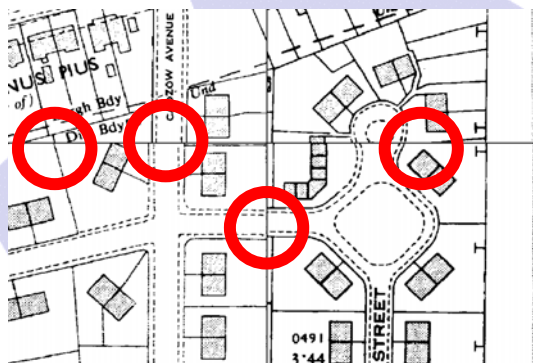


Implementing a strategy for Ordnance Survey Positional Accuracy Improvement (OS PAI)

Move to improve!

Introduction

Many of today's Ordnance Survey[®] (OS) products are based on paper maps from the 1950s. To create wide area coverage these maps were "cut and pasted" to provide a "best fit". Where map edges joined, mismatches occurred creating positional quality issues.



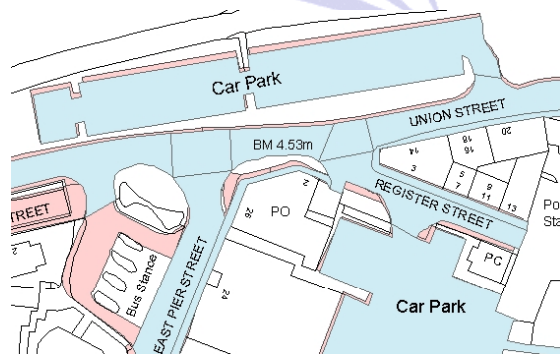
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Today, advanced technologies such as GPS are used to capture data providing better positional accuracy and this exposes the original data anomalies. OS are now resurveying their large-scale data in "rural" areas to give positional accuracy improvements or "PAI". OS data affected by PAI will shift from its' original position to an improved position. The shift size is not consistent, and can be multi-directional. Most shifts are between 1–3m. PAI is being managed through a set timetable of work (called the "PAI programme"), which will run until 2006.

"The PAI programme will result in an improved and more consistent accuracy standard of mapping data for rural areas". Ordnance Survey

Requirement

Clackmannanshire, Falkirk and Stirling Councils have been creating and maintaining a wide range of geographic datasets over a number of years. Many of these are based on Ordnance Survey data and are now affected by PAI. There could be fairly serious consequences for the Council if data was shown to be in the wrong place.



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For example the extents of an adopted road may be represented incorrectly or a point showing the location of a listed building may no longer fall

inside the correct building footprint leading to serious errors. A plan of action was needed to help reduce any associated risk and define a managed approach to PAI.

Solution

FVGIS conducted PAI research in 2003. This examined the high-level impact of PAI, helped gain the overall scale of the PAI problem at a local level and considered the management options available.

Data

A data audit was conducted in consultation with services within the three Councils. Information was gathered in a database for over 235 datasets. Each dataset was examined thoroughly for PAI impact with many factors being taken into consideration.

- 39% of council datasets were found to be “Affected” by PAI (medium to high risk)
- 29% were found to be “Potentially Unaffected” (low risk)
- 32% of datasets were found to be “Unaffected” (no risk)

A series of recommendations were made based on the result, but some serious decisions had to be made.

- Was the amount of effort required worth it?
- What were the benefits if data was moved?
- What were the risks if it wasn't?
- What were the consequences to the council if data was shown to be in the wrong place (e.g. legal requirements)

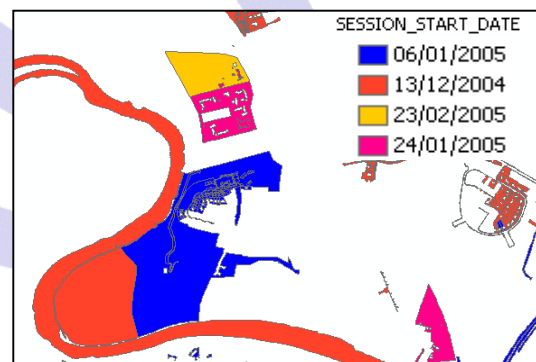
Approach

Tools from the corporate GIS supplier, ESRI™, were identified for applying a PAI shift automatically to certain Council datasets using “Link files” provided by the OS. Some other datasets would require the recapturing of records using the new large scale mapping from the OS

(OS MasterMap®, OSMM) to provide polygons for a “perfect” result. Additional PAI “tools” were developed by FVGIS to assist those affected by PAI to manage it more easily. A training course was also developed and provided to staff to assist in the use of the ESRI™ tools, recapture with OSMM polygons and PAI data management. PAI guidance and advice was also provided online via the intranet GIS portal, GeoLINK.

Data Management

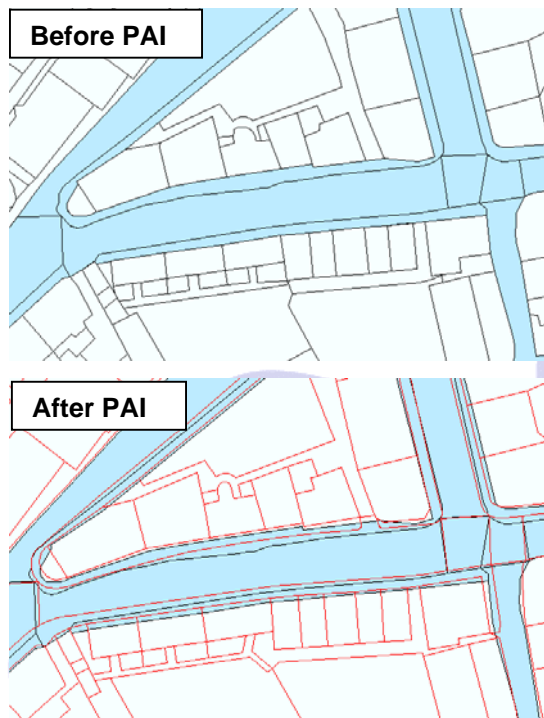
Within the Council, OSMM data is stored in an Oracle 9i® database providing regional coverage for the Forth Valley area. PAI information is distributed to desktop GIS customers and users of the GIS intranet portal. Before PAI, OS Mastermap changes were being applied corporately on a monthly basis through an established data management process. This update regime has been changed to apply monthly updates to a “temporary” environment.



Using GIS, a thematic map can be created based on the dates of changes (“change intelligence”) applied to OSMM.

This highlights the areas needing attention, and data custodians can then go and examine the impact of the PAI changes on their own data, using the GIS Tools & Link files to manipulate their data to the improved position.

Every 3 months, the previous months' OSMM updates from the "temporary" environment are transferred to the "live" environment. Updated, quality assured Council datasets are then published to the live Oracle database using Cadcorp's MapModeller SIS®. Data custodians therefore have three months to move (and improve!) their data. An archive of all the OSMM changes provides an historical perspective of the before and after PAI changes.



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- Use of OSMM "change intelligence" allows visual inspection of where PAI change has occurred.
- Following recommended data management processes for OSMM / PAI means proactive, continual data maintenance and continuous data quality improvement.
- PAI has helped to make the council GI community more "data aware".
- Increasing confidence in data being used.
- New opportunities to recapture Council data using OS Mastermap.
- Constant access to the most up-to-date OSMM information and archived features.

"I advised managers to think it through carefully, allocate resources, and be organised right from the start. I am happy with the outcome. We have achieved practical results under tight deadlines."

Sepideh Roushan, Roads Department, Falkirk Council

Benefits

Dealing with the process of PAI has brought about a number of related benefits in addition to the obvious improved accuracy of council datasets:

- The data audit provided more information about datasets being created in the councils and who was creating them. This data allowed the creation of an up to date, Corporately available data catalogue (metadata register).

Project type:	Data Management
Software Platform:	ArcGIS® GeoLINK (Council Intranet GIS) Oracle® 9i Snowflake GoLoader Cadcorp Map Modeller
Customers:	Clackmannanshire Council Falkirk Council Stirling Council

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

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