



Can the South African address standard (SANS 1883) work for small local municipalities?

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*Academic track of the 2008 FOSS4G Conference,
incorporating the GISSA 2008 Conference
29 Sept - 3 Oct 2008, Cape Town, South Africa*

Overview

1. SANS 1883 - South African address standard
2. Simplifying the SANS 1883 data model
3. Preparing address data for exchange
4. Recommended guidelines
5. Conclusion

SANS 1883 - South African address standard

- Address standards
 - National
 - Australia and New Zealand
 - Australian Geocoded National Address File (G-NAF)
 - Denmark
 - Ireland
 - GeoDirectory
 - United Kingdom
 - BS 7666
 - National Land and Property Gazetteer (NLPG)
 - US (FGDC)

SANS 1883 - South African address standard

- Address standards
 - International
 - Universal Postal Union
 - S24 (published)
 - P14 (in development)
 - Organization for the Advancement of Structured Information Systems (OASIS)
 - TC for Customer Information Quality (CIQ)
 - International Organization for Standardization (ISO)
 - Withdrawn

SANS 1883 - South African address standard

Part 1:

Data format of addresses

Part 2:

Guidelines for addresses in databases, data transfer, exchange and interoperability

Part 3:

Guidelines for address allocation and updates

SANS 1883 - South African address standard

Scope

- Address types
 - officially assigned by municipalities
 - AND commonly in use
- Terms & definitions
- Whole of South Africa
 - Formal and informal
 - Urban/rural
- Geo-referenced location of an address

SANS 1883 - South African address standard

An *address* unambiguously specifies a point of service delivery



Photo: www.eskom.co.za



Photo: www.southafrica.info



Photo: www.pikitup.co.za



Photo: SA Post Office

SANS 1883 - South African address standard

Twelve address types

Street Address

1736 Pretorius Street, Arcadia, 0083

Intersection Address

Corner of Kings and Richmond Roads, Mowbray

Site Address

25436 Soshanguve CC

Landmark Address

Parliament, Cape Town

Building Address

Election House, 260 Walker Street, Sunnyside



SANS 1883 - South African address standard

Twelve address types (cont'd)

SA Post Office-Type Rural Village Address

012151 Ngxingxolo, Mooiplaas, 5228

110101 Corana, Umtata, 5100

SA Post Office Box Address

PO Box 2947, Hatfield, 0028, ZA

Private Bag X2438, Glenstantia, 0010

SA Post Office Site Address

9876 Zone H Mitchell's Plain 1685

SA Post Office Street Address

477 Chopin Street, Glenstantia, 0181

SAPO Poste Restante Address

Poste Restante, Hazyview, 3928



SANS 1883 - South African address standard

Twelve address types (cont'd)

Farm Address

Tabakskuur, Grootgelukplaas, Kimberley Road, Bloemfontein

Informal Address

Opposite the butcher shop, Tsamaya Street, Mamelodi



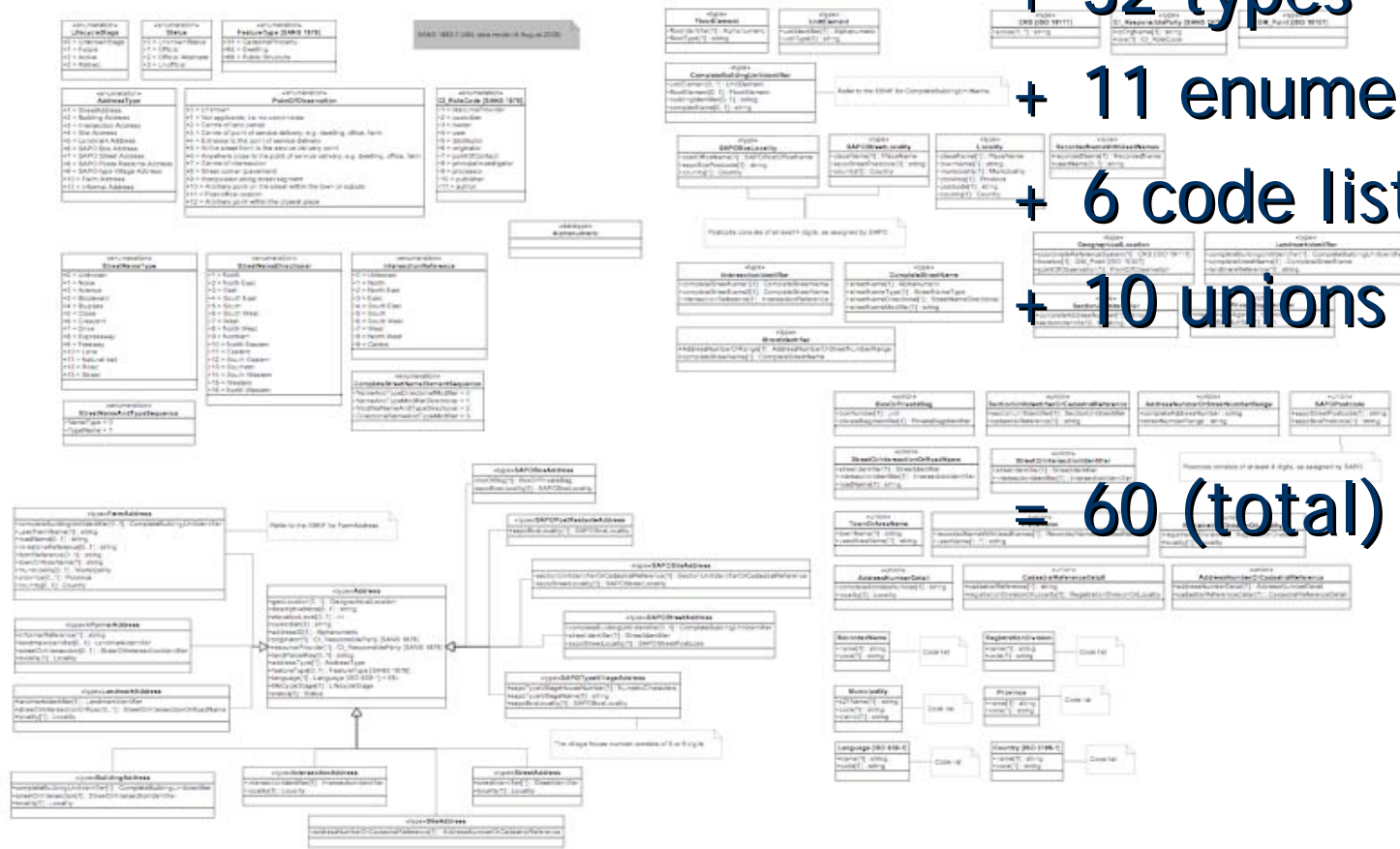
SANS 1883 - South African address standard

Attributes

- Identifier
- Originator
- Resource provider
- Custodian
- Coordinate reference system
- Location
- Point of observation
- Address type
- Language
- Life cycle stage
- Status
- Descriptive note
- Elevation level
- Land parcel key
- Feature type

SANS 1883 - South African address standard

Complete UML data model



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SANS 1883 - South African address standard

- SA Geographical Names Council
 - Geographic name standardization
 - Mandated municipalities to assign addresses
- 'Official' address types
 - Street address
 - *1736 Pretorius Street, Arcadia, 0083*
 - Site address
 - *25436 Soshanguve CC*
 - SAPO-type rural village address
 - *012151 Ngxingxolo, Mooiplaas, 5228*

SANS 1883 - South African address standard

Street address type

StreetAddress =

StreetIdentifier, Locality

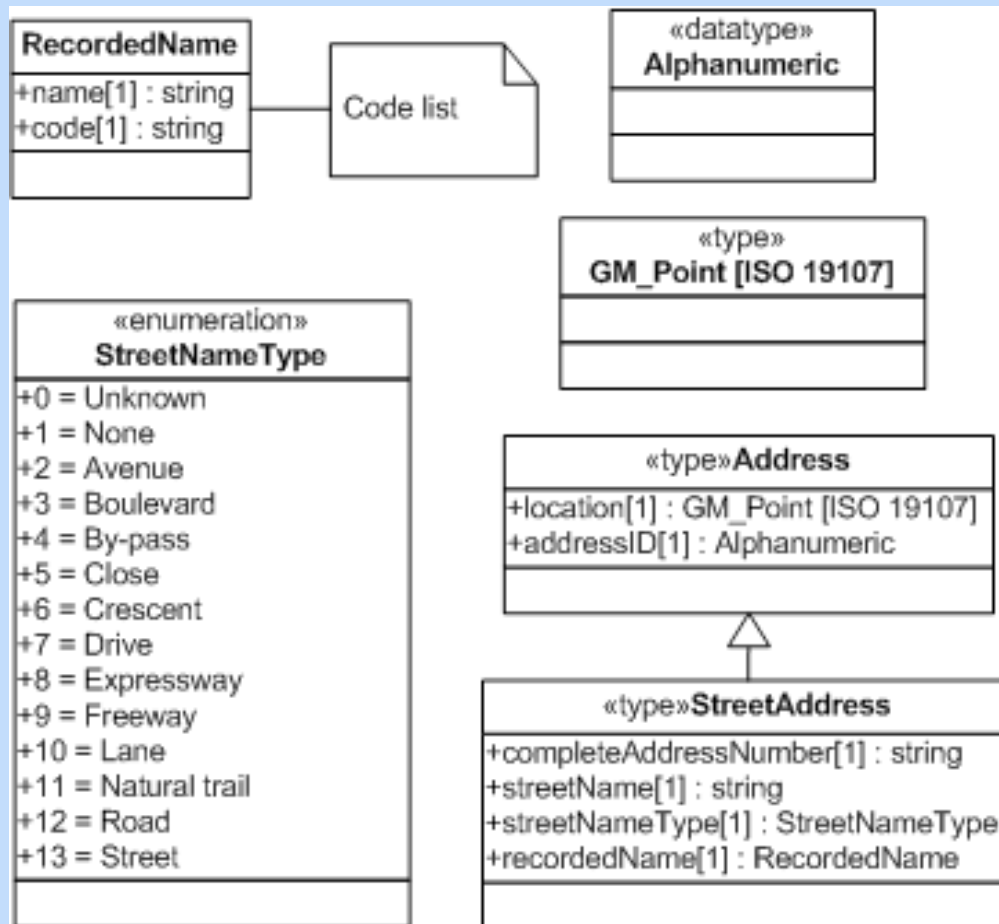
StreetIdentifier = [CompleteAddressNumber |
StreetNumberRange], CompleteStreetName

Locality =

PlaceName, [Town], [Municipality],
[Province], [SAPOPostcode], [Country] |
[CountryCode]

Simplifying the SANS 1883 data model

'Bare bones' data model



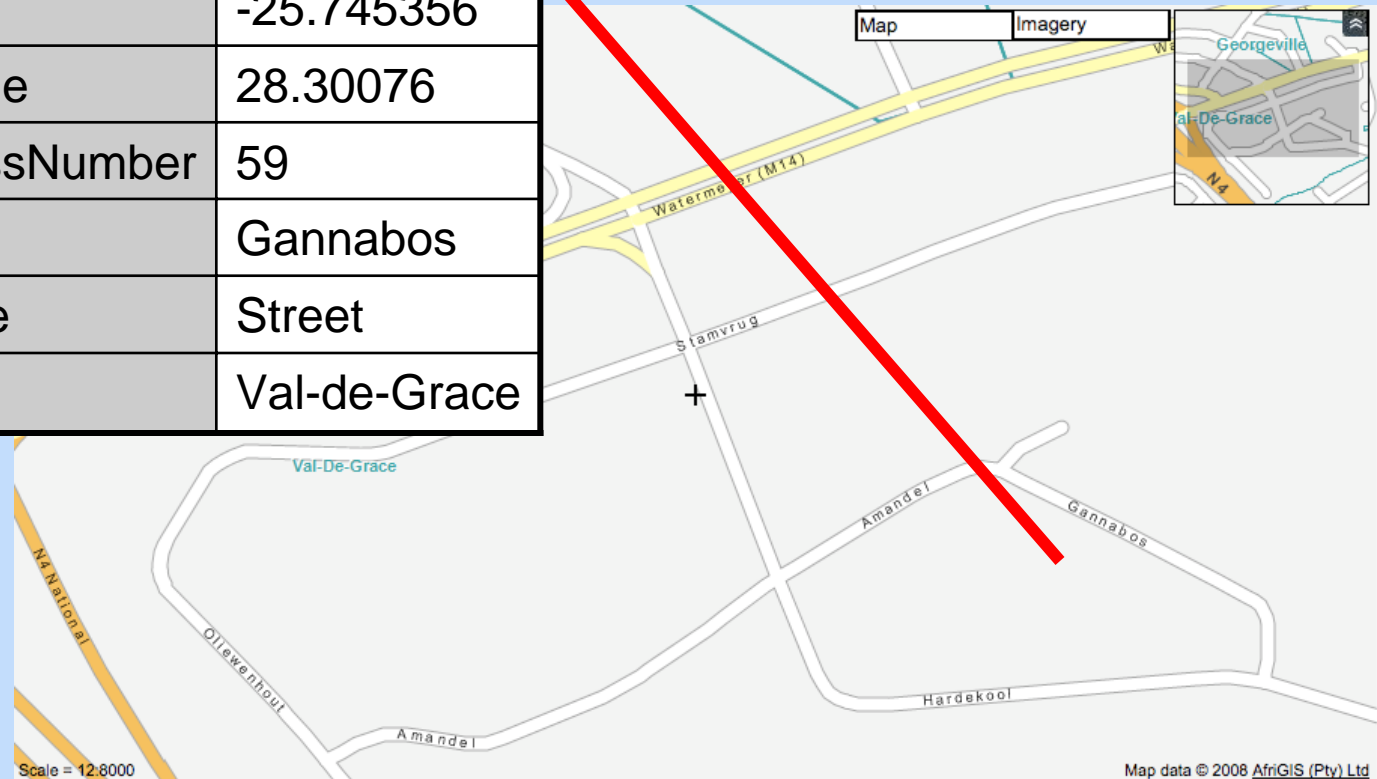
- + 4 types
- + 1 enumerations
- + 1 code lists
- + 0 unions

- = 6 (total)

Simplifying the SANS 1883 data model

'Bare bones' data model

Attributes	
addressID	194857
location.latitude	-25.745356
location.longitude	28.30076
completeAddressNumber	59
streetName	Gannabos
streetNameType	Street
recordedName	Val-de-Grace



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Preparing address data for exchange

Attributes

'Bare bones'

- Identifier
- Location
- Point of observation

Optional

- Descriptive note
- Elevation level
- Land parcel key
- Feature type

Same for all address data

- Originator
- Resource provider
- Custodian
- Coordinate reference system
- Address type
- Language
- *Life cycle stage*
- *Status*

Preparing address data for exchange

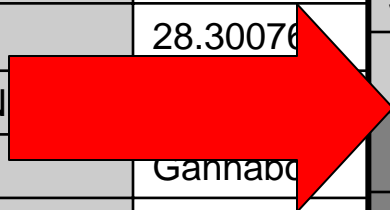
- Derive recorded name spatially
 - also known as suburb or place name
 - e.g Murrayfield

10 Grace Road
Murrayfield



Preparing a

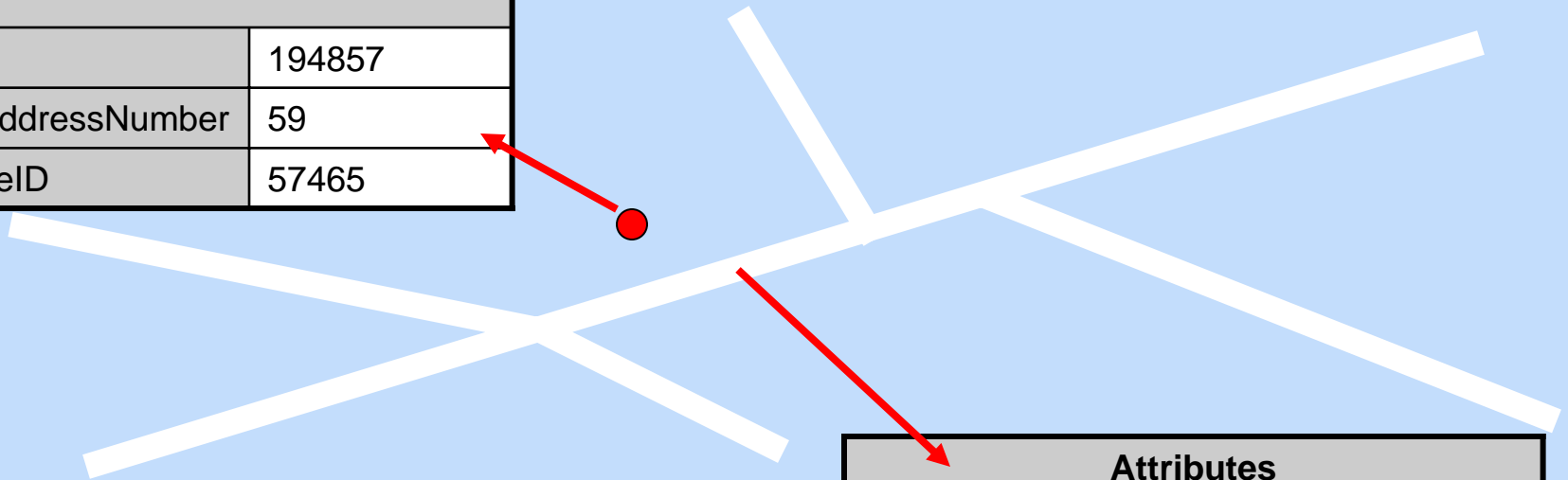
Attributes	
addressID	194857
location.latitude	-25.745356
location.longitude	28.30076
completeAddressN	
streetName	Gannabos
streetNameType	Street
recordedName	Val-de-Grace



Attributes	
addressID	194857
location.latitude	-25.745356
location.longitude	28.30076
completeAddressNumber	59
streetName	Gannabos
streetNameType	Street
<i>recordedName</i>	<i>Murrayfield</i>
<i>originator</i>	<i>City of Tshwane</i>
<i>custodian</i>	<i>City of Tshwane</i>
<i>resourceProvider</i>	<i>City of Tshwane</i>
<i>pointOfObservation</i>	<i>Centre of land parcel</i>
<i>addressType</i>	<i>Street Address</i>
<i>language</i>	<i>EN</i>
<i>lifeCycleStage</i>	<i>Active</i>
<i>status</i>	<i>Official</i>
<i>coordinateReferenceSystem</i>	<i>WGS84</i>

Day-to-day address data maintenance

Attributes	
addressID	194857
completeAddressNumber	59
streetNameID	57465



Attributes	
streetNameID	57465
streetName	Lynnwood
streetNameType	Rodad

- Link address record to a street segment
- Update street name in the address from street segment

Recommended guidelines

- SANS 1883 simplifications
 - Official addresses at local municipalities
 - Postal addresses
 - Rural village addresses
 - Customer addresses
 - etc.
- Guideline content
 - UML data model (simplified)
 - Guidelines for day-to-day maintenance
 - Sample files (SHP, XLS, MDB, etc.)

Conclusion

- Simplification of SANS 1883 in local municipalities
 - Data exchange
 - Data quality: detecting anomalies
- Similar simplifications for other application domains
- 'Bare bones' data model for other address standards?
 - Core address data model
 - Best practices for address data maintenance
 - Reusable software components

Acknowledgements

The authors wish to thank the *SABS* for initiating the project for the South African address standard (SANS 1883), and for allowing us to report on it here.

We would also like to thank all *delegates to the SANS 1883 project meetings* for their contributions and active participation in developing the draft standard, and also those who provided inputs via correspondence.

Serena Coetzee's work on this project and presentation at the conference is supported by a *THRIP* project funded by the *Department of Trade and Industry (dti)* and *AfriGIS*.

Thank you!

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