names approved by the SA Post Office.

The SA Post Office street address type is not a subset of the street address type, because a post office name is not allowed in the street address type.

74 Observatory Road, Woodhill, 0081
2038 Schoeman Street, Hatfield, 0083
477 Chopin Street, Glenstantia, 0181, South Africa

SAPO *Poste Restante* Address: This is a service whereby a post office holds mail for a limited period, to be collected by the addressee in person from the post office. Internationally, this is

typically used for visitors who do not know in advance where they will be staying. However, it is also used in South Africa and other countries by people who have not yet been assigned a postal address. The *poste restante* address must include the full name of the recipient (to be matched against their identification document or passport), together with the post office and postcode. The sender should also include their return address, but that appears elsewhere on the envelope and does not form part of this address type.

Mr Peter Smith, Poste Restante, Pretoria, 0001, South Africa
Ms Kagiso Molefe, Poste Restante, Winterveld, 0198

SAPO-type Village Address: Finally, the SA Post Office-type *village address* consists of a house number together with an optional village name, and a mandatory place name and postcode. The house number consists of three pairs of digits, identifying (from left to right) the village, section and dwelling. The place name and postcode refer to the post office closest to the village.

The SA Post Office has been assigning these addresses to dwellings in rural villages, thereby making a significant contribution to the development of the people in these areas by enabling them to receive mail, furniture and other goods or service deliveries. It also enables a person to apply for financial services for which a residential address is required according to the Financial Intelligence Centre Act (FICA).

012151 Ngxingxolo, Mooiplaas, 5228
110101 Corana, Umtata, 5100
010101 Feni, Peddie, 5640

The Geographic Names Council (GNC) is responsible for standardizing place names in South Africa, and in this capacity the GNC have delegated the responsibility for allocating addresses to the municipalities.

WESTERN AUSTRALIA

This Address Management Policy in Western Australia is authorised under Public Sector Commissioner's Circular 2013-03 Policy Framework and Standards for Address Management in Public Sector Entities. The purpose of the policy is to enable agencies to better capture, store, manage and exchange information that includes an address component. The benefits of this approach include:

- Government business processes are efficient – the exchange of address data between agencies is streamlined and the data is valid and accurate.

- Address information provided to government is accurate – the incidence and related cost of incorrect addresses is reduced.
- Safety of the public and emergency response officers is optimised – the potential for delays in emergency response and the exposure of officers to risk is reduced.
- Citizens can easily notify government of changes of address – the notification process is streamlined, and in the long term, citizens are able to provide that information only once and all agencies are advised of the change.

The following data sets are recognised as the authoritative source of address information in Western Australia:

- Street Address (Western Australia) - Landgate Address Data Set (ADR)
- Street Address (other States & Territories) - Geocoded National Address File (GNAF)
- Postal Address (all jurisdictions) - Australia Post Postal Address File (PAF)

These data sets comprise the standard that should be applied. Where agencies already use a commercial service provider for data cleansing and verification services, the provider should comply with the above standard.

The key principles of the Address Management Policy are:

- Focus on citizens - services and information associated with this policy should be designed and focused on the needs of Western Australians.
- Accessibility and choice - the service delivery model should enable Western Australians accessibility and choice of services to meet their individual needs and circumstances.
- Trust, confidence and security - agencies should maintain the trust and confidence of citizens that government is collecting, using and disclosing their information in a manner that respects privacy and is consistent, secure, and ethical.
- Collaboration and integration - agencies should work in a collaborative manner, prioritising the need for integration of services where this is relevant to the policy, and adoption of common standards, including those defined in the NAMF.
- Accountability – implementation of the policy should be underpinned by the tenets of transparency, accountability and ethically responsible government.

The implementation time frame set by the policy, in recognition of the cost and resource effort required for agencies to adopt this policy, a five-year transition period is provided. Public sector

agencies should establish implementation plans by August 2015 and aim to comply with the policy by August 2018. Implementation Principles when adopting the Address Management Policy, agencies should aim to comply with the following principles of best practice in address management:

- Agencies utilise the NAMF when redeveloping their addressing systems.
- The primary source of address information for agencies is the authoritative data sets listed in the policy.
- Any address information received or used by an agency is verified against the authoritative source of address information before recording in an agency system.
- Address data held by an agency is checked and cleansed against the authoritative source of address information at least once per year, or in accordance with scheduling plans mutually agreed between the agency and Landgate.
- Any change to the address component of a person's identity is authenticated before acceptance.
- In the long term, agencies aim to establish a system where citizens inform government once of a change of address and all agencies are automatically advised of this change.

UNITED KINGDOM

Street naming and numbering is a statutory Council function in the United Kingdom. The relevant powers for local authorities are contained in Sections 64 and 65 of the Towns Improvement Clauses Act 1847, and Sections 17, 18 and 19 of the Public Health Act of 1925. Both of these acts are still in force even though they exceed 150 years and 75 years respectively.

These Acts require the local authority to prepare street naming and numbering schemes and to maintain a good standard of street nameplates. Both are essential for the efficient functioning of postal and emergency services as well as for the convenience and safety of the general public.

The Public Health Act 1925, Section 19 gives authorities the power to insist that the name of every street shall be shown in a conspicuous position and, also alter or renew it if it becomes for any reason illegible. This section also makes it illegal to pull down or remove a street name, which has been lawfully set up, or to fix a notice or advertisement within close proximity to the sign. Anyone found guilty of infringing these requirements can be liable to a fine imposed by a Magistrates Court

These acts also give the Council the ability to produce regulations concerning the erection of signs for the names of public streets and, ensure that the names and numbers of all buildings are displayed by their owners in accordance with these regulations.


Street naming and numbering is an important aspect of modern life that is often taken for granted, but it is sufficiently important to need legislation to enforce the requirements of government and local government in this area.

All address data is compiled in the Council's Local Land and Property Gazetteer (LLPG) and provided regularly to the National Land and Property Gazetteer (NLPG), both continually maintained and updated in accordance with the requirements of BS7666.

Naming and Numbering of New Streets

Commonly developers familiar with the Council's Street Naming and Numbering procedures will usually apply for a numbering and naming scheme at an early stage of the development. The Council will request that the developer provide a plan showing all proposed names for all new streets and, will at this stage also consult the local Parish Council, enquiring whether they have any particular preference for a historical or local street name.

The Council charges an administration fee for the creation or registering of all new properties and is based on the size of the proposed development and not on the number of new street being created. The fees charged are on a sliding scale as follows:

- 
- Development of a single dwelling - £112
 - Development of between 2 and 20 new dwellings - £223
 - Development of more than 21 Dwellings - £11 / New Dwelling

Once these proposed street names have been supplied to the Council, the Street Naming and Numbering Officer and the Royal Mail/ Post office will carry out a check to ensure that no conflict occurs with any other street names, within the local area.

In cases where the Council and / or Royal Mail consider that the a proposed street name is unsuitable, commonly due to conflict with an existing local street name, the developer will be requested to supply, to the Council, an alternative name for the new street. The Council and the Royal Mail / Post office will then repeat the process of checking this alternative street name for conflict with any other street within the local area, with this procedure continuing until a acceptable name is proposed.

Given that no conflict occurs the proposed street names will be then be submitted to the local Ward Councillor for their approval and agreement. The Council will not propose a name to the local Ward Councillor unless it is considered acceptable to the Street Naming and Numbering Officer and the Royal Mail / Post Office. Agreement by the local Ward Councillor is required within 14 days of the request for approval by the Street Naming and Numbering Officer, should no approval be received within 14 days then the proposed street names will be assumed to be approved.

Should the local Ward Councillor not approve or accept the name proposed by the developer then they will be requested to propose an alternative name and the process will recommence. Notice of the request for an alternative street name will be served by the Council within 27 days of the receipt of the original street name proposal, by the Street Naming and Numbering Officer.

Should the developer wish to appeal against this decision, the appeal is required to be made to the local magistrate court within 21 days of the Council's rejection decision. The local magistrate court will then rule on the proposed name of the street, and either the developer will be requested to provide an alternative name for all streets, or the proposed street name will be approved by the court.

Following approval by the local Ward Councillor and agreement with the developer for the proposed street naming and numbering, Royal Mail / Post Office will be requested to allocate postcodes for all the properties along the street. Royal Mail / Post office will not issue a postcode until informed officially by the Street naming and Numbering Officer that an address has been allocated, and the address is not complete without the correct postcode.

Once the street name has been agreed a layout plan and street naming and numbering schedule is prepared by the Council, allocating a number and street name to all the developer's plot numbers.

Naming and Numbering of the Development of Individual New Properties

The development of Individual properties is most commonly carried out on infill land, large gardens, or on the site of previously demolished properties. These types of developments will, where possible, be numbered within the existing naming and numbering sequence and, letter suffixes (e.g. 16A) will be used if required. Where a development takes place on the site of a

demolished property, the new building will inherit the demolished property's number, where one was originally allocated, however a new name for a property maybe added should it be required.

The Council charges an administration fee for the creation or registering of all new properties and in the case of a single new dwelling the fee is £112.

Where a newly developed property requires a name the developer will be requested to propose one, where there is an existing number at the site the Council will inform the developer that this must remain but that a name may be added. In situations where there is a consistent street numbering sequence the Council will require, where possible, the new property to follow this sequence.

The Street Naming and Numbering Officer will on receipt of a proposed name or number carry out a check to ensure that this proposal does not conflict with any other name or number in the same locality. On passing the Council's conflict check the proposed name or number will be submitted to Royal Mail / Post office to carry out a further conflict check to satisfy their postal delivery requirements.

Should conflict be found by the Council's Street Naming and Numbering Officer or Royal Mail / Post office, the Council will inform the developer in writing and request an alternative name or number proposal to be submitted. The Council should serve notice of a request for an alternative name for a development within 27 days of receipt of the original naming proposal.

Once the Council Street Naming and Numbering Officer receives agreement for the proposed address from the Royal Mail / Post Office, the Council will inform the developer in writing that the name or number has been agreed, and will inform all other address parties including Royal Mail / Post Office, Valuation Office, Weymouth Land Registry, Emergency Services, Council Tax and Electoral Registration offices.

Naming and Numbering of the Development of Multiple New Properties where no new street names are created

These types of developments are carried out in a similar manner to those of individual properties, on vacant or infill land, or on the sites of previously demolished properties. In these cases a number of new properties or flats are being developed on a piece of land, but there is no requirement for a new street to be created.

The Council's procedure for the naming and numbering of multiple properties within a development follows the same rules as those for individual properties, however the fees charged by the Council for the registering or creation of new dwellings uses a sliding scale depending on the size of the development. For between 2 and 20 new dwellings the fee is £223, whilst for more than 21 new dwellings the fee is £11 per new dwelling.

Once this procedure has been completed the Council's Street naming and Numbering Officer will issue the developer with a plan and schedule indicating the new names and / or number for each individual plot that is being developed.

Renaming & Renumbering of streets

Under Section 18 of the Public Health Act 1925 the Council can alter the name and numbers of any street if there is a particular need to do so. Should you wish to change the name of your street or consider that the street has been named in error, or has sections that need renaming, you should contact your Parish Council, who will need to agree a new scheme of naming with all the residents, along the street. The Parish Council will then make an application to the Council for a street name change.

The Council makes a charge for the renaming of a street of £400 plus advertising and legal costs, to be paid in advance and which is non-refundable. No charge is made if the requirement for the renaming of a street has been requested by the Emergency Services due to confusion or problems in locating a particular street.

A request to change, alter or correct the name of a street can be made directly to the Council's Street Naming and Numbering Officer, who will conduct a consultation exercise with all residents living along the street to be changed, to obtain their views as this change. The change of name of a street will only proceed should a clear majority of the residents are in agreement with the proposed change. If a clear majority are not in favour of the change then the Street Naming and Numbering officer will write to the original correspondent and all residents that no change will take place.

On receipt of a request to change a street name the Council will give careful consideration to the proposal along with consulting with the Royal Mail. On acceptance of the new street name, the Street Naming and Numbering Officer will request approval for this change from the local Ward Councillor. Once approval has been gained the Council's Legal and Democratic Service will

prepare Street Renaming Notices to be displayed in conspicuous positions at both ends of the street to be renamed, 32 days prior to the Street Renaming Order coming into effect.

All objections to this proposed change of street name will be required to be notified to the local magistrates court within 21 days of the erection of the Street renaming Notices, where objections will be heard and the granted or rejected.

Should all no objections be supplied or all objections rejected the Street Renaming Order will come into effect on the date indicated on the Street Renaming Notices. The Street Naming and Numbering Officer will confirm in writing to all residents living along the street, and the Parish Council the new street name, for their information.

Renaming / Changing / Addition / Removal of House Names and number

Where a property has been allocated a house number, neither the property owner nor the Council may remove that number from the property or substitute the number with a name, and the number must be displayed.

Where only a number has been allocated to a property the owner of that property may add a name to the property; and both the name and number for the property must be displayed.

Where a property has both a name and a number, despite recognising the name and number the Royal Mail will only display the number within their database. The newly added name is considered to be an “Alias” within the address and, Royal Mail do not require both name and number to deliver items of mail.

Where both a name and a number have been allocated to a property the owner may remove the name, but the allocated number must remain and, be displayed.

For a property owner to change, add or remove a name to their property or, add a name to an already numbered property, the Council requires that the owner of the property contacts the Street Naming and Numbering Officer in writing, confirming the existing name of the property along with its proposed name. The Council charges an administration fee of £82 for the services for the changing adding or removing of a name to a property. All correspondence should be made to the following address:

Postcodes

This is the responsibility of Royal Mail. However they will not issue a postcode for a new street or property until requested to do so by the Council.

Postcodes for commercial premises are allocated in the same way as residential premises, but a large company or business can apply to Royal Mail for its own code – known as a large user code. Application for a large user code is the responsibility of the user, as they will know what volume of mail they generate.

Street Nameplates

When a road is built as part of a new development it is the responsibility of the developer to arrange for the installation of a street nameplate to the appropriate specification. Once the street has been adopted under a Section 38 Agreement the Council will take over responsibility for maintaining all nameplates.

DRAFT

4. CHALLENGES OF ESTABLISHING A NATIONAL ADDRESSING SYSTEM

This policy recognizes several challenges and limitations, which include the following:

1. Coding (Numbering) is not always logical and consistent as a result of improper planning, recent case is where some properties had double coding (numbering) in Nairobi - by the then Nairobi City Council and Ministry of Nairobi Metropolitan Development;
2. Lack of integrated spatial database and data inconsistency. i.e. many institutions keep databases suiting their needs. e.g Ministry of Lands, Housing and Urban Development, Survey of Kenya, County Governments, Kenya Revenue Authority, Voter's Registration, National Identification, etc.;
3. Street signage available only in some urban areas mostly Cities or County headquarters, while sign posts are largely available in urban areas but hardly replaced when vandalized by scrap metal dealers among others;
4. Ineptness and underfunding in many County Governments inhibit their ability to carry out functions of street naming and addressing effectively;
5. Political interference in rural and urban planning regulations not being fully respected;
6. Lack of an institutional framework or organization with responsibility to drive the implementation of national addressing system. This policy underscores the need to have a specific body responsible for the entire process of national addressing system in Kenya. This policy is alive to experiences from countries such as Zimbabwe and Tanzania which have shown that it is extremely difficult to drive a national initiative if there is no support from all levels of government and a clear comprehensive national policy to anchor the project on.

Development of properties have outstripped the pace at which County Governments are able to put in place approved Layouts to be used as a basis for enforcement. In addition, until recently, issuing building permits was fraught with long periods of delay, which have resulted the physical developments proceeding without approval from the County Governments. This problem is caused by the fragmentation of land ownership, which is fraught with multiple sale of the same parcels to different by people purporting to be land owners. With this, when an individual purchase a parcel of land, the fear that it will be sold out to other people is forced to start development without recourse the laid process of acquiring the necessary approvals.

Consequently, a considerable number of developed properties have no permits as well as addresses as most of the developments hardly go through the approval process of the County Governments.

The absence of street names and property numbers in this times of mounting rate of urbanisation presents a disturbing development trend as critical urban services to be delivered to the people is already seriously affected. The problems in the urban areas manifest in various forms including the following:

- Poor housing and property development due to improper use of land as effective management principles are not followed;
- Lack of zoning to ensure efficient and effective disposition of activities in space;
- Inadequate provision services to houses and the people;
- Traffic conjunction due to poor layout of streets; and
- Mounting difficulties associated with provision of emergency services in times of fire robbery and health emergencies among others.

The absence of an effective street addressing system therefore brings about the following critical questions in respect of how the Country functions:

- How do you find your way around a constantly growing city?
- How do you send mail and messages to private homes?
- How do you locate urban facilities and infrastructure?
- How do you pinpoint breakdowns in water, electricity, and telephone systems?
- How do you improve on-site collection of water and electricity bills?
- How do you set up an efficient land rates collection system?
- How can commercial entities easily locate their clients and offer the needed services?
- Would services such as ambulances, fire or security be able to operate effectively to safeguard the welfare of the urban population?
- How can courier services be managed with ease in locations outside well-known public places?
- How can tax collection agencies, service providers and local authorities effectively function in the execution of their mandates?

Different service providers continue to use their own numbering systems to identify properties to facilitate their operations, thus leading to a multiplicity of numbering systems for, especially, buildings and properties.

5. STRATEGIES FOR IMPLEMENTATION

The National Address System will be integral to provision of public services such as postal delivery, land registration, property taxation, emergency service delivery, electoral registration and business registration.

The scope of the NAS shall include the following administrative units:

- Country;
- County;
- Sub-county;
- Ward
- Village

And the following addressable objects:

- Property/parcel (urban, Peri-urban, informal and rural including nomadic);
- Buildings (residential, commercial, educational, institutional, government);
- Landmarks (e.g. statues, monuments, public parks);
- Physical features;
- Land use;
- Streets, roads and thoroughfares including road junctions, roundabouts, intersections, tunnels, bridges, etc.

As the National Address System is a national data infrastructure project, equal importance will be placed on developing systems that support both rural and urban addressing. Because the allocation of street names and property numbers has already been started in some urban areas such as Nairobi, this information in addition to existing road names and building names that are already in place in other parts of Kenya should be integrated into the NAS rather than replaced.

5.1. NAS Roles and Responsibilities

The following delineation of roles and responsibilities is critical to efficient and effective development and implementation of the NAS in conformity with the Constitution of Kenya, 2010:

- a. It is the responsibility of all county governments to ensure that all existing and proposed streets within their jurisdiction are named and appropriate signage is erected in accordance with the standards set out in this Policy.
- b. The naming of streets shall be the responsibility of the County Address Units (CAUs) described in section ***. The CAUs shall lead the process of interpreting this Policy and coordinating implementation of the NAS at the county level, in consultation with all relevant Ministries, Departments or Agencies at the county or national level as may be appropriate.
- c. During the initial phase of implementing the NAS, the respective CAUs shall constitute Address Implementation Teams (AITs) at the sub-county level, which will be responsible for the day-to-day implementation of the NAS.
- d. It is the responsibility of the national government to provide policy direction and coordinate implementation of the NAS at the national level, to ensure a cohesive and integrated system across the whole of Kenya. The NAS Secretariat of the Communications Authority of Kenya, shall provide technical support to the CAUs as needed, and shall further compile and maintain a National Address Database, shall undertake this responsibility.

A. Physical Addressing

An address is structured information that provides a clear and simple determination of an object for purposes of identification and location. A physical addressing system involves naming streets and then numbering the properties along them. Street addressing makes it possible to identify the location of a property or building/structure on the ground, using a system of maps and signs.

Street addressing as a system goes beyond the mere naming of streets and numbering of properties. It includes developing digitized maps for use in the management of settlements and communities, which can then be developed into a Geographical Information System (GIS) database. Thus, development of a street addressing system should not be viewed as a one-time activity, but as a process to be expanded and refined over time to address a range of needs.

The Universal Postal Union (UPU) S42 international addressing standard defines a set of postal address components for worldwide addressing and the rules/templates for address formatting. S42 elements define the smallest meaningful parts on an item of mail, which are split into first or second level identifiers. Common examples of elements include:

- Addressee
- Organisation name
- Floor
- Unit
- Street identifier
- Plot identifier
- Street type
- Town/county
- Postcode

The NAS data model specification must therefore adhere to the above core S42 elements in order to achieve compliance with the UPU S42 standard.

Likewise, ISO 19112 provides a framework to record locations identified in the real world and introduces the concept of a geo-spatial reference as a label or code that identifies a location using geographic identifiers. The standard establishes a general model and schema for spatial referencing, which shall be used as a framework for the NAS, to develop a coherent address geography for Kenya.

Currently an international standard does not exist for mobile addressing which can be used for nomadic communities, however electronic location identification of individuals such as through mobile phone location can be adapted for this purpose.

B. Road/Street Naming Responsibilities, Standards and Procedure

For the purpose of this Policy, the terms ‘road’ and ‘street’ will be used interchangeably to mean any street or thoroughfare leading from one place to another, designed and built to be travelled upon, usually by means of some type of vehicle.

This section sets out how the street naming exercise will be carried out. Its purpose is to guide implementation of the National Address System to ensure conformity and consistency across the country.

Responsibility for Approving and Making Changes to Street Names

Responsibility for identifying streets to be named and proposing names therefor lies with the Address Implementation Teams (AITs), but ultimate responsibility for approving new or changed street names lies with the County Address Unit (CAU). The consideration of such areas as a planning region for the purpose of the street naming exercise shall likewise be determined by the CAU in consultation with their respective AITs.

Street names proposed on layouts shall not be approved until names and placements have been reviewed for conformity to the standards in this Policy, and correct spelling. A street name shall not be considered final until it is mapped on the layout and gazetted.

Standards for Assigning Street Names

The assigning of Street Names shall conform to the following standards:

- i. All streets are to be named regardless of whether they have structures/buildings along them or not. Street names and property addresses shall ultimately be geo-referenced to allow navigation.
- ii. Street names shall not be duplicated in a county or in any geographical region defined for the purpose of this exercise, even if the street types are different.
- iii. Only recognized street types as listed and defined in section ** Street Types, shall be used, and street types shall be consistent with their definitions.
- iv. Street names along continuous streets with ‘T’ intersections shall not change. A Street, which runs through more than one sub-county, shall therefore have one name along its entire length.
- v. Street names that change at a junction (other than a ‘T’ intersection) must be clearly indicated.
- vi. Street names shall not exceed a maximum of twenty-two (22) characters made up of eighteen (18) characters for the name and any prefixes (including spaces), and four (4) for suffixes.

- vii. To facilitate easy mapping of street names, short road lengths must have short street names.
- viii. Street names should effectively communicate to the public, especially children. The names should therefore be easy to read, easy to pronounce and not offensive.
- ix. Street names with similar pronunciations but different spelling shall be avoided within a county.
- x. The use of special characters in street names such as hyphens, apostrophes or dashes should be avoided.
- xi. Street names should promote community image and may be drawn from local history, culture and traditions, but the use of names of living persons, including politicians and chiefs, should be avoided.

Street Types

For consistency and ease of navigation, the following Street types shall be used to designate streets within a developed area (urban or community setting):

- i. Highway
 - ii. Freeway
 - iii. Parkway
 - iv. Avenue
 - v. Boulevard
 - vi. Road
 - vii. Drive
 - viii. Street
 - ix. Crescent - half-moon type access road which branches off a local distributor and returns to it
 - x. Loop - an access road which branches off a local distributor and returns to itself.
 - xi. Close - A minor access road with a dead end.
 - xii. Lane - A minor road of access connecting two access roads.
 - xiii. Court - A minor road of access serving a cluster of houses on a frontage level out also with a dead end.
- High-speed freeway or primary distributor road
- District distributor serving a larger region/area than an estate
- Local distributor road serving one estate or a group of adjacent estates

- xiv. Rise - A minor road of access constructed along a steep topography.
- xv. Gardens - A minor road of access usually leading to a landscapable open space.
- xvi. Groove - A minor road of access usually passing through rivers, valleys and small clustered trees.

The above street types can be also be classified into road hierarchy as shown below:

A. Primary distributor -	Highway, way, freeway, parkway etc.
B. District distributor -	Avenue, boulevard
C. Local distributor -	Road, drive, street
D. Access roads -	Crescent, loop, road
E. Minor Access Road -	Close, court, gardens, groove, rise, lane

Reviewing Existing Street Names

Where street names already exist, the following shall be applied:

- i. The Address Implementation Team shall conduct an audit of all existing street names for consistency with the standards in this Policy.
- ii. Changes to existing street names shall be deemed necessary only in cases of street name duplication or if the street name is such that pronunciation is difficult and can cause confusion in case of an emergency response to a location.

Street Naming of Informal Settlements and Refugee Camps

Street naming of informal settlements, refugee camps and areas of unplanned development shall be based on a range of options due to their unique nature.

- i. Where there are existing defined streets (streets, walkways, lanes, etc.), they shall be mapped and named accordingly as set out in section ***.
- ii. Where there are no existing definable streets the AIT shall, in consultation with the leadership of the community, undertake an exercise to identify possible streets. This involves identification and mapping of the access routes and naming such walkways, lanes and paths in accordance with the requirements of section ***.

Street Names for New Development

Naming of new unnamed roads for already developed or developing suburbs shall be done by AITs and subsequently approved by CAUs in accordance with section ***. AITs shall actively elicit proposals for street names from the public.

Prior to starting development on a parcel of land, the prospective developer is required to submit an application for development to the clerk of the county authority responsible for the area in which the land concerned is situated. At the point of making a development application the developer may indicate proposed names for any new streets into or through the development. The county authority to which the development application is made shall refer any proposed street names to the relevant CAU for review and approval in accordance with this Policy. If the developer does not propose names for new streets, then names shall be assigned by the AIT in accordance with section ***.

*****Whether any charges are applicable to the services and if so a schedule of such charges.**

NOTE: Cap.286 already provides for regulations to be made setting fees for development applications

C. Address Numbering Responsibilities, Standards and Procedure

Responsibility for Property Address Numbering

The Address Implementation Team shall assign property address numbers in accordance with the standards set out in this Policy.

Property Numbering Standards

The assigning of property numbers shall conform to the following standards:

(a) Primary Address System

- i. All properties used for residential, commercial, civic, institutional or governmental purposes as well as vacant parcels in developed areas shall be assigned numbers as a geo-spatial reference.
- ii. Property numbers shall be assigned with reference to the street that fronts them.
- iii. Property numbers for corner plots shall be assigned in reference to the street from which the main entrance to the property is located.
- iv. Property numbering flow along a street shall follow a south – north direction and an east – west direction as applicable to its general orientation.
- v. Dead-end roads shall have beginning points at the point of departure from the main road, irrespective of the direction.

- vi. Property numbering flow along streets with a circular pattern (e.g. Courts, Circles, Loops, Crescents) shall be clockwise for a north orientation, and counter-clockwise for a south orientation.
- vii. Odd/Even numbering rule: even numbers shall be assigned on the right side of the street, from the point of beginning, and odd numbers on the left side, from the point of beginning.
- viii. Property numbers shall not contain fractions (eg. 1/2) or hyphens (eg. 1-2).

(b) Secondary Address System

- i. Compounds: Compounds that are one parcel of land containing a number of buildings or houses owned by one individual shall be assigned one property number. When buildings or houses are all located on the same parcel of land but with different owners and possibly titles, the compound shall be assigned a property number and the separately owned structures shall be assigned a secondary location indicator (eg. House No.1 or House A).
- ii. Apartments and Commercial/Office Suites: Apartments and multi-tenant structures such as commercial buildings or office suites shall have the entire building assigned a property address number, and the floors, apartments or suites assigned secondary location indicators (eg. the fourth apartment on the fifth floor may be numbered as Apt.E4 or Apt.504, and an office suite on the second floor may be numbered as 2nd Floor, Suite 3).

Property Numbering in Settlements without Streets (Site Addressing)

The following process shall be applied in the numbering of properties in settlements without streets:

- i. Determine the central point of the community;
- ii. Divide the settlement into manageable and distinct blocks as sectors (using available maps, if any);
- iii. Number and name the sectors. If there are existing names for the sectors they may be adopted;
- iv. Determine key walkways with the help of community leaders and name them; and
- v. Start numbering properties along the walkways from the west to east or from the south to the north depending on the direction of growth of the settlement.

Property Numbering of Informal Settlements and Refugee Camps

Numbering in areas where there are streets will follow the standards outlined in section ***.

In areas where there are no walls for the properties and a number of buildings are on the same compound or parcel of land, the AIT shall identify the owners or occupiers of the building or properties on the parcel of land, and where it is established that there are different owners/occupiers who are not of the same household, then different numbers shall be assigned to the properties or houses.

In situations where there are a few streets and unplanned developments, the following approach shall be used in the numbering of properties:

- i. Where there are named or defined streets, then the numbering of the properties will be done with these as the reference points; or
- ii. Where there are no defined streets, the clustering approach will be applied, where various clusters will be determined and the numbering carried out depending on the building patterns.

D. Address Display Responsibility and Standards

In Africa, there is the SADC-RTSM convention developed by the Southern African Development Community, which is currently in use either in full or part by a number of countries (Botswana, Lesotho, Namibia, Rwanda, South Africa, Swaziland, Tanzania and Zambia). Current street signage in Kenya is based on the 1975 Traffic Signs Manual legalized by Kenya Gazette supplement No. 90 of 20 December 1974. For the purposes of the NAS, the SADC-RTSM model shall be referenced and contextualised to conform to the greatest extent possible with the model currently in use.

Street Name Signage

All streets shall be identified by the name assigned and signage erected in accordance with this Policy. Responsibility for coordinating and overseeing the fabrication and installation of street name signs at the intersections of all existing and new streets in each county is vested in the CAU.

Street name signs shall be installed at all intersections, and shall conform to the following specifications:

a. Street Name Sign Colour and Illumination

- i. Two colour schemes shall be permitted for street name signage. The background colour of the street name panel shall be reflective white. The lettering of the street name shall be black.
- ii. The appropriate font shall be used ***

b. Height of Street Name Sign Post and Material

- i. The total length of street signpost shall be 3000mm with not less than 2400mm above the ground and 600mm buried in concrete in the ground.
- ii. The street sign post material shall be a 76.2mm diameter galvanised pipe.
- iii. The pole shall be filled with concrete before they are erected to reduce pilfering.
- iv. Placement of the street nameplate and the signpost shall flash at the top.

c. Street Name Plate Dimensions and Lettering

- i. Street nameplate shall not exceed 1000mm in length by 150mm wide with rounded corners. Two lettering options shall be allowed namely all inscriptions in capital letters or in title case. Text options for Street Name plus Address Range shall be embossed.
- ii. Where there is no Address Range as Secondary Text, the spacing in between the Text Line and top and bottom borders shall be 15mm.
- iii. The names shall be on chromate plated pressed aluminium sheets or any other material subsequently declared.
- iv. The street nameplate shall be fixed on rectangular galvanised hollow section panel measuring 1000mm long by 150mm by 30mm welded to the signpost.

d. Street Name Sign Placement

Principles for placement of street signs cannot be detailed exactly as each situation must be assessed in its own context to give the most suitable results. The list of standards below for the positioning of signs is to be taken as a general guide and may not be an exhaustive list. This guide is to be used in conjunction with street name sign content and specification.

- i. Signs shall be placed with the DIRECTION OF THE INSCRIPTION parallel to the streets they name, beyond pedestrian walkways at the intersections within 12 cm from the edge of the walkway.
- ii. Street name signs are to be bi-directional at intersections and shall not impede pedestrians and other users of the access ways.

- iii. Placement of street name signs shall not be combined with outdoor advertising.
- iv. Street name signs shall not be obscured by outdoor advertising, plants or any other object at street intersections.
- v. CAU shall ensure reorganisation of intersections to enhance visibility of street name signs.
- vi. At intersections, all streets are to have signs at the entrances.
- vii. At “T” intersections, the main street nameplate is to be placed directly opposite the traffic approaching from the side road.
- viii. Placement of signs on larger highways shall be five metres above the road.

Installation and Maintenance of Property Address Numbers

Responsibility for the installation of property address numbers for the first time shall be that of County Address Units. The cost of the address plate shall be borne by the property owner.

Property address plates shall be 25cm x 15cm and have a reflective green background with reflective yellow characters with a font size between ***.

Maintenance of property address plates shall be the responsibility of the property owner, caretaker or tenant at all times, be it residential, commercial or industrial property.

Property address numbers should be clearly visible from a distance of 15m. Any attempt to obstruct or cover an address number with the intention of concealing it shall be considered as unlawful.

E. Addressing for Last Mile Mail Delivery

The increasing use of web and mobile technologies and e-commerce service delivery means that physical addresses and postcodes are becoming essential in order to meet the challenges of door-to-door delivery of goods. Accordingly, the NAS shall accommodate secondary addresses as well as postcodes that will facilitate last mile delivery and mail routing.

Address Format

The address type formats certified by the UPU will be used. Reference shall be made to the UPU Standard Address Format Descriptor contained in Appendix ***.

Postcode Design

The five-digit postcodes that currently exist for Kenya are only operational to local post office locations where P.O. Boxes reside and therefore do not facilitate last mile delivery. Accordingly, a new postcode structure shall be introduced that facilitates the sorting and delivery of mail down to sub-county level. The structure shall be based on a combination of elements to add greater granularity, as follows:

*** [To be concluded with PCK]

F. Geospatial Mapping

Large-scale digital mapping and aerial imagery for the whole of Kenya is an important requisite for the NAS. Mapping shall be at a minimum 1:10,000 scale.

New imagery shall be captured at a consistent resolution, though urban areas and areas with higher density of addresses may be captured at a higher resolution.

All addresses shall be geocoded to provide a simple latitude and longitude coordinate reference that conforms to the mapping coordinate system, datum and projection used for Kenya - WGS 1984 UTM 37S.

G. Implementation Strategy

a. Institutional Arrangements

i. National Level

The Ministry of Information, Communications and Technology (ICT) has overall oversight responsibility for standardizing and coordinating implementation of the National Addressing System. Within the Ministry, the Communications Authority of Kenya (CA) will house the NAS Secretariat, with responsibility for coordination of county and sub-county implementation mechanisms and centralized data control and management.

NAS Steering Committee

The NAS Steering Committee will be comprised of representatives from relevant ministries, departments and agencies and other key stakeholders in the NAS, as set out in section ***. The purpose of the NAS Steering Committee is to advise the NAS Secretariat on policy direction and provide assistance with coordination of functions between the national and county levels of implementation. The Steering Committee may co-opt any other members as it considers necessary to fulfill its advisory role, and shall consult and coordinate as appropriate with agencies responsible for provision of public utilities and emergency services.

NAS Secretariat

The functions of the NAS Secretariat are as follows:

- i. Develop policy and standards;
- ii. Support counties to determine individual requirements for the NAS implementation;
- iii. Assist counties to manage implementation of the NAS, including coordinating, monitoring and providing technical support, for the purpose of ensuring that all properties can be identified by address formats that conform to the national standards set out in this Policy; and
- iv. Coordinate with County Property Addressing Units to compile and maintain a National Property Address Database and manage access to property address data by service providers and other stakeholders.

Resources needed and skills required

A broad range of resources will be needed to manage the NAS. The following skills are required for the NAS Secretariat:

- Business analysis
- Data modelling and data-flow modelling
- Addressing subject matter expertise
- Application design, development and testing (including user experience, GIS, API and database design and management)
- Infrastructure design, development and testing

The NAS Secretariat technical officers should be comprised of, at a minimum:

- Addressing and postal subject matter experts
- User experience designer

- GIS developer(s)
- Web developer(s)
- API developer(s)
- Database developer(s)
- Database administrator(s)
- Application tester(s)
- Database tester(s)
- Researcher(s)
- Data analyst(s)
- Quality management and information security specialist
- IT infrastructure experts

ii. County Level

County Monitoring, Coordination and Technical Support

At the county level, County Addressing Units (CAUs) will be established within the respective ministry responsible for land and physical planning, under the supervision and direction of the director responsible for physical planning, to provide monitoring, coordination and technical support in the respective county. The CAU may comprise the following technical officers, among others as may be necessary and appropriate:

- Planning Officer;
- Budget Officer;
- Urban/Feeder Roads Engineer;
- Survey Officer;
- Land Valuation Division Officer;
- Building Inspector;
- Works Engineer;
- Data Manager;
- Data analyst(s);
- Public sensitization manager; and
- Customer support representative(s).

Functions of the CAU

The functions of the CAU are as follows:

- i. Implement the NAS in the county;
- ii. Undertake initial assessment of what resources are available for implementation of the NAS in the county, including procurement and analysis of existing address and geospatial data;
- iii. Prepare an implementation plan, including a budget and timeline for deliverables;
- iv. Ensure that the public is sensitized on the use and benefits of the NAS;
- v. Work with the Address Implementation Teams at the sub-county level to locate and name roads;
- vi. Approve new and make changes to existing street names in accordance with this Policy;
- vii. Supervise the creation, validation and updating of road maps for the county, including digitization;
- viii. Supervise the erection of street name signs and property address numbers;
- ix. Procure as necessary and supervise the work of any consultants, contractors, fieldworkers and surveyors;
- x. Compile and maintain an electronic database of property addresses in the county; and
- xi. Coordinate with the NAS Secretariat to contribute county property address data to the National Property Address Database.

iii. Sub-County Level: Implementation Management

At the sub-county level, to ensure sustainability and ownership, the overall implementation management of the NAS will be under the auspices of the Address Implementation Team (AIT), which will be responsible for the day-to-day implementation of the NAS. The AIT will be comprised of fieldworkers and surveyors, among others as may be necessary and appropriate.

Functions of Sub-County Address Implementation Team (AIT)

The sub-county Address Implementation Unit will perform the following functions:

- i. Conduct a review of all existing street names for consistency with the standards set out in this Policy;
- ii. Coordinate with the CAU to locate and name roads, erect street name signs and assign property address numbers;
- iii. Monitor and enforce property numbering obligations;
- iv. Collect property address data for submission to the county database; and
- v. Sensitize the public on the use and benefits of the NAS.

H. Maintenance of the National Addressing System

When the fieldwork of assigning names to streets and numbering of properties has been completed, the responsibility for ensuring the expansion of the naming of streets and the numbering of new developments shall be that of the CAU in association with other relevant ministries, departments or agencies. Maintenance of street signs shall be the responsibility of the Director responsible for physical planning for each county, in collaboration with other road agencies or departments.

The National Property Address Database should provide scalability for the continued evolution of the NAS as part of Kenya's Vision 2030. A relational data model structure provides a suitable basis to scale from.

National Address System Database

A number of government organisations, utility companies, telecom providers and financial sector organisations in Kenya already have address data that are used for their own operational purposes, which data could provide a useful validation or seeding dataset for the National Address System Database. Further, global platform providers such as Google, TomTom and HERE have access to a wealth of geospatial data.

Each CAU shall be responsible for identifying and obtaining existing data from relevant entities operating in the county, analysing it for compliance with the standards set out in this Policy, and integrating it into the electronic database of property addresses in the county.

The NAS Secretariat shall be responsible for coordinating with the Ministry of Lands to align the National Address System Database with the national spatial data housed by Survey of Kenya, to provide one of the essential base data layers.

Database management

For the purpose of effective management of address data at the county level, there shall be established a County Address Database Management Unit (CADMU) as an integral part of each CAU. The CADMU shall be responsible for the following:

- i. Custody, processing, storing and ensuring the safety of data generated by the addressing exercise;

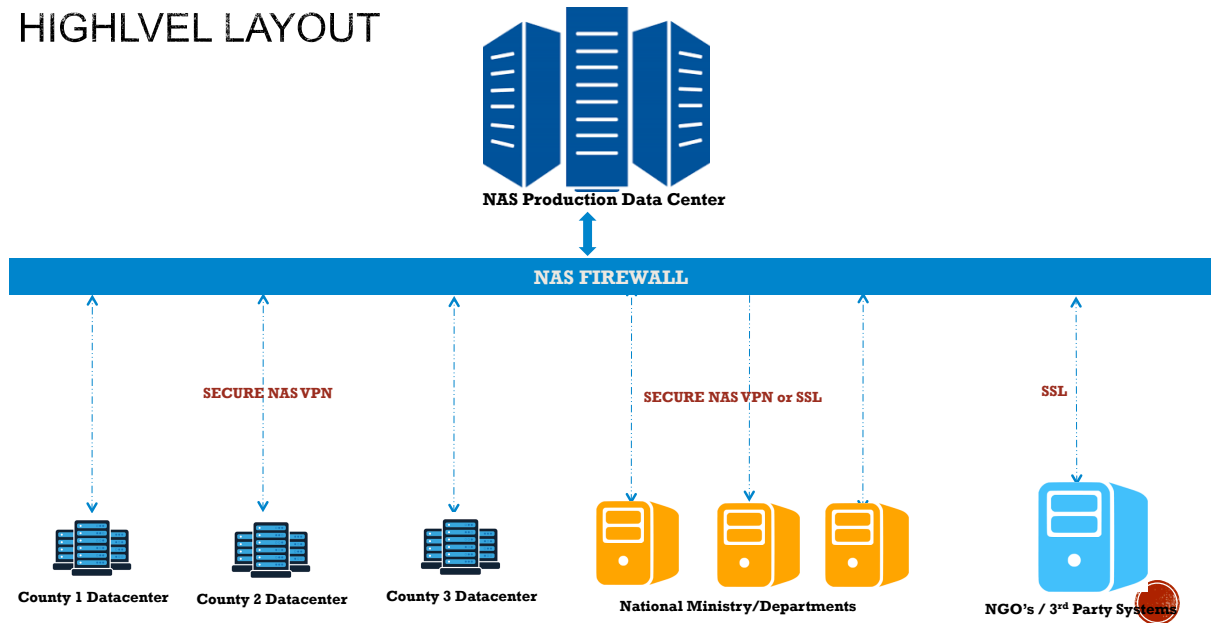
- ii. Verifying consumer inputs regarding errors and omissions in the address data in a timely manner;
- iii. Ensuring that regular back-ups are taken for all electronic information;
- iv. Managing requests for information in accordance with the Access to Information Act; and
- v. Working in close cooperation with the NAS Secretariat in the maintenance of the National Property Address Database.

Overall custody and management of the National Address System Database will be under the auspices of the NAS Secretariat, which will be responsible and accountable for data management operations at the national level, including monitoring data updates from CADMUs for consistency and quality. For this purpose the NAS Secretariat shall be responsible for accrediting the address data management software used by CADMUs for compliance with required standards, and ensuring regular and ad hoc testing of county and national software to ensure continued compatibility and compliance.

The NAS Secretariat shall ensure that the NAS technical architecture is high performing, secure, scalable, resilient and accessible. To this end appropriate interfaces shall be developed and maintained for National Address System Database administrators (national level), contributors (county level) and consumers (general public), including limits on access to specific features based on the type of user. The operational framework for address data management is as follows:

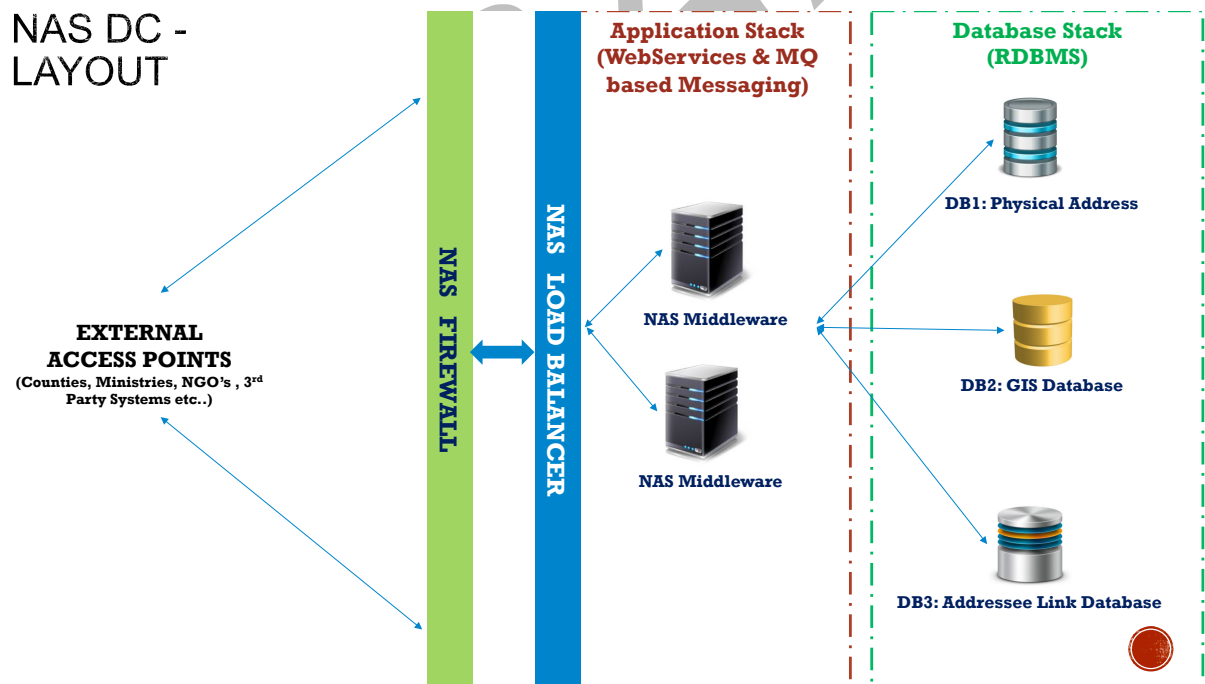
NAS Data centre high level layout – National and County Levels

SYSTEM HIGHLEVEL LAYOUT



NAS Data Centre Layout

NAS DC - LAYOUT



I. Compliance/Enforcement

Once each county database is substantially complete, it shall be a requirement for any public procurement of software systems and services that involve location data to use the NAS as a base dataset and adopt the NAS address and postcode schemas.

In accordance with the CA's regulatory functions, the NAS Secretariat shall have authority to enforce compliance with the NAS by national ICT agencies and service providers, including postal and courier services and telecom operators, by:

- requiring them to adopt the NAS address and postcode schemas set out in this Policy;
- requiring any non-compliance to be remedied within a specified timeframe; and
- instituting penalties for continued non-compliance.

The NAS Secretariat shall also have authority to liaise with other national government ministries, departments and agencies as necessary to ensure compliance with the NAS for the purpose of fulfilling their respective mandates, including taxation, transportation, infrastructure and urban development, electoral system administration and land administration.

As custodian of the National Address System Database, the NAS Secretariat shall have authority to undertake data validation and require the relevant CAU to take any steps necessary to remedy non-compliant data.

At the county level, each respective CAU shall have authority to enforce local compliance with the NAS, including the authority to:

- Approve any changes to existing street names in accordance with this Policy;
- Approve all applications made by property developers for new streets and related street names;
- Ensure conformity with the standards set out in this Policy for street name signage and property addressing;
- Require service providers within county regulatory authority to adopt the NAS address and postcode schemas set out in this Policy;
- Require any non-compliance to be remedied within a specified timeframe; and

- Institute fines for continued non-compliance.

Each CAU shall liaise with other county government ministries, departments and agencies as necessary to ensure compliance with the NAS for the purpose of fulfilling their respective mandates.

i. Violation of Street Naming and Property Addressing Standards

Whenever a CAU has reason to believe that there has been a violation of any provision of this Policy in any sub-county, the CAU shall notify the relevant AIT. It is the responsibility of the AIT to ensure that the violation is addressed by serving written notice of non-compliance, providing a timeframe within which the violation must be remedied, and following up to ensure that the required action has been taken. If any person or organization fails to comply as directed within the timeframe given, the AIT shall notify the CAU, which shall in turn institute the prescribed fine.

6. STAKEHOLDERS AND TARGETED AUDIENCE

A. Institution Members of the NAS Steering Committee

Ministry of Information Communications and Technology

The Ministry of Information, Communications and Technology (ICT) has responsibility for formulating, administering, managing and developing the Information, Broadcasting and Communication policy. In May 2016, through an Executive Order No. 1/2016, the Ministry was split into the State Department of Broadcasting and Telecommunications and the State Department of ICT and Innovation. The mandate of the Ministry as derived from Presidential Executive Order No.1/2016 of May 2016 comprises the formulation of policies and laws that regulate standards and services in the ICT sector, telecommunications and the media industry.

National Communications Secretariat

The National Communications Secretariat established through the Kenya Communications Act of 1998, is the Communications Policy Advisory Secretariat, the policy advisory arm of the Government on all matters pertaining to the ICT sector.

Communications Authority of Kenya

The CA, established through the Kenya Information and Communications (Amendment) Act, 2013 (Cap.411) is the regulatory body for the sector in accordance with the relevant provisions of the Constitution of Kenya, 2010. The fourth schedule of the Constitution of Kenya, the County Government Act, 2012 and CAP 411A of the Laws of Kenya provide a statutory framework for the establishment of a national addressing system for Kenya. The CAP 411A Numbering Regulations mandate the Communications Authority to set standards and establish a National Communications Numbering and Address Plan (NCNAP) to manage a national addressing system for Kenya. These regulations also mandate the Communications Authority to manage and approve addressing and numbering systems.

Postal Corporation of Kenya

The Postal Corporation of Kenya (PCK) is a Public Commercial Enterprise operating under the Postal Corporation Act of 1998. PCK's mandate is to provide and operate postal services, postal financial services, and perform other functions and duties as the minister of communications

may assign. Key challenges that the business faces at an operational level that the NAS could assist with:

- tracking business and residential tenants in the delivery of mail in Kenya owing to the high churn rate and ambiguous nature of addresses for these organisations and individuals;
- last mile delivery was a resource intensive exercise for postal delivery agents with a large amount of interaction via phone in order to locate physical delivery points;
- lack of geospatial address data to aid route optimisation and physical delivery;
- lack of postcode on mail to facilitate mail sorting and delivery efficiencies;
- High prevalence of phone numbers as part of an address label instead a well-structured postal/ geographical address

Ministry of Transport Housing Infrastructure & Urban Development

The Ministry consists of the following five State Departments: Transport; Infrastructure; Housing And Urban Development; Maritime And Shipping Affairs; and Public Works. For the purposes of the NAS, the State Department for Infrastructure is responsible for national roads development policy, the State Department for Housing and Urban Development is responsible for urban planning, and the State Department for Public Works is responsible for public works policy and planning.

Kenya Urban Roads Authority

Kenya Urban Roads Authority (KURA) is a state corporation under the Ministry of Transport and Infrastructure established by the Kenya Roads Act, 2007 with the core mandate of management, development, rehabilitation and maintenance of all public roads in cities and municipalities in Kenya except where those roads are national roads. KURA administers and ensures that road naming and the display of addresses conforms to the certified national addressing standards and systems set by the Communications Authority.

Ministry of Lands and Physical Planning

State Departments within the Ministry of Lands are the Department of Administration and Planning, the Department of Land Adjudication and Settlement, the Department of Lands, the Department of Physical Planning and the Department of Survey. The Department of Lands is charged with the responsibility of ensuring efficient administration and sustainable management of the land resource in the country. Its core mandate is to formulate and implement land policy.

The Department of Physical Planning aims at achieving a balanced regional development over the national geographic space for the benefit and welfare of all. Key activities of this Department include feasibility studies into matters concerning physical planning. The Department of Surveys, commonly known as Survey of Kenya (SOK), implements the Government's policy of sustainable exploitation of land, and its functions include producing and continuously updating national topographical basic maps for the whole country at various scales for development planning. The National Spatial Data Infrastructure (NSDI) is under the mandate of the Ministry of Lands.

National Land Commission

The mandate of the National Land Commission (NLC) is drawn from the National Land Policy of 2009, Constitution of Kenya 2010, National Land Commission Act, 2012, the Land Act 2012 and the Land Registration Act of 2012. The core functions of the Commission related to development and implementation of this Policy are:

- a. To manage public land on behalf of the National and County Governments;
- b. To recommend a National land policy to the National Government;
- c. To assess tax on land and premiums on immovable property in any area designated by law; and
- d. To monitor and have oversight responsibilities over land use planning throughout the country.

Ministry of Interior and Coordination of National Government

The Ministry of Interior and Coordination of National Government was created through executive order No. 2/2013, and consists of the State Department for the Interior and the State Department for Coordination of National Government. The Ministry's mandate includes, for the purposes of this Policy, disasters and emergency response coordination, the National Disaster and Operation Centre, registration of persons services, and internal security including police services.

Council of Governors

Schedule 4 of the Constitution of Kenya places the responsibility of physical planning on the counties to manage property numbering and naming of county roads. County governments will be key data providers for the NAS and their activities must be supported from a technical and administrative basis to ensure ongoing maintenance of address information. Street (and property)

naming and numbering (SNN) is already a statutory function for county governments. While the legislation exists for county governments and the Road Authorities to name and number properties and roads, some further work is recommended to ensure that compliance and enforcement of the use of NAS addresses can be achieved.

Kenya Bureau of Standards (KEBS)

KEBS is a statutory body established under the Standards Act (CAP 496) of the laws of Kenya. KEBS is mandated to provide standardization and conformity assessment services through:

- a. Promotion of standardization in commerce and industry
- b. Provision of testing and calibration facilities
- c. Product and system certification
- d. Undertaking educational work in standardization and practical application of standards
- e. Maintenance and dissemination of International System of Units (SI) of measurements.

Kenya Revenue Authority (KRA)

The KRA was established by an Act of Parliament, Chapter 469 of the laws of Kenya, which became effective on 1st July 1995. The Authority is charged with the responsibility of assessing, collecting, administering and enforcing laws relating to revenue, on behalf of the Government of Kenya.

Independent Electoral and Boundaries Commission (IEBC)

The IEBC, established by Article 88 of the Constitution of Kenya, 2010, is Kenya's electoral management body responsible for conducting or supervising referenda and elections to any elective body or office established by the Constitution, and any other elections as prescribed by an Act of Parliament. Committed to strengthening democracy by institutionalizing a sustainable electoral process, its mandate includes delimitation of constituencies and wards, and the continuous registration of voters.

Kenya Red Cross

The Kenya Red Cross Society was incorporated as a voluntary aid society pursuant to the Kenya Red Cross Society Act, Chapter 256 of the Laws of Kenya. As auxiliary to the National and County Governments, the Kenya Red Cross works with communities, volunteers and partners to ensure preparedness for and responsiveness to Kenya's humanitarian and development needs.

KRC focuses its collective capabilities and resources to prevent and alleviate human suffering and save lives.

Kenya Alliance of Resident Associations (KARA)

The Kenya Alliance of Resident Associations (KARA) is the apex body representing the voice and pro-active action of resident associations on consumers and taxpayers' rights countrywide with respect to accelerated access to public service delivery. Currently there are over 3,000 registered Resident Associations spread across Kenya with a larger concentration of the Associations in urban areas. The Associations have been instrumental in advocating for better services and in protecting the property value and aesthetic appeal of their neighbourhood by demanding that any new development taking place within the neighbourhood must conform to the planning and zoning laws governing the area.

B. OTHER STAKEHOLDERS

Service Providers

Investors, operators and service providers play an important role in the communications sector, and will be required to comply with the NAS as necessary in the provision of universal service/access.

- **Courier Industry Association of Kenya (CIAK)**

The CIAK is an umbrella organization representing the interests of the courier industry in Kenya. CIAK reports indicate that of all mis-deliveries, 17% are a result of the wrong addresses on the label, 58% are delayed pending further information from the sender/recipient and 25% are not delivered at all. CIAK will be a key stakeholder in ensuring that the NAS is properly implemented at the service delivery level.

Consumers and Users

Consumers and users will be expected to participate by complying with addressing and postcode schemas for mail delivery and maintaining property address plates in accordance with this Policy.

The CA will support consumer protection efforts in accordance with Section 46 of the Constitution of Kenya, 2010.

- **Citizens and Other Residents**

For many residents their physical property address is part of their identity and forms part of how they may describe themselves for both social interactions and interactions with governmental and commercial service providers. The provision of a formal and standardised address for each person resident in the country will be new to a large proportion of the population and therefore it is paramount that stakeholder engagement to all residents is targeted correctly and appropriately to the various types of resident in a way that meets their requirements for accessing and understanding what a formal address means to them and others.

C. East African Community

As a member state of the East African Community (EAC) and a signatory to the East African Common Market Protocol, the Government is committed to implement policies and programmes to promote regional integration. In this regard the Government is dedicated to harmonization of NAS policy, legal and regulatory frameworks within the EAC region. The Government will remain proactive in exploring new areas of collaboration with EAC member states on NAS policy and regulatory issues and related matters that serve to advance the objectives of the EAC Common Market Protocol for the benefit of the citizens of the East African region.

7. COST OF IMPLEMENTATION ANALYSIS

Estimates of costs for the development and implementation of NAS for Kenya are:

DRAFT

8. IMPLEMENTATION MATRIX

DRAFT

9. MONITORING AND EVALUATION

The realization of the outputs of this Policy will require consistent monitoring and evaluation of the outcome indicators. The NAS Secretariat and CAUs will build a culture of evaluation from the outset, addressing evaluation priorities in NAS design, implementation and enforcement. Evaluation will be embedded in NAS development, with regular revisiting of goals, successes, setbacks and barriers at both national and county levels.

Monitoring of NAS implementation activities will be focused on each expected outcome, and on the capacity and infrastructure development of the NAS Secretariat and the CAUs, with metrics collected on the following outcome indicators:

- Improved traffic flows;
- Reduction in road traffic incidents and congestion related to "last mile" route finding;
- Better coordination of roads maintenance activities through access to more accurate road network data;
- Road safety improvements;
- Improvements and efficiency gains in mail and courier service delivery;
- Improvements and efficiency gains in emergency service delivery (eg. reduction in ambulance, fire, police response times);
- Improvements in citizen engagement with e-commerce;
- Universal understanding of navigational signage in Kenya by non-nationals

Reporting

The NAS Secretariat shall report annually to National Assembly, and each CAU shall report annually to their respective County Assembly, on the progress of implementation in the following areas:

- funds received;
- amounts disbursed;
- specific activities undertaken; and
- outcome evaluations.

10.POLICY REVIEW

This Policy shall receive a mid-term review in three (3) years and a long-term review in five (5) years to address the efficacy of implementation and maintenance of the NAS at both the national and county levels.

Key components of this NAS Policy review shall include:

- Compliance with UPU Standards Compliance Certification
- Institutional framework and stakeholder analysis;
- Identification of key challenges and solutions; and
- Revising implementation mechanisms as required.

DRAFT

11. CONCLUSION AND WAY FORWARD

DRAFT