***DENSITY DIMENSION***

* *The Population Density* indicator according to [1,2] measures the number of permanent residents/50x50m cell area. It is obtained by counting the population and performing a spatial joining of points to polygons. The calculation of this indicator is based on the following formula:

Population density = Number of permanent residents/cell area

* *The Housing Density* indicator according to [1,2] measures the number of housing buildings in a 50x50m cell in relation to its surface area. It is obtained by performing a housing count first and performing a spatial joining of points to polygons, after. The calculation of this indicator is based on the following formula:

Housing Density = Number of dwellings/cell area

* *The Building Density* indicator according to [1,2] measures the number of buildings in a 50x50m cell in relation to its surface area. It is obtained by performing a count of buildings first and performing a spatial joining of points to polygons. The calculation of this indicator is based on the following formula:

Building Density = Number of buildings/cell area

* *The Commercial Density* indicator according to [2] measures the number of retailers that exist in a 50x50m cell. It is obtained by performing a count of retail first and performing a spatial joining of points to polygons, after. The calculation of this indicator is based on the following formula:

Commercial Density = Number of retailers/cell area

* *The public Facilities Density* indicator according to [2] measures the number of facilities such as public facilities, hospitals, schools, colleges, etc. in a 50x50m cell in relation to its surface. It is obtained by performing a count of facilities first and performing a spatial joining of points to polygons, after. The calculation of this indicator is based on the following formula:

Public Facilities Density = Number of facilities/cell area

* *The Floor Area Ratio (FAR)* indicator according to [3] measures the total built floor area, considering the number of floors, in a block in relation to the area of the block. The calculation of this indicator is based on the following formula:

Floor Area Ratio = Total built-up area/block area

* *The Building Density Index* according to [3] measures the total built floor area in a block in relation to the area of the block.

Building Density Index = Total floor area in a block/area of the block

* *The POI (Points of Interest) Density Index* according to [3] measures the number of POIs within a block in relation to its surface area. It is obtained by performing a count of POIs first and performing a spatial joining of points to polygons, after.

POI Density Index = Number of POIs/area of the block.

***LAND USE MIXTURE DIMENSION***

* *The Entropy* indicator according to [3] determines the diversity of POIs. The Shannon-Wiener Diversity Index (SWDI) is used. The calculation of this indicator is based on the following formula:

SWDI = - ∑ (Pi \* In (Pi))

Where Pi is the proportion of category i of POIs in a block.

* *The Building Use Mix* (BUM) indicator and *Index* & *Building-Use Mix* indicator (BuMi) according to [1,2] look at the diversity of land uses in a 50 m x 50 m cell. Both are obtained by using the Shannon Evenness Index (SEI). The calculation of this indicator is based on the following formula:

SEI = - ∑ (Pi \* In (Pi)) / ln(m)

Where Pi is the proportion of use i in a 50 m x 50 m cell and where m is the number of existing land uses in the study area. When calculating this index, it must be considered that the mathematical indeterminacies derived from the calculation will be replaced by values of zero. The only difference between the two indicators is the name.

* *The Residential-Non-Residential* (RNR) *Index* & Residential-Non-Residential (RNR) Balance according to [1,2] evaluate the coexistence of residential and non-residential zones. The predominance of residential or non-residential zones is observed in a 50 m x 50 m cell. Both indicators take values between 0 and 1. The calculation of this indicator is based on the following formula:

RNR = 1-|(Resi-NonResi) /(Resi+NonResi)|

The only difference between the two indicators is the name.

* *The Commercial and Facility Mix* indicator according to [2] evaluates the diversity of businesses in a 50 m x 50 m cell. The indicator is obtained by using the Shannon Evenness Index (SEI). The calculation of this indicator is based on the following formula:

SEI = - ∑ (Pi \* In (Pi)) / ln(m)

Where Pi is the proportion of business category i in a 50 m x 50 m cell and where m is the total number of business categories existing in the study area.

* *The Basic/No-Basic Commercial and Facility Balance* indicator according to [2] evaluates the coexistence of areas with basic urban elements (for instance, supermarkets and bakeries) and non-basic urban elements (for instance, cultural centers and museums). The predominance of basic or non-basic urban elements is observed in a 50 m x 50 m cell. The indicator takes values between 0 and 1. The calculation of this indicator is based on the following formula:

RNR = 1-|(Basici-NonBasici) /(Basici+NonBasici)|

***CONTACT OPPORTUNITY DIMENSION***

* *The Block Size* indicator according to [1,2] represents the area of each block.

Area of the polygon in ArcMap = Calculate Geometry (Area in Hectares)

* *The Street Width* indicator according to [1] measures the percentage of streets in a 50x50 m. An asymmetrical difference was made between the blocks and the polygon of the study area. Then, an intersection was performed between the 50x50m grid and the vector layer resulting from the symmetrical difference. Finally, the total street area of each cell was calculated, and the percentages were obtained.

Street Width = Street area expressed in percentage in 1 cell of 50m x 50m

* *The Intersection Density* indicator according to [2] defines the Euclidean distance to intersections or crossings was calculated. The formula for calculating the Euclidean distance is:
* *The Distance to squares & pocket parks* indicator according to [2] defines the Euclidean distance to squares and pocket parks was calculated. The formula for calculating the Euclidean distance is:
* *The Distance to public Wi-Fi spots* indicator according to [2] defines the Euclidean distance to Wi-Fi spots was calculated. The formula for calculating the Euclidean distance is:
* *The Benches* (chairs) indicator according to [2] indicates the presence of chairs or benches in public space was identified. It was categorized with 1 presence of chairs and 0 absence of chairs.

Benches = (1 = presence of Benches, 0 = Absence of Benches)

* *The Betweenness* indicator according to [2] observes how many times a building can be visited depending on the road network. This indicator was obtained from a Toolbox for ArcMap developed by [4] and requires a polygon-type vector layer of buildings and a line-type vector layer of the road network for its calculation.

Where: the betweenness centrality of a building i is defined as the number of times that building i is located along the shortest path between all pairs of other buildings within a specified radius r. Thus, , refers to the number of shortest routes from a building j to a building k within a radius r. describes a sub selection of routes passing close to building i. refers to the weight of each building and its relation to the population.

* *The Richardson compactness index* (RCI) indicator according to [3] observes the relationship between the regularity, size, and compactness of the block. This index takes values between 0 and 1. It is calculated with the area (Si) and perimeter (Ci) of the block (Wirth, 2004). The calculation of this indicator is based on the following formula:

***AGED BUILDINGS DIMENSION***

* *The Presence of aged buildings indicator* according to[1,2] define areas with the presence of buildings older than 50 years old. They were categorized as 1 and absence as 0. In this case, the buildings considered were approximately built until 1960.

Sidewalks = (1 = presence of sidewalks, 0 = Absence of sidewalks)

***ACCESSIBILITY DIMENSION***

* *The Distance (meters) to public transportation* indicator accordingto [1,2] shows the distance to public transport stations and its raster calculation. The formula to calculate the Euclidean distance is:
* *The Rail-transit convenience index (RTI)* according to [3] shows the distance to public transport stations and is calculated in vector format.
* *The Street slope* indicator according to [2] describes the topography of the terrain. The slope is calculated from contour lines and was obtained from a digital terrain model (DTM). The Inverse Distance Weighting (IDW) interpolation was applied to obtain a raster without empty values.
* *The Street Lighting* indicator according to [2] shows the number of streetlights per 50 m x 50 m cell.

Street Lighting = Number of streetlights / Cell

* *The Distance to pedestrian crossings* indicator according to [2] defines the Euclidean distance to crosswalks was calculated. The formula for calculating the Euclidean distance is:

***BORDER VACUUMS DIMENSION***

* *The Distance from Border Vacuums* indicator according to [1,2] defines the Euclidean distance to large parks, highways, parking lots, empty lots, etc. was calculated. The formula for calculating the Euclidean distance is:

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