esri UK

Case study

Putting police officers on the right beat

Avon & Somerset Constabulary

The Challenge

- Accelerate the implementation of beat changes and ensure that new beats reflect the needs of communities

The Benefits

- Time required to design and agree new beats reduced from 6 months to 1 month
- 15 days of staff time removed, with a saving of over £3,000 per beat change
- Better-designed beats that reflect crime in the community
- Greater agility to respond to evolving crime patterns and community needs

In a ground-breaking project, Avon and Somerset Constabulary has used Esri UK's Sweet to transform the way in which it designs its beats, based on a deeper understanding of the needs of individual communities. It can now make more well-informed decisions and implement beat changes more quickly to improve the effectiveness of its Neighbourhood Policing Teams.

The Challenge

Avon and Somerset Constabulary divides its region into 121 tightly defined territories known as beats, where dedicated Neighbourhood Policing Teams engage with the local community on the streets, in neighbourhood meetings and at schools. Three or four times a year, the organisation needs to adjust the shape of its beats to optimise the allocation of police officers and ensure its resources are directed to the areas where they can most benefit local communities.

The process for redesigning, agreeing and implementing beat changes was incredibly complex. Police officers used to mark their proposed changes on paper maps, which were then passed between local teams and the force's geographic information system (GIS) manager until a final version was agreed. Following ward boundary alterations in Bristol, it took Avon and Somerset Constabulary six months to agree changes to beats in the city, which caused unnecessary delays and consumed a significant amount of staff time that could have been better spent delivering more valuable policing services.

The Solution

A long-time user of Esri's ArcGIS platform, Avon and Somerset Constabulary discovered the solution to its challenge at Esri UK's Annual User Conference, when Esri UK's new application, Sweet, was introduced. Soon afterwards, the organisation used Sweet to develop a proof of concept for beat management and then built the solution in just four days with support from Esri UK's professional services team.

Once fully rolled out, local policing teams will be able to use Sweet to view current beat boundaries, model changes and see the potential impacts of changes on population size, numbers of crimes and anti-social behaviour incidents and crime types. They can then share their proposed beat models with colleagues via a web map, so that consensus can be gained before changes are sent to the GIS team for implementation. A key advantage of Sweet is its simple interface, which enables it to be used by non-technical police sergeants, after just a small amount of training.

Critically, the solution utilises topological rules within Sweet to ensure that new beats are created consistently in accordance with the force's procedures and naming conventions, no matter who produces them. For instance, it is impossible for police officers to inadvertently create new beats that overlap other beats or leave 'gaps' not covered by beats. This ensures that beats are designed correctly from inception and reduces the need for subsequent editing.

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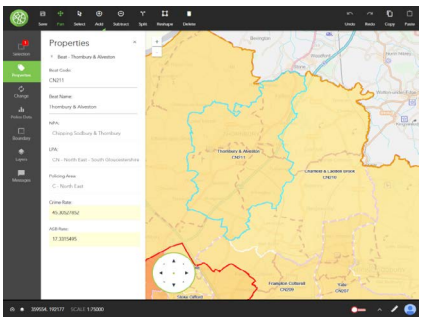
>
> Olivia Powell, GIS Manager, Avon and Somerset Constabulary



Police officers use Sweet to see the rate of crime and antisocial behaviour within beat boundaries

The Benefits

Faster implementation of beat changes

Avon and Somerset Constabulary anticipates that its use of Sweet will significantly reduce the amount of time required to implement beat changes in its region. This is primarily because the solution allows beat boundary amendments to be delineated electronically and shared with colleagues via a web app, which accelerates the consultation process. “Using Sweet, we now expect to be able to create new beats and gain consensus on the changes in less than a month, rather than up to six months,” says Olivia Powell, GIS Manager at Avon and Somerset Constabulary.

Substantial personnel cost and time savings

The force has calculated that it can potentially save around fifteen days of personnel time for a typical beat change: three days for a police inspector, one day for a police sergeant, three days for a police analyst and eight days for a GIS specialist. In monetary terms, this time saving equates to an annual financial saving of at least £12,000 for four beat changes a year, which represents a return on investment of over 2000%. In reality, the time saving frees up highly trained police personnel to work on different projects. As Powell explains, “Police officers and specialist GIS professionals in the force can now be more productive in other areas, where they can add greater value for communities.”

Better-designed beats that reflect demand and improve efficiency

Through its use of Sweet, Avon and Somerset Constabulary will be able to make better decisions about the optimal size and shape of beats, based on an improved understanding of crime in each community and policing best practices. For instance, police officers will be able to see how a proposed change in the geographic shape of a beat might increase the level of crime in that beat and necessitate the reallocation of neighbourhood policing resources. At the same time, the topographical rules in Sweet will ensure that new beats are optimally designed to avoid situations like doughnut-shaped beats that are inefficient to police.

Greater agility in meeting the needs of citizens

Most importantly, Sweet will give Avon and Somerset Constabulary the ability to respond more effectively to the evolving needs of the communities it serves. It will be able to implement beat changes more frequently to react to changes in demand for its services and create beats that make sense to communities, rather beats that are imposed by IT systems. “The beat is right at the heart of community policing, so we have to get this right,” Powell says. “Sweet enables us to adapt our beats and meet the needs of communities in a more agile way.”

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