

Changes to geographic areas between Censuses

A new statistical geography for Census 2011

A new statistical geography known as the Australian Statistical Geography Standard (ASGS) is being used for the release of data from the 2011 Census of Population and Housing (2011 Census). Improved data sources and technology have provided the Australian Bureau of Statistics (ABS) the opportunity to create a statistical geography that better meets the contemporary needs of data users.

The ASGS replaces the Australian Standard Geographical Classification (ASGC) used in previous Censuses. Familiar statistical boundaries such as Census Collection Districts (CCDs), Statistical Local Areas (SLAs), and Statistical Divisions (SDs) are replaced by new units. This causes some issues with time series comparisons, especially at the CCD and SLA level. To assist with the transition from the ASGC to the ASGS, 2011 Census data are available for both the ASGS and SLAs from the 2011 ASGC.

A new statistical geography for the ABS

The ASGS brings all the regions used by the ABS to output data under one statistical framework. They are divided into two broad categories:

- **ABS Structures** – those regions which are defined and maintained by the ABS.
- **Non-ABS Structures** – those regions defined and maintained by other organisations, but for which the ABS supplies data.

ABS Structures contain stable regions that will remain unchanged until the next Census in 2016. All ABS Structures are built from Statistical Areas Level 1 (SA1s). SA1s are aggregated directly from Mesh Blocks (Diagram 1). The SA1 is the smallest geographic region for which population characteristics from the 2011 Census data are provided. The only 2011 Census data available for individual Mesh Blocks are total population and dwelling counts (no age/sex breakdown).

The **Non-ABS Structures** are regions that are defined by other agencies for administrative purposes (e.g. Local Government Areas (LGAs), Commonwealth Electoral Divisions, etc.). The ABS approximates these regions by using whole ABS statistical geography units. Mesh Blocks are used to approximate LGAs, however SA1s are used to approximate most of the other Non-ABS areas (see diagram 2).

Diagram 1: Census 2011 ASGS ABS Structures

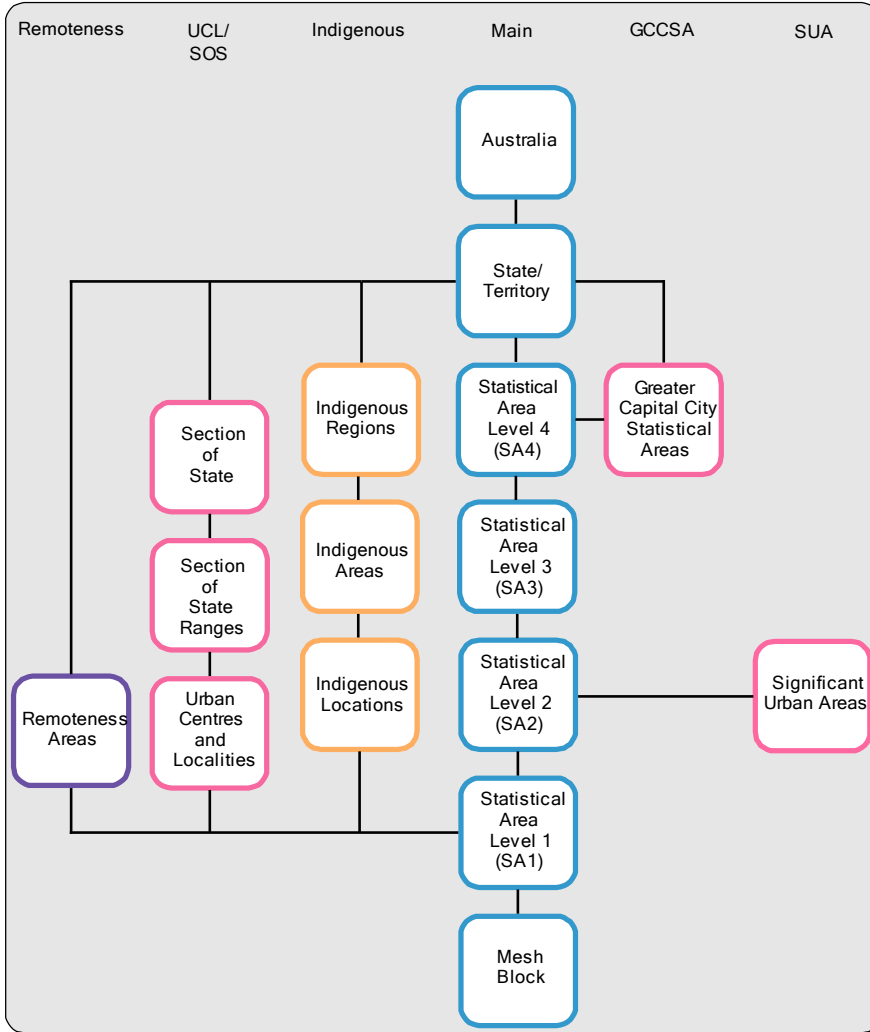
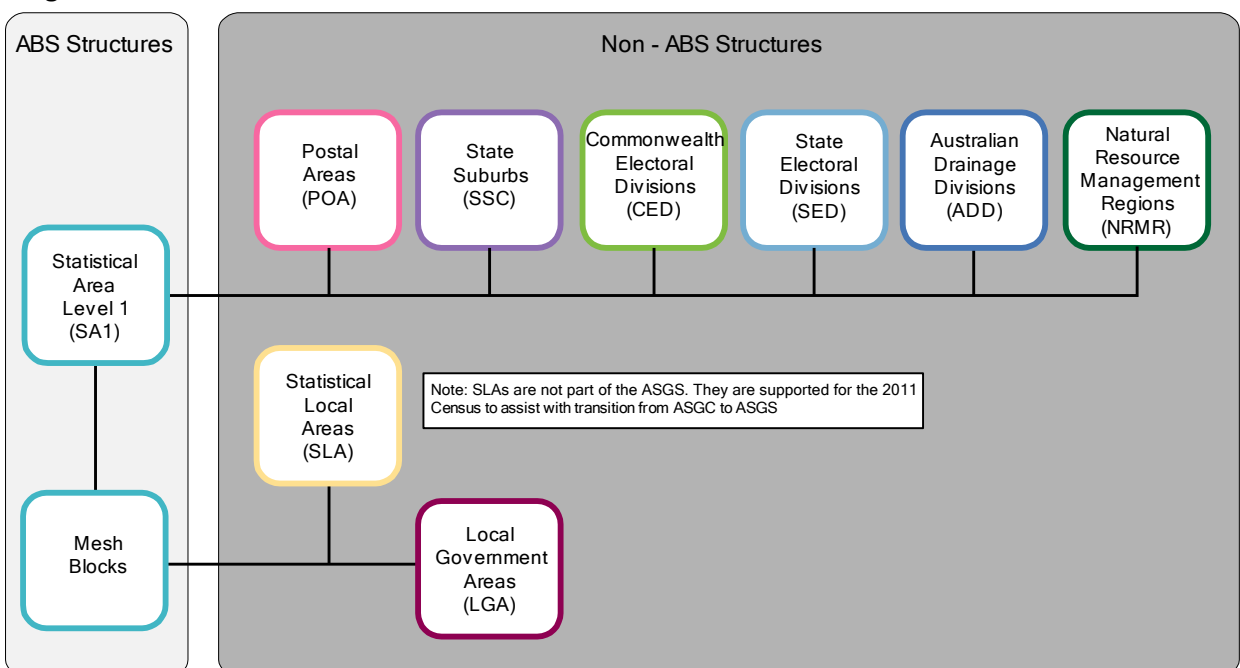


Diagram 2: Census 2011 ASGS Non-ABS Structures and 2011 SLAs



The population ranges within the ASGS regions are much narrower than their ASGC equivalents. ASGS regions are designed to give the maximum geographical detail for improved analysis of population data. The Non-ABS Structures will be reviewed annually to accommodate any changes, for example, changes to LGA boundaries.

The diagrams above illustrate how the ABS Structures and Non-ABS Structures used in the 2011 Census are built directly from Mesh Blocks or SA1s. All spatial units within ABS Structures and Non-ABS Structures are precisely nested within the next region of the hierarchy. For example, by definition, Postal Areas (POAs) are derived from one or more whole SA1s.

Why move to the ASGS?

The move to the ASGS as the new ABS statistical geography was motivated by the need to have a structure that is stable, consistent in population size, has better geographic detail and reflects settlement patterns and socio-economic relationships.

An added feature of the ASGS is that all structures have been brought together under one framework.

How do ASGC and ASGS small area units compare?

When comparing small area statistics from different Censuses, it is important to understand how they are defined. CCDs are very different from SA1s, as are SLAs from Statistical Areas Level 2 (SA2).

Statistical Areas Level 1 versus Census Collection Districts

Statistical Areas Level 1 (SA1s) are the new base unit of output geography for the 2011 Census and are aggregates of whole Mesh Blocks. SA1s are designed to be consistent in population size and character. They have a population range of between 200 and 800 persons, with an average population of 400 persons. Zero SA1s are SA1s with nil or nominal population. They are created to represent unpopulated areas that are not easily combined with surrounding populated SA1s. SA1s are designed to be either urban or rural in character. The SA1s aggregate to form the higher level units of the ASGS including the Census-specific geographies. There are approximately 55,000 SA1s covering the whole of Australia.

Census Collection Districts (CCDs) were made up of around 200 dwellings and were originally designed for the delivery and retrieval of Census forms by one collector. While output considerations were taken into account during the design of CCDs, the fact that they were primarily designed for collection purposes imposed restrictions on their usefulness as output units. This resulted in CCDs being inconsistent in population size and heterogeneous in character. In 2006, there were approximately 39,000 CCDs covering the whole of Australia.

Statistical Areas Level 2 versus Statistical Local Areas

Statistical Areas Level 2 (SA2s) are optimised for demographic data and are designed to represent functional areas outside major urban areas and in regional Australia. Where possible, SA2s are based on gazetted suburbs and localities. An SA2 has an average population size of 10,000 persons. SA2s are consistent in population range and are designed to be stable over several population Censuses.

Zero SA2s are SA2s with nil or nominal population. They are created to represent large unpopulated areas that are not easily combined with surrounding populated SA2s.

Statistical Local Areas (SLAs) are inconsistent in population size, which can range from none or very low to over 100,000 persons. SLAs do not reflect settlement patterns or functional areas. SLAs are contained within LGAs and were subject to change every year following the review of gazetted LGAs.

How will the ABS assist with time series analysis of Census-specific geographic areas?

The implementation of a new statistical geography brings with it the challenge of an inevitable break in time series data. Data based on the ASGC and previous Census Geographic Areas will need to be transitioned to the ASGS to maintain existing time series. The ABS will assist users with the conversion to the ASGS in several ways.

Recasting Census time series data

The 2011 Census data has been released both on the ASGS and on the 2011 ASGC (at SLA level). Additionally, Census time series data at SA2, SA3, SA4, SLA and LGA level will be released for 2001, 2006 and 2011.

There is little impact on data for LGAs. The change however, has some impact on data for other Non-ABS Structures such as POAs and State Suburbs (SSCs). In general, these regions are more accurately represented in the ASGS, because they are approximated by SA1s (which give a much better geographical resolution than the CCDs). However, users analysing historical data for these regions need to be aware of the change as a possible source of anomalous results.

2011 Census data will not be recast on CCDs from previous Censuses.

Correspondences

The ABS has created a series of population and area based correspondences (concordances) between the ASGC regions and the new ASGS regions. Correspondences are a mathematical method of reassigning data from one geographic region to a new geographic region.

Correspondences can be misleading in some circumstances. This is because they are based on the assumption that the data to be converted are distributed across the original regions in the same way as the correspondence's weighting. This assumption may or may not be reasonable depending on the circumstances. Correspondences, therefore, need to be used with a great deal of care.

The ABS provides a correspondence of 2006 CCDs to 2011 SA1s, together with an index of fitness for purpose. There are additional correspondences to other ABS Structures available. Identified issues surrounding the use of correspondences are discussed in detail in the following ABS publication: [Information Paper: Converting Data to the Australian Statistical Geography Standard, 2011](#) (cat. no. 1216.0.55.004).

A suite of geographical correspondences are located in the following online publication: [Australian Statistical Geography Standard \(ASGS\): Correspondences, July 2011](#) (cat. no. 1270.0.55.006).

A list of available and upcoming correspondences, coding indexes and hierarchy tables are identified in the 'Correspondences' chapter on the ABS Statistical Geography website: <http://www.abs.gov.au/geography>

Where can I get further information?

Information on how Census data is being released under the ASGS is available in the online ABS publication: [Census of Population and Housing: Outcomes from the 2011 Census Output Geography Discussion Paper, 2011](#) (cat. no. 2911.0.55.003).

Further information is available in the 'ASGS Fact Sheets' and 'Converting Data to the ASGS' chapters of the ABS Statistical Geography website at <http://www.abs.gov.au/geography>

Detailed discussions of the ASGS Structures and the criteria used in their design can be found in the ABS publications listed below. The 'Downloads' tab of each publication contains a manual, files of names and codes, and digital boundary files for those regions.

[Australian Statistical Geography Standard \(ASGS\): Volume 1 - Main Structure and Greater Capital City Statistical Areas, July 2011](#) (cat. no. 1270.0.55.001)

[Australian Statistical Geography Standard \(ASGS\): Volume 2 - Indigenous Structure, July 2011](#) (cat. no. 1270.0.55.002)

[Australian Statistical Geography Standard \(ASGS\): Volume 3 - Non ABS Structures, July 2011](#) (cat. no. 1270.0.55.003)

[Australian Statistical Geography Standard \(ASGS\): Volume 4 - Significant Urban Areas, Urban Centres and Localities, Section of State, July 2011](#) (cat. no. 1270.0.55.004)

Any questions or comments can be emailed to: geography@abs.gov.au