

2001 Census

Improving access to census information

Introduction

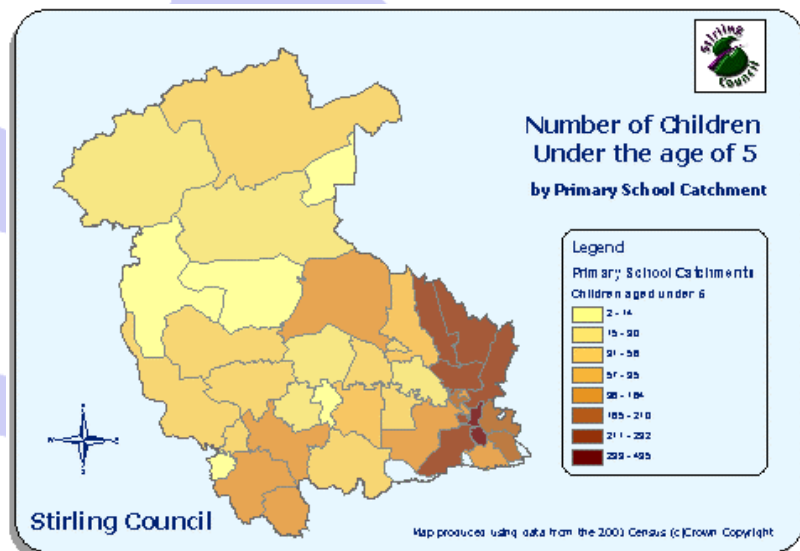
From June 2003, organisations have been able to purchase 2001 census data from the General Registry Office for Scotland (GROS). The Census results provide a wealth of social, economic and demographic information about Scotland's population. The way this information has been gathered and supplied means there are endless possibilities for using this information within local authorities to assist with policy decisions and service planning.

Requirements

The census data is provided as a collection of over 350 files that present the information in different ways. In order to protect the privacy of individuals, the information is reported using three standard geographical units:

- Census Output Area (COA) – A combination of postcodes, and comprising around 50 households. The smallest area for which census data is available.
- Ward – A version of Council Electoral ward boundaries, modified to ensure confidentiality.
- Sector – Based on postcode sectors, but split at council boundaries. Joined with neighbouring sectors where there are not enough households to protect confidentiality.

This allows some flexibility in using the data, but much of the time an organisation wants statistics for areas that cannot be matched up exactly with the supplied geographic areas. For example, a council may want population statistics by school catchment or planning zone.



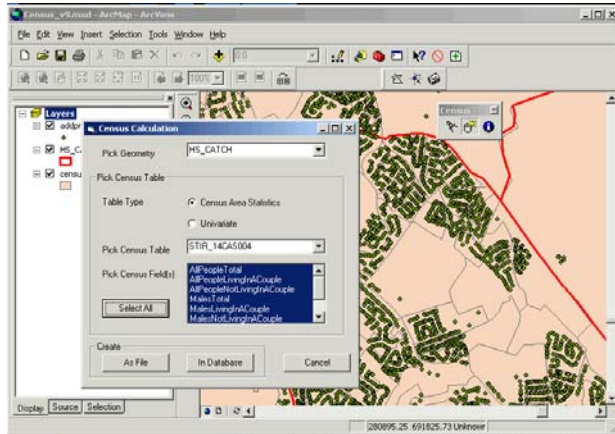
These “non-standard” areas have different boundaries from the COAs used for reporting the census – each area is usually made up of a number of whole and partial COAs.

This makes it difficult to derive statistics for a non-standard area when a COA falls over the boundary of the reporting area. Previously this has been a manual process involving subjective judgements, even when following the most stringent rules. The more COAs that are split, the less confidence there is in the results, and the greater the risk of inconsistencies in the analysis. It is also an

extremely time-consuming task that can take several days for more complex analyses.

Solution

Forth Valley GIS have worked in conjunction with Stirling, Clackmannanshire and Falkirk Councils to develop an automated solution using GIS technology.



Screenshot showing the Census tool in action

Our solution was to create a custom toolkit for ESRI's ArcView® application that automatically aggregates census information for any geographic area. The tools can be used to automatically calculate the relationship between each custom geographic area and the Census Output Areas that fall within it. This information is stored in a database, and can then be used to create aggregated statistics tables for the custom geographic areas.

By developing the census toolkit, we have enabled council staff to produce census statistics for any geographic areas very easily. The results produced are consistent and easily reproduced.

Data Management

Data was received from General Register Office Scotland (GROS) as a collection of text files.

Although the data was supplied in electronic format, the files were not designed specifically for use in a database. Because of this, we had to process the

data and validate it before it could be loaded into the SQL Server® database ready for use.

Benefits

Stirling, Falkirk and Clackmannanshire Councils have been using the application to aggregate census data, and have quickly realised a number of benefits:

- **Speed:** Census tables can be produced for non-standard geographies such as School Catchments in a matter of minutes, freeing more time for analysing the data.
- **Confidence:** The automated process removes subjectivity, minimising human error and improving confidence in the accuracy of the data produced.
- **Consistency:** The application means the same methodology is applied for all analyses, making the results repeatable.

CustomID	Category1	AllSchoolUnder10	10To14	15To19	20To24	25To34	35AndOver
1	Dunblane High School Females	89	1	1	49	37	1
2	Dunblane High School ALL SCHOOLCHILDREN AND STUDENTS	158	1	5	80	68	2
3	Dunblane High School Males	69	4	31	31	2	1
4	Wallace High School ALL SCHOOLCHILDREN AND STUDENTS	190	2	82	89	6	1
5	Bannockburn High School Males	29	2	3	9	13	1
6	Bannockburn High School Females	30	1	18	9	2	0
7	Balfon High School Males	102	7	45	47	2	0
8	Bannockburn High School ALL SCHOOLCHILDREN AND STUDENTS	59	2	4	27	22	3
9	Balfon High School Females	115	1	5	57	49	2
10	McLaren High School Females	87	1	8	36	41	2
11	Balfon High School ALL SCHOOLCHILDREN AND STUDENTS	217	1	12	103	97	2
12	Stirling High School Females	77	1	2	31	40	2
13	Wallace High School Males	102	1	50	47	4	0
14	McLaren High School ALL SCHOOLCHILDREN AND STUDENTS	181	5	19	79	75	3
15	McLaren High School Males	94	4	11	43	36	1
16	Stirling High School ALL SCHOOLCHILDREN AND STUDENTS	168	3	6	77	77	5
17	Wallace High School Females	76	1	32	42	2	1
18	Stirling High School Males	90	2	4	46	38	3

Example of output from Census tool

Project type:	Data Management, Application Development
Software Platform:	ArcView 8 & SQL Server
Customers:	Stirling, Clackmannanshire & Falkirk Councils



For further information, visit our web site where you can fill in an on-line request for further information:

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