

## Excellence in Technology and Innovation



### E-Scheduling of School Transport Services

At the 2009 Scottish Transport Awards, Aberdeenshire Council submitted an entry based on the anticipated efficiency improvements as a result of our e-scheduling of school transport services. One year on, and following an extensive retendering exercise, this submission outlines the actual economic and environmental savings that are being made on the back of our e-scheduling work.



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.

Transporting such a large number of pupils on a daily basis carries with it a significant cost, with the Council's 2010/2011 budget for home-to-school transport totalling £15.8m. In order to ensure that the public purse is receiving an appropriate return for such expenditure, the Council has commissioned 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 in a number of ways, including:

- the breadth of trips covered (mainstream primary and secondary pupils, SEN nursery, primary and secondary children and looked after children);
- the scale of the e-scheduling covering over 5.531 million pupil travel movements per year; and
- the need to modify e-scheduling software and procedures to accommodate mainstream school transport delivery mechanisms, for example, feeder/connecting services.

## 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

The majority of school transport contracts in Aberdeenshire are subject to renewal in August 2010. With this in mind, the entire home-to-school transport network was re-scheduled as part of an overall tendering exercise in spring 2010.

Results of the re-scheduling exercise have proved extremely encouraging with an estimated:

- 32% reduction in daily vehicle mileage achievable in the case of SEN services across Aberdeenshire (the equivalent of 589,000 miles per annum); and
- 22% reduction in daily vehicle mileage achievable in the case of mainstream services (the equivalent of 420,000 miles per annum).

The full financial savings associated with the reduction in operational mileage will only become apparent following introduction of the revised services in August 2010, when the final revised pupil travel requirements are accommodated. However, analysis of the service costs following the tendering of the re-scheduled network also points to substantive efficiency savings, most notably:

- financial savings of over 13%; and
- a reduction of over 300 vehicles required to operate the service.





This financial saving represents the minimum saving attributable to e-scheduling as the competitive tender prices reflect numerous other cost factors including transport inflation and increased vehicle quality. By way of contrast, a parallel public transport tendering exercise saw like-for-like service delivery costs rise by 15%.

In addition to the financial savings realised, due to the reduced vehicle numbers required to operate the service and the more efficient routing of contracted services, there will also be significant reductions in vehicle fuel consumption and carbon emissions; supporting the Council's wider 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 are in the process of incorporating the social work fleet. The e-scheduling software is assisting in the scheduling of in-house school transport vehicles and in maximising vehicle utilisation. To date, savings in excess of £230,000 have been achieved through this linked initiative.



## Innovation and Added Value

Although e-scheduling software has been available for a number of years, it is understood that Aberdeenshire Council 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 including 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.

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 expeditiously by the Council;
- the production of more tailored 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.

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## Future Development

Looking ahead, the Council has also implemented a 'parallel' contract and financial software module which, in addition to providing 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 potential 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 allocation and use.

