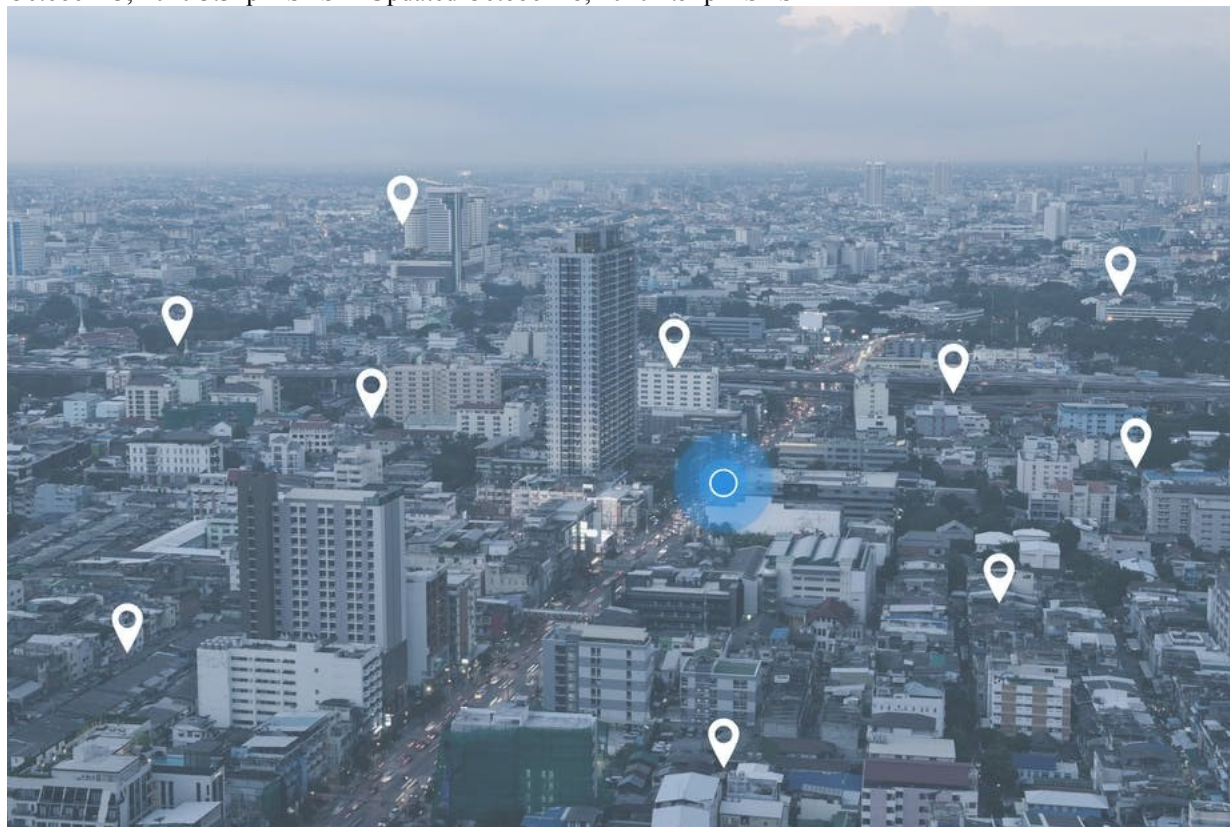


South Africa needs a national database of addresses: how it could be done

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Accurate address data is vital for public services, including health monitoring. TippaPatt/Shutterstock

Addresses provide people with a social status: a sense of identity and being recognised as a proper citizen. They are needed for the provision of postal and utility services; billing; disaster relief; emergency response; opening bank accounts – or just visiting friends.

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Disclosure statement

Antony K Cooper received funding from the Gauteng City-Region Observatory (GCRO) for this work. He represents the CSIR on the Committee for Spatial Information (CSI), a statutory body charged with building the South African Spatial Data Infrastructure (SASDI).

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During a pandemic like COVID-19, addresses are also vital for mapping cases. Through addresses, authorities can find out where the infected and potentially affected live. They can identify emerging infection clusters, target responses and trace contacts. Many non-pharmaceutical interventions can only be successfully implemented if health authorities know where the most vulnerable people live and which geographical clusters are most affected.

These addresses need to be geocoded, translating text-only, sometimes handwritten addresses into their corresponding identifiable locations on a map. Geocoding is crucial for assessing the spread of COVID-19. That's because it allows infection clusters to be identified quickly to target interventions.

In South Africa, this process is hindered by the poor quality and incompleteness of addresses extracted from the forms completed at COVID-19 testing facilities. These forms provide no guidance on how addresses should be written down. Front-line health workers are also not trained to validate the addresses.

Unfortunately, few forms in general fit [the standard](#) that specifies and defines the data elements, as well as the address types that can be constructed from the data elements for South African addresses. This makes it difficult to use the address data on the forms. Instead municipalities, provinces and national departments have to laboriously validate and – often manually – geocode the addresses. That leads to significant delays in finding those who might be affected, increasing the risk of further infections.

Consequently, infection data released by the National Institute for Communicable Diseases has addresses that are ambiguous and difficult to geocode. The most difficult are addresses in [townships](#), informal settlements and rural areas. There is also no national dataset against which addresses can be validated and geocoded. As a result, infected cases can get assigned to the wrong areas; some don't get assigned to any area at all.

In a [recent study](#) we propose establishing a single address dataset for the country's Gauteng province. This is informed by a review of international good practice. It can also be rolled out in the other eight provinces, with a view to creating a national address dataset.

A solid standard

Our study was conducted for the Gauteng City-Region Observatory (GCRO) and published as part of its [provocations series](#). The GCRO is an independent research organisation, which generates data and analysis

body charged with building the South African Spatial Data Infrastructure (SASDI), and until recently also represented the CHE on the South African Geomatics Council.

Partners



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to help inform development and decision making in the Gauteng City-Region. It is a partnership between the provincial government, organised local government, the University of the Witwatersrand, and the University of Johannesburg.

We investigated the current situation regarding address data in the Gauteng City-Region by interviewing experts who maintain or use address data. We found that address data are maintained in silos at different government entities. There is limited coordination and adherence to international standards; good practice is lacking around information management.

To escape this conundrum, we argue for using the [standard on addresses](#), known as SANS 1883-1 and published by the South African Bureau of Standards in 2009. It describes all the different addresses in use in South Africa. These include street addresses, site addresses (addresses without street names, common in townships) and informal addresses (verbal descriptions). The standard is highly regarded: it actually spawned the development of [international standards on addressing](#).

SANS 1883-1 explains how to convert addresses into a single uniform data format, whether written on paper, entered in an online form or part of a municipal geospatial data infrastructure. The use of standard terminology for different address types prevents inconsistencies and confusion. And using the standard data format enables the development of tools that verify and validate addresses, as well as integrating data from different municipalities.

Having a standard is one thing. The next challenge lies in coordinating a single national address dataset or register.

Integration

Municipalities assign addresses and many of them maintain address data for their areas of jurisdiction. But they are not concerned with data beyond their boundaries. Another government entity needs to integrate data into provincial and national address datasets, as has been argued repeatedly [over the past two decades](#). Which entity should this be?

A recent [news item](#) alludes to the appointment of the South African Post Office as coordinating custodian of the national address dataset. Municipalities would continue to maintain address data for their areas of jurisdiction; the Post Office, meanwhile, would coordinate integration into a national dataset. This would

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require the Post Office to deal with many more address types than the four postal address types within its mandate. Also, [recent issues with its CEOs do not bode well](#).

The Department of Home Affairs is another contender, since it maintains the population register. Or perhaps the Department of Planning, Monitoring and Evaluation in the Presidency should be considered because of its overarching mandate and the key role of addresses in governance.

The South African Revenue Service, Statistics South Africa, the Independent Electoral Commission and the Financial Intelligence Centre – and with the COVID-19 geocoding challenges, the Department of Health – could all play a role, too. The road to better address data requires multiple interventions and initiatives in parallel, including raising awareness, describing, encouraging and nurturing good practices, as well as providing policies and legislation to guide government.

Moving forward

A firm decision, strong political leadership and sustainable funding are required to move forward. Gauteng is one of few provinces with address data maintained at its municipalities. So it could lead by example, establishing a single, uniform address dataset available for everybody.

This would have positive implications far beyond COVID-19. Good quality address data is essential for future pandemics and other disasters, for good governance and for socio-economic benefits generally.

This article has been updated to reflect the fact that the South African Bureau of Standards has changed its pricing policy on SANS 1883.

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