Metadata and Open-Source Sites/Services covering Lusaka, Zambia

Created as part of the Informal Settlements Project

Contents

Lusaka Basemap Data Layers - Metadata

Generic Metadata (applies to all layers)

Tags

Zambia; Lusaka; Land Cover; Topography

Summary

See specific layers

Description

This data was created to provide information for monitoring Informal Settlements in Zambia.

This layer is designed to be used by a GIS professional and as a reference map. Users can only use data for non-commercial purposes. This data was created to provide information for monitoring Informal Settlements in Zambia.

This layer is part of a set covering sealed, unsealed and natural surfaces; grass and water extents; buildings represented as roofed structures and other structures; trees and road links.

This layer was extracted from 2017 20cm aerial imagery using the Automated Feature Extraction (AFE) for Digital Base Maps process developed by Ordnance Survey. The data was extracted and processed in April 2021. As the data has been generated via an automated process isolated examples of omissions or error may be found.

The data is suitable for use at scales 1:2500-50,000.

Credits

Data created by Ordnance Survey, UK.

Imagery and DTM supplied by Zambia Survey Department - Ministry of Lands and Natural Resources

For Buildings Layer add:

Lusaka Typology Data supplied by Patrick Lamson-Hall, Valectus Ltd.

Lusaka Township Data supplied by Zambia Ministry of Lands and Natural Resources

Use Limitations

Data can be used for non-commercial purposes, specifically:

To display this data via a web application for view only purposes the following licence applies:

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> You are not permitted to copy, sub-license, distribute, sell or otherwise make available the licensed data to third parties in any form; and third party rights to enforce the terms of this licence shall be reserved to OS.

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Citation

Imagery: 2017; Extraction April 2021

Usage Scale

1:2500-50,000

Topics and Keywords (from list)

Environment, Imagery and Base Maps, Planning and Cadastral

Surface of the Earth

LandCover Layer

Sealed Surfaces

> Sealed surfaces are those which are surfaced with tarmac, concrete or similar. Only capture where it is obvious that the surface is paved, asphalt, or concrete.

Natural Surfaces

> Natural surfaces are those which are not surfaced with an impervious material. They might be constructed of compacted aggregate (crushed rock, gravel); no differentiation is made between surface type. This layer is used in locations where the non-vegetated natural surface such as dirt, mud and sand are the predominant class in a region. Non vegetated land: Could include land which has recently been vegetated and has now been harvested. The classification is only applied if it does not meet the acceptance criteria of any of the other layers.

Roads

Vehicular travel routes both paved and unpaved where they can be clearly defined. Min Size: All sealed & unsealed roads with length greater than 100m (the road is no longer a transport link for getting A to B but instead is a minor access route) and width greater than 3m (to allow for single track transport links to be captured) will be depicted (unless a network connection exists). Exception where road links are less than 100m in length but connect to other road links end they will be captured.

Grass

Low lying vegetation is classed as vegetation with a height of less than 2m, includes grassland, generic heathland, marshland, and any other low-level vegetation. The minimum coverage of these vegetation classes captured will be $30m^{2.}$

Water

Water is determined as a hydrology feature (excludes swimming pools). There is no differentiation between water subtype (river, pond, lake). Within the extent of a water body, only the extent of the wet bit will be depicted, with a min size [of wet bit]: $20m^2$ (approx 4x4m).

Above Surface

Buildings (Roofed Structures)

All features interpreted as buildings and identified from aerial imagery will be captured. All buildings of a minimum size $12m^2$ will be captured at roof level as roofed structures, internal divisions are not shown. If the gap between buildings is 1.0m or less, will be shown as one building. Internal courtyards of $40m^2$ or larger will be shown and secondary alignment will be shown if shown if larger than $12m^2$, and jut or recess dimension is greater than 3m.

Other Structures

All features interpreted as structures but not clearly identified as buildings and identified from aerial imagery will be captured. Can be foundations, building sites, informal settlement structures.

Trees

Trees and or scrub depicted as canopied vegetation with a height of 2m or above (Not possible to differentiate trees within a canopy). Min Size: [Object needs to be large enough to have detectable texture to enable separation from Grass] Trees with a canopy extent greater than $8m^2$ will be depicted. Trees are represented as a separate layer outside of the

land cover layers. This allows the layer to overlap the land cover layers without losing any of the feature data (for example road/building/water features)

Analytical Layers

Road Links

Road Links follow the centre line geometry of the road carriageway, but sharp or acute angles are avoided where possible. They provide a geometric network rather than land surface.

Railway Links

Railway links follow the centre line geometry of the railway.

Contours

Contours provide a line representation of the surface height of the landscape. Each line represents a difference of 5 metres in height with the absolute height value given by the Elevation attribute.

Exclusions

Buildings under the minimum size (12m^2) will either be displayed as other structure or natural surface depending on the appearance in the image.

Roads less than 3m wide and 100m long with no connections are not considered a transport link, sealed roads under the minimum will be depicted as sealed surface, unsealed roads under the minimum will be depicted as the default class (natural surface).

Trees with a canopy extent of less than the minimum size (8m^2) and Low Lying vegetation under the 30m2 minimum size will be depicted as the default class (natural surface).

Complementary Data Layers

Description	URL
Zambia Data Hub, an online platform for hosting and sharing geospatial data	https://zambia-open-data-nsdi-mlnr.hub.arcgis.com/
Commonwealth Sustainable Cities Atlas Project	Data platform – Planning for Climate Change and Rapid Urbanisation (commonwealthsustainablecities.org)
Settlement extents with population estimates attribute	https://zambia-open-data-nsdi-mlnr.hub.arcgis.com/datasets/ed0772562ddd4982b1a4741402330b65?layer=1
Zambia Operational Points of Interest, Schools and Health Facilities (Beta)	https://zambia-open-data-nsdi-mlnr.hub.arcgis.com/search?collection=Dataset&tags=points%20of%20interest
Population estimates in raster format	https://wopr.worldpop.org/?ZMB
Zambia Districts 2020	Zambia Data Hub : NSDI Zambia Districts 2020 : NSDI Zambia Districts 2020 (arcgis.com)
Province and District boundaries	https://zambia-open-data-nsdi-mlnr.hub.arcgis.com/search?collection=Dataset&tags=boundaries
Health: The data set provides health facility point locations and their names to spatially locate, identify, and visualize health facility locations in Zambia.	Data & Metadata: GRID3 Zambia Operational Health Facility Layer, Version 01 (Beta) | Academic Commons (columbia.edu) On Zambia Data Hub: NSDI Zambia Operational Health Facility Layer, Version 01 (Beta) | Zambia Data Hub (arcgis.com) Rest Feature Service: https://services3.arcgis.com/BU6Aadhn6tbBEdyk/arcgis/rest/services/GRID3_ZMB_HealthFac_v01beta/FeatureServer/0/query?outFields=*&where=1%3D1
Points of Interest **The dataset was developed by compiling and standardizing existing data from 2010 census cartography from Zambia**	On Zambia Data Hub: NSDI Zambia Operational Points of Interest, Version 01 (Beta) | Zambia Data Hub (arcgis.com) Rest Feature Service: https://services3.arcgis.com/BU6Aadhn6tbBEdyk/arcgis/rest/services/GR

Statistics Agency (ZamStats), and Community Led Total Sanitation (CLTS) data set from The Ministry of Water (MWDSEP)	ID3_Zambia_Operational_Points_of_Interest_Version01/FeatureServer/0/query?outFields=*&where=1%3D1
Operational School Points	On Zambia Data Hub: NSDI Zambia Operational School Points and Names, Version 01 (Beta) | Zambia Data Hub (arcgis.com) Rest Feature Service: https://services3.arcgis.com/BU6Aadhn6tbBEdyk/arcgis/rest/services/GRID3_ZMB_School_v01beta/FeatureServer/0/query?outFields=*&where=1%3D1
GRID3 Risk Layers	On Zambia Data Hub: GRID3 Zambia Risk Layers Aggregated by District | Zambia Data Hub (arcgis.com) Rest Feature Service: https://services3.arcgis.com/BU6Aadhn6tbBEdyk/arcgis/rest/services/Zambia_Risk_Layers_Aggregated_Districts_Provinces/FeatureServer/1/query?outFields=*&where=1%3D1
Open Street Map **Via Living Atlas**	Additional data layers in Lusaka also published via Living Atlas. Living Atlas of the World | ArcGIS – Africa data publish by SMoore [Esri using OSM] Licence: As a live replica of the OpenStreetMap database, these feature layers are licensed under the same Open Database License (ODbL). See Credits for Attribution.
Medical Facilities - Feature Layer – point	Metadata https://www.arcgis.com/home/item.html?id=265d447e44304709ba687e175a5cff15 Service https://services6.arcgis.com/Do88DoK2xjTUCXd1/arcgis/rest/services/OpenStreetMap_Medical_Facilities_for_Africa/FeatureServer
Medical Facilities - polygon	Metadata https://www.arcgis.com/home/item.html?id=755ea270bfef4b88b74bdc78a98ac065 Service

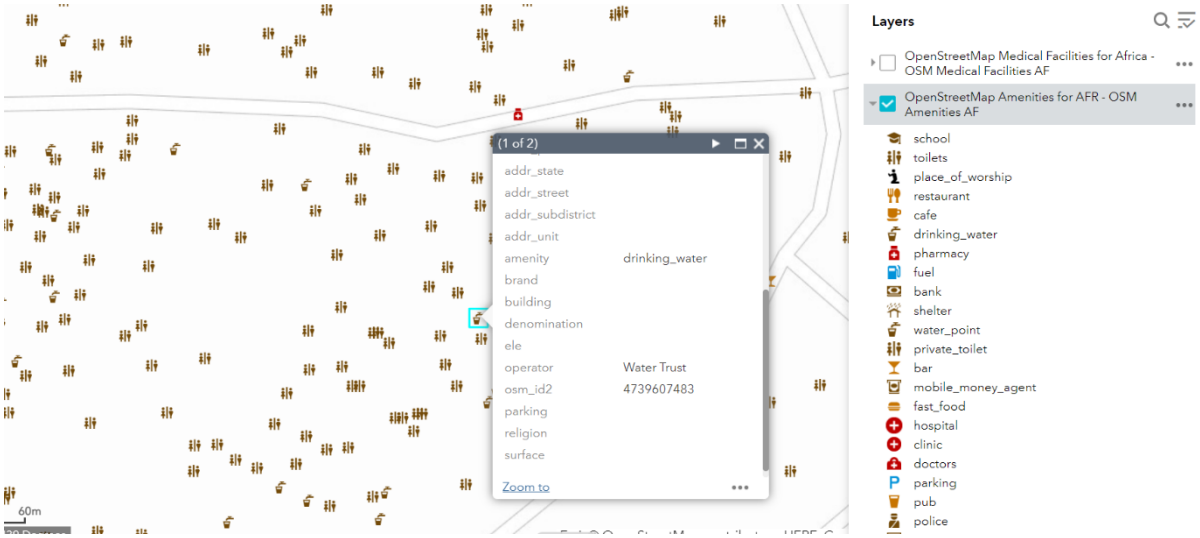
	https://services6.arcgis.com/Do88DoK2xjTUCXd1/arcgis/rest/services/OpenStreetMap_Medical_Facilities_Areas_for_Africa/FeatureServer
Shops/Retail – point	Metadata https://www.arcgis.com/home/item.html?id=bd7dfc7d1c1e4b28a12d64709e444ced Service https://services6.arcgis.com/Do88DoK2xjTUCXd1/arcgis/rest/services/OpenStreetMap_Shops_for_Africa/FeatureServer
Leisure – polygon	Metadata https://www.arcgis.com/home/item.html?id=6e27d802028c4a5fbf9d6680580d9793 Service https://services6.arcgis.com/Do88DoK2xjTUCXd1/arcgis/rest/services/OpenStreetMap_Leisure_Areas_for_Africa/FeatureServer
Amenities - point	Metadata https://www.arcgis.com/home/item.html?id=9a6573d529d2441980bc4c5f128f768a Service https://services6.arcgis.com/Do88DoK2xjTUCXd1/arcgis/rest/services/OpenStreetMap_Amenities_for_AFR/FeatureServer
HealthSites.io (Managed via OSM can be downloaded as shapefiles) Contains some additional clinic sites over Zambia Data Hub	Health Facilities in sub-Saharan Africa - Humanitarian Data Exchange (humdata.org) **License:** Creative Commons Attribution International
Living Atlas – General African Data	Africa Land Surface Forms - Overview (arcgis.com) [restricted] https://landscape5.arcgis.com/arcgis/rest/services/Africa_Land_Surface_Forms/ImageServer

	Africa Terrestrial Ecosystems - Overview (arcgis.com) [restricted] https://landscape5.arcgis.com/arcgis/rest/services/Africa_Terrestrial_Ecosystems/ImageServer Africa Topographic Moisture Potential - Overview (arcgis.com) [restricted] https://landscape5.arcgis.com/arcgis/rest/services/Africa_Topographic_Moisture_Potential/ImageServer OpenStreetMap Waterways for Africa - Overview (arcgis.com) https://services6.arcgis.com/Do88DoK2xjTUCXd1/arcgis/rest/services/OpenStreetMap_Waterways_for_North_America/FeatureServer
Premium Populations Data	**(review usage as will include a cost to use)** Need to understand how this data is produced. Seems to be simple average people per household. Source: The source of this data is Michael Bauer Research. The vintage of the data is 2019. Michael Bauer Research GmbH (mb-research.de)
Water/Hyrdo Atlas - Environmental	HydroATLAS-Zambia - Home (weebly.com) HydroATLAS-Zambia provides a set of geospatial data layers ready to be used in any Geographic Information System software. The data layers contain a series of hydro-environmental sub-basin and river reach characteristics at high spatial resolution for the entire extent of Zambia. The attributes are organized in seven categories: hydrology; physiography; climate; land cover; soils; anthropogenic influences; and Zambia-specific ecological data. They include variables such as rainfall, runoff, discharge, species distributions, and many others.

Example Data

Medical OSM Picture

Example Amenities OSM



Example Water Points Only (filter)

Example OSM Amenities - Project Data: Water points