Excellence in Technology and Innovation

E-scheduling of School Transport Services

Introduction

Aberdeenshire Council has responsibility for transporting approximately 13,000 pupils to and from school every school day. Of these pupils 11,500 travel free, with the remainder paying an appropriate fare. In total, over 100 transport operators, utilising approximately 950 vehicles of various seating capacities from taxis to double-deck vehicles, operate a mix of 919 dedicated school transport services and 22 joint school transport/local bus services, on behalf of the Council. To ensure cost-effective service delivery, the Council also purchases student season tickets on public bus services and operates 33 'in-house' vehicles.

The transporting of such a large number of pupils on a daily basis carries with it a significant

cost, with the Council's 2009/2010 budget for home-to-school transport exceeding £15m. In order to ensure that the public purse is receiving an appropriate return for such expenditure, the Council has purchased a *Trapeze* e-scheduling school transport software package to ensure that the most cost-effective network of services is operated. Although similar technology has been implemented for other purposes, for example e-scheduling of Aberdeenshire's real-time demand responsive transport (DRT) services and for e-scheduling of special educational needs (SEN) vehicles, it is believed that this is the first time that e-scheduling has been adopted for the specification of mainstream primary and secondary school transport.

The approach of Aberdeenshire Council is considered innovative both in terms of:

- the breadth of trips covered (mainstream primary and secondary pupils, SEN nursery, primary and secondary children and looked after children); and

- the scale of the e-scheduling covering over 5.531 million pupil travel movements per year.

Approach to delivery

School transport e-scheduling is essentially a software solution which enhances the ability to plan and organise home-to-school transport services, by providing automatically, potential vehicle routes, including pick up and set down times. Such routes are optimised, through a combination of algorithms and parameters which reflect Council policy.

Evidence of progress

All school transport contracts in Aberdeenshire are subject to renewal in August 2010, with tenders for these services scheduled for invitation in November 2009. With this in mind, work is ongoing on re-scheduling the entire home-to-school transport network as part of the overall tendering exercise.

Initial results have proved extremely encouraging with an estimated:

- 21% reduction in daily vehicle mileage achievable in the case of SEN services to/from Anna Ritchie School in Peterhead; and

- 7% reduction in daily vehicle mileage achievable in the case of mainstream services to/from Meldrum Academy and its 12 feeder primary schools.

Whilst the full financial savings associated with such a reduction in operational mileage will only become apparent following re-tendering of services, substantive financial savings are envisaged along with significant reductions in fuel consumption and carbon emissions in support of the Council's sustainability targets.

Emanating from a Kaizen improvement project, the Council's Public Transport Unit which traditionally procured contracted school and public transport services on behalf of the Council, now also operate the Council in-house education vehicle fleet and in due course the social work fleet. The e-scheduling software is already assisting in the scheduling of in-house school transport vehicles along with assisting the identification of other uses in order to maximise vehicle utilisation. To date, savings in excess of £186,000 have been achieved through this linked initiative.

Innovation

Although e-scheduling software has been available for a number of years, it is understood that Aberdeenshire is the first authority to utilise e-scheduling software for mainstream, primary and secondary school transport. The e-scheduling of home-to-school transport by Aberdeenshire has necessitated significant development of the software by the supplier, Trapeze Software UK. Areas which have required development and/or amendment have included:

- incorporation of the ability to accommodate feeder/connecting school transport services to 'mainline' school transport services; and

- amendment of the software to allow for differential pupil release times – in Aberdeenshire primary 1– 3 pupils have earlier school closing times from primary 4 – 7.

The Council's policies and procedures on eligibility for school transport are fully supported and implemented through the innovative use of this system and have brought several added benefits:

- the rigour of e-scheduling has required the retention of more detailed and accurate data, including the geo-coding of all school transport Pick-up / Drop-off (PuDo) points;

- the re-assessment of internal procedures, and automation of various processes, including the production of pupil and operator advisory notices;

- increased efficiency in allocating new pupil travel demands to the most appropriate existing contract;

- increased rigour in determining appropriate contract variations for pupil additions/ deletions, with additional/reduced mileage readily available from the e-scheduling system allowing a contract price variation to be issued expediently by the Council – previously operators would advise a new contract price which would then be subject to validation;

- the production of more detailed and comprehensive tender information to prospective operators, saving contractors time in the production of tender bids and easing their costing exercise;

- the availability of a suite of additional management information; and

- reinforcement of the culture of continual service monitoring and review.

Future development

Looking ahead, the Council is considering the purchase of a 'parallel' Trapeze contract and financial software module which, in addition to more rigorous and comprehensive financial monitoring, has the potential to streamline the complicated and time consuming invoice payment process. In particular, the module has the potential to reduce staff resources in both the significant contract invoice receipt and checking processes, and in invoice payment processes by interfacing with the Oracle financial package used by the Council. The implementation of a practice of direct invoicing would be based on an information feed from the e-scheduling database.

A further interface under consideration is with the Council's Education Service, SEEMIS pupil database, negating the requirement for paper based pupil transport applications and again reducing staff resource time associated with the pupil transport application process and related data input.

It is anticipated the Council's approach to integrated transport provision will be extended to include procurement of adult day care transport requirements, thus providing the opportunity for identification of further efficiencies in vehicle utilisation.

Aberdeenshire COUNCIL