

SIA SMART System

Nasser Elaheebocus

Sales Director, SIA Limited
Vigilant House, 120 Wilton Road, London, SW1V 1JZ
Tel: (020) 7808 7042, Fax: (020) 7808 7043
www.sialtd.com

Product Description

The **SIA Schools Mapping Admission Routeing & Transport system (SMART system)** is a purpose-built system for Local Education Authorities. With automated street-level routeing and links to pupils' databases, it provides significant productivity gains, and reduced costs, when processing school admissions, bus pass allocations, appeals, catchment areas, and pupil location analysis. It is the **UK's premier** Education Routeing module.

It enables detailed street routes to be determined automatically, accurately and quickly, eliminating even the slightest discrepancies in the measurement of home-to-school distances. The system provides distinct advantages when presenting admissions appeals, offering the ability for high-quality graphical presentation of results.

Utilising the most accurate digital road network data available in the UK, **SIA's SMART** system enables LEAs to carry out automated home-to-school distance measurements for thousands of pupils, this being a major criterion for school admissions. Features of the system are as follows;

- Fast and accurate calculation of shortest routes between specified locations
- Optional "as the crow flies" distance measurements
- Routes can be saved, amended and displayed as map overlays, especially for parent appeals
- Route from start to end via multiple pick-up points
- Optimises order of pick-up points for special need coaches, taxis and school buses
- Calculates the cost per mile of all routes
- Identification of pick-up points on a specified route
- Utilises the Address Point gazetteer for start and destination points
- Batch measurements of 1000+ pupils to any school in the LEA database
- Customised reporting – print out of route using template of choice

- Routes can be printed to any scale and issued to the public
- Spatial location via OS-based gazetteers at house, street and postcode levels
- Identification of nearest schools fulfilling specified criteria
- Graphical representation of school catchment areas
- Indication of multiple school routes
- Geocoding of pupil addresses to create map overlays
- Linking to external datasets via OCX or ODBC
- Calculation of truncated routes
- Links with major education system providers such as RM plc, Capita EMS and Foundation Software Solutions.
- Metric and mileage calculation of route distances
- Customisable road network based on Ordnance Survey OSCAR data
- Thematic Mapping for pupil performance
- Automated area, perimeter and length measurements
- Multi-user capability.

History of the Origin of SMART

SIA Limited were first approached by Wandsworth LEA to develop a system that would replace the manual mechanism of calculating routes for pupils to school. They wanted us to expand upon our original routefinder software that would make it generic in its usage within LEAs. Two factors emphasised the fact that SMART was required, 1) Open enrolment legislation placing an emphasis on meeting parental preferences, and 2) a rising pupil population chasing the same number of school places. Therefore, the final admission criterion of home-to-school distance measurement was being used more often, with the need for greater accuracy. The pressure placed on available school places meant that the number of school measurements required every year was almost doubling.

As the client base grew, especially in London (17 LEAs in London & 54 outside of London, use **SMART**), the input from LEAs into the development of the system became critical. We now have 2 LEA user groups per annum which enables the LEA client base to input their wishes for future development of the product. SIA now issue 2 upgrade release of the **SMART** system per year as a result of the input into development from the LEAs.

Disadvantages of the Service prior to SMART

Traditionally, a large-scale map and a measuring wheel were used to determine home-to-school distances. This method was very time consuming and stressful, in that some home to school distances could be as little as 10 metres. Distances needed to be measured a number of times to ensure accuracy, as a mistake could affect a child's educational experience well into the future. This could also result in a ruling against the LEA.

Before a LEA had purchased SIA's SMART system, a measuring wheel on top of an Ordnance Survey map was used to ascertain distances from home to school. If these distances were close to the cut off points, measurements were then made on foot by a member of staff using a Trumeter measuring wheel, from the home address to the school. One of the main problems with the measuring wheel on top of the map were inaccuracies of the measurements.

Initially, many years ago, a piece of string and a ruler were used to measure the route, which later progressed onto using a map wheel (odometer). In times of disagreement between parents and the LEA with regards to the distance measured, a member of staff (sometimes with the parents present) would walk the route using a calibrated measuring wheel with 1% margin of error included.

Initially, application forms for free school transport were sent individually to all parents. As the LEA received the applications the measurements were undertaken manually. Approximately 30% of all applications were rejected and all parents were contacted with the outcome. Disadvantages associated with this method include inaccuracy, time consumption, unnecessary re-work and entering transport information on to a separate basis. Decisions were also open to challenge and many routes had to be walked with the calibrated wheel.

The main problem encountered with manually measuring with the aid of a Trumeter measuring wheel was the length of time it took to complete the measurements and staff being out of the office for long periods of time.

How Disadvantages were overcome by SMART

Utilising the most accurate digital road network data available in the UK, SIA's SMART system enables LEAs to carry out automated home-to-school distance measurements for thousands of pupils, this being a major criterion for school admissions. In a politically sensitive area, LEAs benefit by being seen to be allocating pupils in an efficient, transparent & fair manner, using consistently reliable & accurate data. LEAs also benefit from workload reductions of up to 70%, significant productivity & efficiency gains and, the resultant cost savings.

SIA SMART system is mainly used to measure home to school distances with regards to admissions and home to school transport. Since its installation, one of the major benefits has been the batch measurement facility for admission purposes, which saves a considerable amount of time

Printed maps can be produced for appeals and assessments of walking routes which gives greatly improved presentations of information to the public and appeals committees as well as improved accuracy of distance measurements between homes and schools.

Pupil Services Sections of LEAs were the first to make use of the Education System to deal with home to school distance measurements for admissions purposes. Calculations of distances from pupils' addresses to school can be made in batches of pupils to any school. A function has been developed by SIA Limited for batch processing of measurements specifically from, the leading pupil database companies.

The system has proved invaluable for conducting the transport measurements necessary for bus pass allocation. Speed is the obvious advantage for this, and the fact that the system finds the shortest walking distance means less inconvenience and effort by staff, thus reducing costs & increasing staff efficiency.

Having a reliable and accurate system has been a tremendous advantage when presenting admission appeals. The admissions panels, and families of the pupils, are more willing to accept the results of computerised measurements.

The system offers the ability to print out a route using the template of choice. The facility to produce a map of the route helps considerably when dealing with disputes between families and the LEA.

The system has installed confidence within planning through the provision of more intelligent information. From plotting the statistical information supplied by The Local Healthcare Trust, the LEA is now able to decide the best and most accessible locations for the new schools needed to cope with the increasing numbers of pupils.

Added Value to Customers of SIA SMART system

The product has increased the speed of the admissions process. *One Authority quoted that their administration time had been cut from '240 hours to 3 hours'*

Customers, both external (parents/carers, M.P's) and internal (admission appeal panel members, council members) are more willing to accept the accuracy of computerised measurements thus reducing time spent by staff in proving measurements. Where customers are unwilling to accept the measurements, the system can produce a hard copy, thus the matter can be closed extremely quickly.

In the past a customer had to drive the distance or carry out their own measurements by other means, i.e. walking the route which then required a member of staff to check the distance on foot as well. This method was costly, time consuming and a drain on resources. SIA SMART system has improved the efficiency and effectiveness in producing correct admission information for parents.

The system is proving to be an asset in the planning of pupil places. The Local Healthcare Trust has given the LEA access to their General Practitioner database. This provides more up-to-date information on how large the pre-school population is, compared to the birth information previously received. SIA SMART has the facility to plot the distribution of those children directly onto a map, from this a collation of pupil places are plotted and areas of over-subscription for certain schools are graphically represented. This information will be used to present a case to members of the Council's Cabinet and to the DfEE. At present plans for three new schools exist, the result from the clustering of pupil places using SIA SMART.

Children: allocated school places more accurately – any mistake could effect a child's future educational achievement.

Parents/carers: Peace of mind that home to school distance calculation is accurate and therefore the allocations to a school were carried out fairly. Also school places can be offered more quickly.

Admission appeal panels: They can be more certain that their decisions are based on more accurate information provided by the LEA.

Benefits of SMART

The benefits of the system can be categorised as:

- ◆ Ease of use
- ◆ Increased accuracy
- ◆ Increased productivity
- ◆ Reduced workload
- ◆ Confidence in measurements
- ◆ Automatic calculations
- ◆ Reduced costs resulting in greater staff efficiency & productivity

Time : Savings in time and manual labour - batch measuring is much quicker than individual measurements

Accuracy : No longer need to "guesstimate" the location of a house in a road

Parent Confidence : All measurements are now made to the same standard

Time : Reduced staff time through batch measurement and cutting administrative tasks. Timescales are reduced for parents and numbers of entitled children requiring transport are known approximately 2 months earlier thus giving more time to plan the transport provision in a more efficient and cost effective way.

Material Costs : Savings on material costs by removing application forms and published information for parents. Savings on staffing costs by needing less staff.

Time Management : Entitlement established much earlier in the year enabling the Transport section to increase efficiency and plan early the necessary arrangements/contracts, etc with coach, bus and train companies.

Safety : Roads that have been deemed unsafe can be removed from the SMART system calculations

"To date everybody who has used the system has been very impressed with its capabilities". - Head of Pupil and Student Services, London Borough of Newham

"Every LEA needs one" - Admissions Manager, London Borough of Harrow

"I would recommend the **SMART** Education system to anyone" -
Head of Student Grants Unit, London Borough of Brent