GRID3 Map Typologies

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Purpose: To collect existing GRID3 cartographic types to inform country management of mapping possibilities and each type's data requirements.

MAP EXAMPLES AVAILABLE HERE

Data Requirements for All Map Types

Data	Source/URL	Comment
GRID3 population	https://wopr.worldpop.org/?/Population	
WorldPop	https://hub.worldpop.org/project/categories?id=3	Available for all countries using the 2010 round of census projected to 2020
GRID3 Settlement Extents, Version 01.01 (polygons)	https://data.grid3.org/search?tags=settlements%2Csettlement%20extents	Alpha version 2 will be available by the end of June in the six GRID3 countries.
Settlement locations and names (point)	OSM: http://download.geofabrik.de/africa.html HDX: https://data.humdata.org/dataset	When no GRID3 or government shared data is available, refer to OSM and HDX
Health facilities	OSM: http://download.geofabrik.de/africa.html HDX: https://data.humdata.org/dataset	When no GRID3 or government shared data is available, refer to OSM and HDX
POIs for the purpose of orientation (schools, religious buildings, markets/commercial spaces)	OSM: http://download.geofabrik.de/africa.html HDX: https://data.humdata.org/dataset	When no GRID3 or government shared data is available, refer to OSM and HDX other POI types might be selected by the government stakeholders)
Rivers and Roads	OSM + Facebook	Available from CIESIN Data Team
Administrative Boundaries	Official country boundaries are available from SALB: https://www.unsalb.org/data	If no official boundaries are obtained from the government and/or UN SALB.

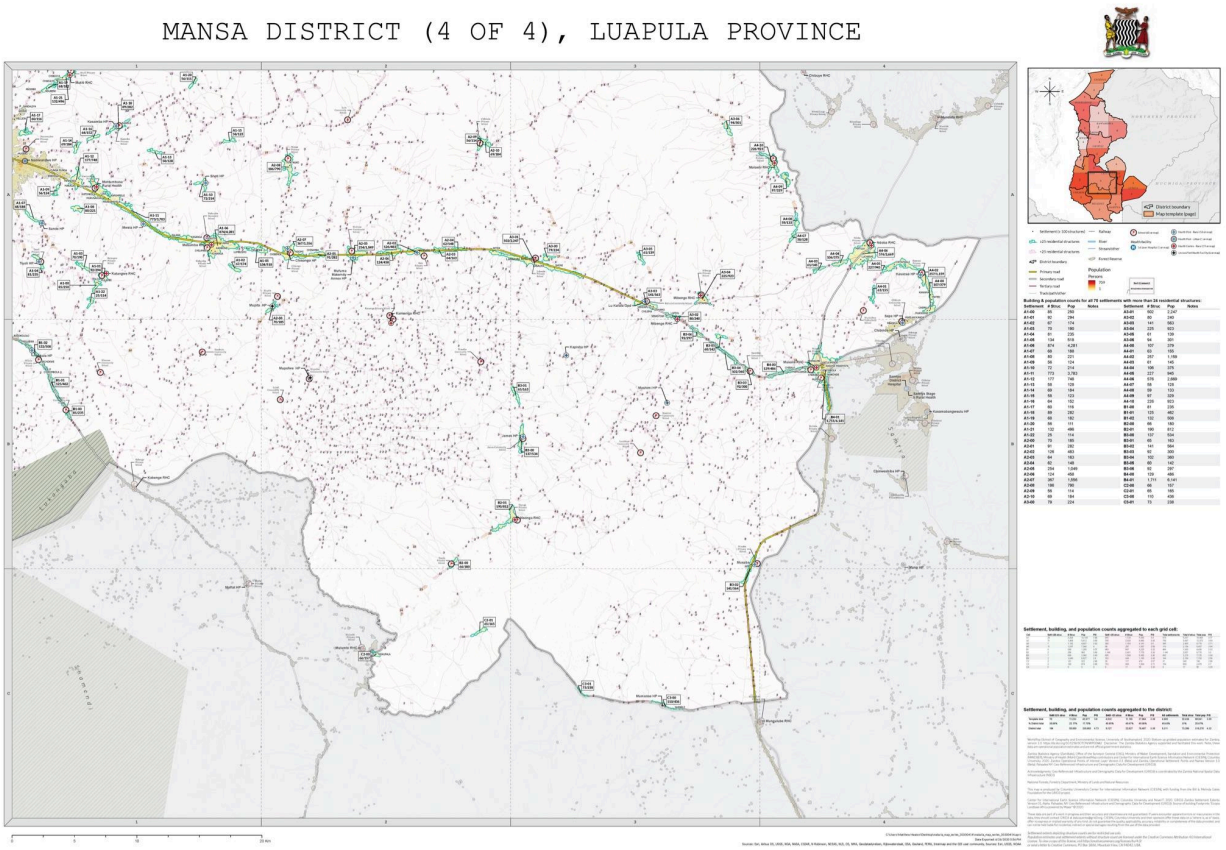
		Refer to geoBoundaries to find best available boundary dataset
Health Facility Catchment Boundaries	If no official catchment boundaries are obtained from the government, upon discussion with government stakeholders, consider using crosscut tool, or approximate catchment areas generated by GRID3 team (voronoi polygons, catchment generated using closest distance, straight line buffers)	

Other considerations

- Map size: maps can be generated for printing in the following sizes (from smallest to largest): A4, A3, A2, A1, A0. Refer to this website for size comparisons.
- Basemaps: the following basemaps are available in ArcPro: https://www.arcgis.com/home/group.html?focus=maps&id=702026e41f6641fb85da88efe79dc166&view=list#content
    - GRID3 uses either topographic (hillshade) or imagery basemaps. Other basemap types can be considered for special cases.
- Study area / scale: administrative polygons are used to focus each extent in a series of maps. Identify the admin level at which the map will be created such as admin 2, 3 or a catchment level unique to the use case. A polygon layer must be specified or provided in the map request.
    - Note there are trade-offs related to legibility and portability of maps produced at different **page sizes** and **map scales.** Smaller page sizes such as A4 are easier to print on-site without the use of a plotter, but should only be produced at large scales (i.e. admin 3+) to preserve label legibility. This may require up to thousands of pages at the country level. Larger page sizes such as A0 can fit much more information such as place names and tabular appendices at smaller scales (i.e. admin 2) but will require more intensive logistics for production and delivery.
    - The greatest bottleneck on static paper maps is the legibility of text. Therefore, consider the hierarchy of labels for a particular use case: what needs to be highlighted, what is useful ancillary or orienting information, and what can be depicted graphically without the use of labels. E.g. label all health facilities, label a 66% subset of settlement names, only show church and school locations without names.
- Refer GRID3 mapping guidelines for symbology and labelling styles.

MAP TYPES

Reference Map



Suitable for contexts in which maps will primarily be used as generic planning supplements or be repurposed for multiple use cases in the future. Available GRID3 data will be symbolised and labelled per GRID3 mapping guidelines. In the example above, settlement extents are symbolised in two categories based on their estimated population and structure count. Settlement, health facility, and school names are labelled.

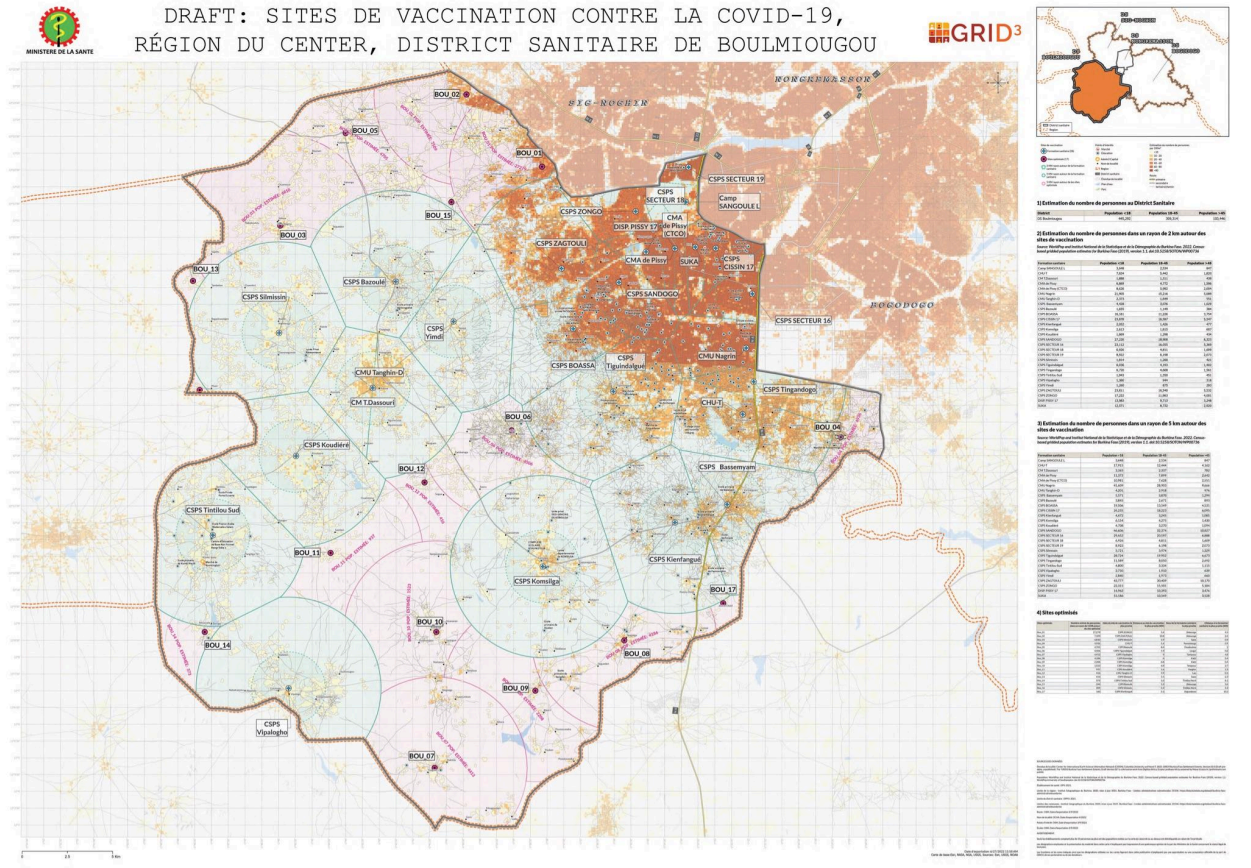
Additional data requirements:

- Estimated total population (or other age groups) can be labelled per settlement extent
- Labelling number of structures per settlement extents requires further data permission agreements from Maxar/Ecopia
- Number of structures can be excluded completely or substituted with other information upon discussion with stakeholders, such as population label

Validation Map (exploratory)

Sample text

Straight-Line Accessibility

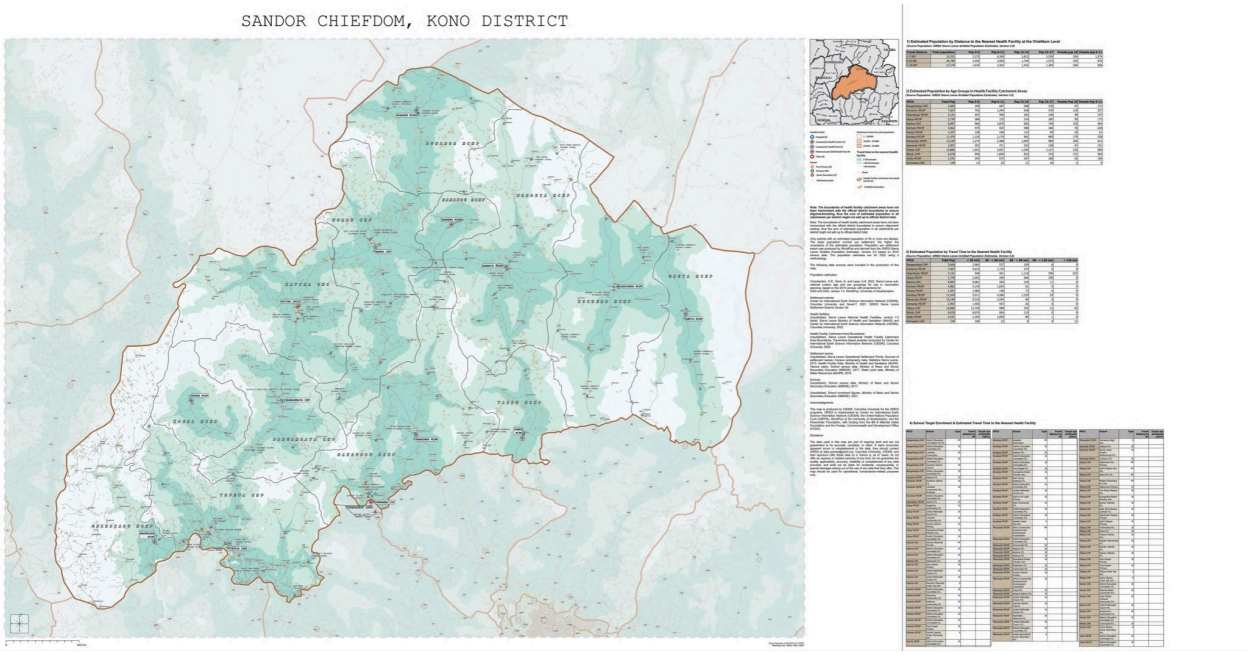


Straight-line buffers emanating from a central point of interest. Buffer interiors are allocated semi-arbitrarily using the Thiessen/voronoi method, typically in ranked order based on site priority. Suitable for circumstances where data or time limitations preclude more complex modelled accessibility. In the example above, existing health facilities are buffered at 2 KM and 5 KM and disaggregated population estimates are allocated to the buffers. Next, options for additional vaccination sites are drawn underneath, optimised based on the added estimated population each site would service within their 5 KM buffers.

Additional data requirements:

- Optimised vaccination sites upon request from Flowminder
- If no optimised sites are generated, straight-line buffers can be created around fixed health facilities or other POIs

Surface-Oriented Accessibility

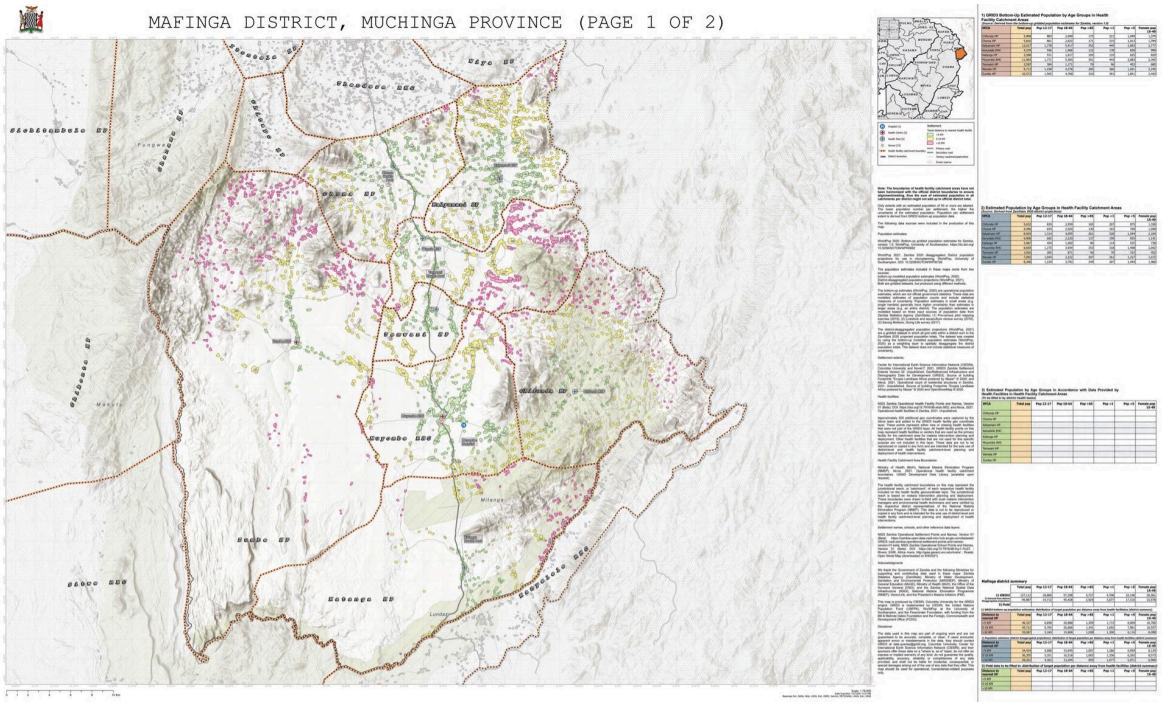


Estimated travel distance/time to all areas radiating from a point of interest (e.g. health facility). Specify in the map request if estimated travel time or travel distance is preferred as the modelling unit. Optimal POI catchment areas can be modelled based on travel time or distance if desired.

Additional data requirements:

- Friction surface layer upon request from CIESIN data team. Specify if driving, walking, or hybrid mode is desired.

Settlement-Oriented Accessibility



Similar in content to “Surface-oriented Accessibility,” this type symbolises settlement extents according to their estimated travel time or distance to their nearest respective health facility.

Optimal POI catchment areas can be modelled based on travel time or distance if desired. This type is suitable for satellite imagery in addition to topographic backgrounds, especially at smaller study areas (e.g. ward or township level). In the examples above, settlement extents are symbolised in three categories based on their shortest modelled route to the nearest health facility.

Additional data requirements:

- Travel time from friction surface, available upon request from CIESIN data team. Specify if driving, walking, or hybrid mode is desired.

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A note on tabular appendices:

- Upon discussion with country stakeholders, maps can include tabular data showing estimated population aggregated to a desired unit of geography such as administrative boundaries, straight-line buffers from POIs, travel time buffers around POIs, or health facility catchment area boundaries. The tables can be included on the maps or as separate documents, and will be filtered according to what is visible on each map page.
- Besides total population count, aggregations can include target age groups such as population over 65, 12 and above, under 5, under 1, etc. GRID3 and WorldPop population data already includes under 5, under 1, females 15 to 49, and 5 year age group by sex. For any other age groups, requests should be made to WorldPop.

A note on citation and disclaimer text:

- All data used in the maps should be cited as per recommended citation from the data producer, including the DOI
- When appropriate a short description of dataset methodology can be included
- For GRID3 population data, recommended citations can be found in README file on the WOPR country specific page
- For GRID3 data, recommended citations can be found in the data release notes

- **CIESIN GRID3 Disclaimer (to be included on all maps):**
    - The data used in this map are part of ongoing work and are not guaranteed to be accurate, complete, or clean. If users encounter apparent errors or misstatements in the data, they should contact GRID3 at data.queries@grid3.org. Columbia University, Center for International Earth Science Information Network (CIESIN), and their sponsors offer these data on a "where is, as is" basis; do not offer an express or implied warranty of any kind; do not guarantee the quality, applicability, accuracy, reliability or completeness of

any data provided; and shall not be liable for incidental, consequential, or special damages arising out of the use of any data that they offer. This map should be used for operational, humanitarian-related purposes only.

Example of citations and disclaimer text (to be provided to Matt in a separate document to be pasted in the map template): https://docs.google.com/document/d/1SbSiiC0WqZ1YhFqxvqE788_5jTVIfsuwWnC46yXvGHE/edit

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Comments by GRID3 Country Managers:

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