Amenity and Use

local opportunities

Overview 👁

Indicator name	**Population density**

Indicator number	15	**Indicator type**	Supplementary

Objective

To measure the density of people across a given area. Higher density standards assist in enhancing economic productivity, encourage more sustainable patterns of travel, facilitate a more suitable mix of new dwellings and increase occupational densities to support a more productive workforce.

Application guidance

Cities change with time. The focus of planning our cities should be on the density of population so that cities can grow and shrink in areas. If a neighbourhood is too sparse, then efficiency is lost; if it is too dense, then it can become an uncomfortable habitat with increased congestion. Additionally, if a neighbourhood grows in population and services do not keep pace, there are fewer amenities per person, such as schools and hospitals, resulting in more competition and higher prices for fewer beds and admissions.

This indicator will support practitioners to understand the density of population in an area. Based on the outcome of this assessment, practitioners can determine the capacity of an area to absorb more population / housing and demand for a range of services and amenities.

Practitioners can use the *population density* in Travel Zone 2016 metric to measure the population count per square kilometre by travel zone.

Metric 🎛

Population density in Travel Zone 2016

Related indicators 👉

Amenity and Use

16 Housing diversity

17 Local jobs

18 Economic development and regeneration

Recommendation ⭐

To further refine the measurement of population density, the assessment could be limited to residential mesh blocks within travel zones. This, however, would exclude population within non-residential areas (ie. mixed use residential / retail).

Metric – Population density in Travel Zone 2016

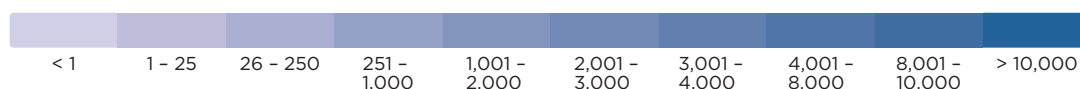|	
Metric unit	Persons per square kilometre
Description	Population density is measured as Estimated Resident Population (ERP) per square kilometre of the joint effective land area by travel zone
Spatial coverage	Applicable to all NSW
Spatial application	This metric is most suitable for area-based analysis based on travel zones

Calculation methodology	**Obtain total ERP data**
	
	1. Summarise ERP 2016 population count from TZP19 population projection table
	
	Calculate travel zone joint effective land area
	
	2. Select land type data by ABS Mesh Block 2016 below:
	  • Primary production
	  • Industrial
	  • Commercial
	  • Education
	  • Hospital/medical
	  • Residential
	  • Transport
	
	  Parkland, water and other land types are excluded from the joint effective land area measurement
	
	3. Derive joint effective land area by adding mesh block areas within a travel zone
	
	Calculate population density
	
	4. Divide ERP 2016 for a travel zone by the joint effective land area for a travel zone 2016:
	
	$$Population\ density = \frac{TZP19\ ERP_{2016}}{TZ\ joint\ effective\ land\ area}$$
	
	Note: In the small number of travel zones where ERP exists and joint effective land area is zero (due to coarse mesh block measurement), population density is calculated as population count divided by total TZ area.
	
	Data representation
	
	5. Assign colour based on the classification below
	
	Unit: Persons per km^2

< 1	1 – 25	26 – 250	251 – 1,000	1,001 – 2,000	2,001 – 3,000	3,001 – 4,000	4,001 – 8,000	8,001 – 10,000	> 10,000

Metric – Population density in Travel Zone 2016 (Cont.)

Assumption	• The ERP metric includes both population in occupied private dwellings and non-private dwellings (boarding schools, hospitals and so on) • The joint effective land area measure is chosen to apply a more accurate area and to standardise the area used to calculate population density. Joint effective land area is calculated as the total area of a travel zone excluding mesh block areas defined as parkland, water and all others. Some travel zones contain a significant parkland area, for example. • TZP19 measure of 2016 ERP is used because TZP19 delivers population on a small area basis • ERP is the official population estimate published by the Australian Bureau of Statistics (ABS), and represents the best possible estimate of the resident population
Limitation	• Population density may vary significantly within a travel zone • Travel zone sizes can vary significantly, with smaller zones in CBD areas and larger zones in regional areas • Mesh block land use typology using ABS can be coarse. For example, just over 60 out of 3,758 travel zones have zero effective land area for the calculation of population density. For these travel zones, the total travel zone area is used. • Timing differences can occur between the measures of mesh block land type and population
Data source	• **Travel Zones 2016:** opendata.transport.nsw.gov.au/dataset/travel-zones-2016 • **TZP19 Population Projections:** opendata.transport.nsw.gov.au/dataset/population-projections • **ABS Mesh Block 2016:** abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1270.0.55.001July%202016?OpenDocument

Reference 🔍
N/A