



Just for the record...capturing data for the TMA 2004

KOREC's Mapping Consultants Martyn Palmer and Richard Gauchwin take a look at two very different aspects of the Traffic Management Act 2004

On July 22nd 2004, Parliament passed the Traffic Management Act 2004, setting in motion big changes for Local Authorities, Utility Companies and Utility contractors across the country. But what does it all mean, who does it affect and how will it alter the way they work and collect data? Nearly four years down the line, and with the Act being implemented from 1st April 2008, we have a better idea of how the affected agencies have tackled this new legislation.

Since the introduction of the Act, we've seen two key areas emerging that have resulted in those involved contacting us to reassess their data capture methods. Part 6 of the Act introduces new legislation which, in effect, transfers parking enforcement responsibility from the police to local authorities. Section 18 of the Act introduces a new requirement for Utility Companies, Utility Contractors and Highway Authorities to register the position and attributes of all Highway Reinstatement Works whether large or small, and give notice to the Street Authority within prescribed time scales.

Failure to do this within the strict guidelines of the new TMA may result in the Statutory Undertaker receiving a fine (or Fixed Penalty Notice) for each offence, which could be very costly.

Part 6 – Preparing for a decriminalised Parking Service

To address this legislation, one of the United Kingdom's largest metropolitan district councils applied to the Department of Transport for the necessary designations and approvals to allow for civil parking enforcement powers to be transferred to the council in 2008. As part of that process, the council was required to undertake a full review of all existing waiting and loading restrictions, ensuring that they met the legal requirements.

Although they didn't know it at the time, the new legislation would mean that land surveyors for this district council were about to embark on

the most significant data collection survey their department had ever undertaken. This meant collecting spatially accurate data on more than 12,000 street signs and road markings, most of which had not been collected before.

"To comply with the new legislation, we had to collect information about the position of everything from yellow lines and parking bays to signs for one-way streets, speed limits, weight restrictions and everything in between, and it all had to be accurate within a metre," said the chief land surveyor of the council. "Our district spans 365 square kilometres and includes both urban and rural regions, so we knew we needed a reliable system that would work in a variety of environments and help us complete our task as efficiently as possible."

As a first step, the council turned to KOREC, one of the largest resellers of advanced GPS solutions in the UK. After considering several options and completing a thorough process of demonstrations and accuracy trials, they selected six Trimble GeoXT rugged GPS handheld receivers with FastMap Mobile data collection software on-board. The GeoXT handhelds delivered submetre post-processed accuracy, but the land surveyors of this council opted to subscribe to Trimble's VRS Now (Virtual Reference Station) service, thereby enabling them to achieve accuracy, well within a metre on average, in real time. The Trimble VRS Now service provides instant access to real-time differential GPS (DGPS) corrections, giving GB users high accuracy without the need for post-processing. It also provides a fixed virtual reference station network at any time, eliminating the need to set up a base station in the field.

"Being able to achieve such high accuracy in the field eliminated a lot of post-processing work back in the office, which meant we could focus on the task at hand—collecting data as efficiently and accurately as possible,"



said the chief surveyor for the council. "With Trimble VRS Now, corrections are actually delivered directly to the handheld on the spot, so you immediately have accurate information at your fingertips."

The on-board FastMap Mobile data collection software visually displays data collected in the field against the user's and allows field workers to uniformly record attribute information from defined pick lists such as such as the type of sign, the direction it faced, the type of mounting it was on and its precise location. In addition to standing traffic signs, the workers also recorded information about signs that give moving traffic orders, such as speed limits and weight restrictions, and recorded information about road markings.

Due to the scale of the project, the team of surveyors enlisted the help of six additional workers from local employment agencies. According to the council's chief surveyor, "Although none of the temporary workers had a

background in surveying or data collection, the equipment is easy to learn and use and after a week-long training program, we were ready to go."

Each morning, the workers would meet in the office and, for safety reasons, divide into teams of two. Each team was assigned a territory for the day, with a background map of the entire region loaded onto each Trimble GeoXT handheld.

At the end of each day, the teams would return to the office, where they would plug

the GeoXT handheld into a docking station and automatically download the information collected that day into the database. Using ESRI's ArcMap software, the surveyors were able to view and analyse the data daily. ArcMap also made it easy to create maps, charts and a variety of reports for ongoing updates to the council.

"Over the course of about a year, we were able to collect the data we needed on more than 12,000 street signs and road markings, and the feedback we've received so far has been very favourable," said the chief surveyor. "We've already been able to remove some signs that are redundant or no longer required and our detailed reporting and high accuracy are well within the criteria required by the legislation."

As a next step, the council hopes to integrate the data collected into ESRI's TrafficFlow software in order to better manage traffic flow processes across the land survey, legal, engineering and other departments.

Section 18 – Reinstatement Work

Section 18 of the Act has also caused those affected to question how far their existing data capture system delivers, but what exactly are the requirements for avoiding a fine under this part of the Act?

Criteria include the capture of the National Grid Reference (NGR) of reinstatement works to 1 metre resolution and that notice is given to the Street Authority within 7 working days. Street Works registers will be based on GIS and displayed against OS MasterMap. Therefore any GPS data capture system must have the ability to capture the National Grid Reference (NGR) to one metre resolution with a 12 figure OS Grid Reference (E 302494, N 247097). This will place the point correctly onto the definitive OS MasterMap. Therefore if you are using GPS technology, it must deliver sub-metre absolute accuracy.

An OSTNo2 GPS Transformation is necessary to give the correct OS Grid reference so that the position of the reinstatement works will display correctly in the Highway Authorities GIS System.

Whilst an off the shelf consumer GPS might be low on cost, it will not provide the all important sub-metre accuracy required. Additionally, it also won't use the latest OSTNo2 Transformation which allows your GPS positions to be overlaid on top of OS MasterMap - this is how your coordinates will be checked by Highway Authorities. The ideal system must therefore deliver real-time, sub-metre GPS accuracy, with built-in OSTNo2 to adhere with OS National Grid coordinate system. Also handy is the ability to record your accurate GPS positions with pre-defined forms on top of OS MasterMap data ready for use in your GIS and the ability to send information from field to office, wirelessly, in seconds, to comply with the Notice period. Finally, all day battery life and a good VGA screen are a useful bonus.

Conclusion

The requirements of this section of the Traffic Management Act 2004 led one Southern based utility company to reassess its GPS data capture requirements. After contacting KOREC in 2007, they trialled the Trimble GeoXT and subsequently equipped their entire inspection team responsible for overseeing reinstatement work with a GeoXT with FastMap Mobile software on board. Several months on they report that the systems are consistently delivering the necessary sub-metre accuracy and their inspection team are working far faster and with greater efficiency because all the data is now handled electronically. Back at the office, data is downloaded into their PC software, FastMap Workflow, which outputs the data in a formatted Microsoft Excel spreadsheet.

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