Blog: Avon and Somerset Police Proof of Concept (PoC)

By Phillip Ridley, Senior Business Development Consultant, 1Spatial

Spatial data quality is key to operational decision making in policing. Incomplete or outdated location data (e.g. address records) can affect the speed of evaluation and analysis of a situation. It may also lead to inaccurate decision making, incorrect resource allocation and missed opportunities to prevent crime. This is something a police force cannot risk. Ensuring location data in the Record Management System (RMS) is complete, current and accurate can be a time-consuming process, which led to Avon and Somerset Police partnering with 1Spatial to develop an automated solution.

For parts of the existing location address records, the quality is essential to ensure effective everyday policing, however some specific aspects of the data could be improved. This would add value and ensure other systems, such as performance monitoring and reporting systems, as well as the in-house GIS solutions display the data accurately. The project focused on improving the quality of the police's record data in the three core areas that were least accurate:

-   UPRNs (Unique Property Reference Numbers):
-   Co-ordinates
-   Up-to-date Patrol Beat Code Boundary Updates

However, a one-off cleansing exercise is not a sustainable solution. Avon and Somerset Police was looking for a solution that not only "cleanse" existing inaccurate records but maintains high accuracy by consistently reviewing the data quality. 1Spatial offered an automated continual data cleansing solution, thereby ensuring the data was current, complete and accurate.

For the project, a sample dataset of 91,000 records, across Somerset was used. In under 10 minutes, we saw an average 37% increase in the number of valid records across the entire dataset, with a particular highlight being a 69% increase in the number of records with a valid UPRN.

To create complete, current, and accurate data, each of the records in the sample data were cross referenced with an authoritative data sources: the Corporate Gazetteer using Ordnance Survey's Address Base Premium data and the Avon and Somerset Police Beat Boundaries shapefile/feature service. If an address did not match the authoritative data source, the police record was updated with the content of the authoritative data source to correct errors and fill gaps in the data. Should the data be updated, an automated auditing process was applied to mark an update to the record, and should the record update require

sign off from management it was audited in such a way that the record would then be held in a staging database rather than automatically inputted back into RMS.

To validate and cleanse the data 1Spatial applied a "Plain English" rules-based approach, which mitigates the risk of technical debt with the data quality process. Given the large number of stakeholders using the data in the organisation, and the need for transparency with data management processes, the rules-based approach means the rules and actions through which the data is processed can be understood by stakeholders without the need to explain long complicated code sets.

"As a police force, Avon and Somerset Police are forward thinking and driven by innovation so we're really excited to collaborate on this proof of concept with 1Spatial. Improving the accuracy of location data enables us to correctly review risk and allocate resources which means we're better able to serve and protect the communities of Avon and Somerset. The automated nature of the system and increased compliance against national Data standards also means our Data Quality Team can focus on improvement activity." - Nicholas Lynn 8225, Records Review Team Manager and Roxanne Green, Data Quality Researcher

"After a very promising proof of concept we are now looking at the potential for the installation of the 1Integrate product to manage location quality issues within our Crime and Intelligence Management system." – Ian Steel, Senior Project Manager

Following this project 1Spatial are exploring with Avon and Somerset Police to identify how this solution can be expanded beyond these three focus areas of the data. At 1Spatial, we are excited to explore the future potential of this solution both at Avon and Somerset Police and to enable the wider policing industry to have complete, current and accurate data on which they can have full confidence for evidence-based decision making.

If you are interested in finding out more information, please do not hesitate to **get in touch.**