

OVERVIEW AND SCRUTINY MANAGEMENT COMMITTEE
7th JUNE 2007

REAL TIME BUS INFORMATION

Purpose of Report

1. To update Members on progress, including how functionality of the system is measured and monitored.

Background

2. At the meeting on 29th March 2007 it was resolved, inter alia, that an update report regarding the Real Time Passenger Information (RTPI) system be presented to this meeting.
3. The RTPI system is a key element of the Salisbury Transport Plan and was extended to benefit other areas, such as West Wiltshire, using ring fenced funding awarded by the Government. The technical elements of the system have been delivered and are working as specified. Therefore it can be considered that the project is moving from the phase of development into regular operation.
4. The Council operates the system in partnership with the bus operators - Wilts and Dorset Bus Company and First Somerset & Avon. The former company operate most of the routes covered and have 112 buses involved. The latter are only involved on the X4 and X5 routes, involving 12 of their buses but they operate the majority of buses on those routes. Maintenance of the system is carried out by the system supplier, a Trowbridge based company, Action Information Management (AIM).

Main Considerations for the Council

5. The RTPI system chosen for Wiltshire represents the latest developments of the technology. Using Global Positioning Satellite (GPS) technology and with intelligence built in to the on-bus and roadside equipment, it is a step forward from the earlier generation of RTPI using roadside beacons, such as London's original "Countdown" system. With the extension of the system from Salisbury to cover routes across Wiltshire, it is one of the largest such systems in Europe. One of the requirements specified for the system was that it should require little or no manual intervention in its day to day working. In particular the system was not to be dependent on bus drivers inputting data prior to each journey, which was considered to be prone to errors and difficult to maintain reliably. The suppliers met this requirement by storing all the data about planned bus workings in the system, hence the need for a complete data upload each time the planned bus workings are changed. Another requirement was to minimise on-going maintenance and operational costs, which was achieved in large part by using a private radio network for communications and thus avoiding the volume-based call charges that would have been levied by a public communications provider.
6. There has been continuing concern that although the system is working it is not delivering the full range of information that could be available to the general public. Officers have been working to address these matters in partnership with the two bus operators involved and with AIM.

7. The effective delivery of information through the system is highly dependent on continuing technical and managerial input by staff from the two bus operators and the County Council. The bus operators' essential contributions are to ensure that buses are fitted with the necessary GPS and radio equipment which is working correctly and to provide complete data about any change in planned bus workings to the Council in good time and in an appropriate format. Equally important are the Council's contributions to process and incorporate new data into the system before any changes come into effect and to identify faults, particularly with roadside signs and ensure they are fixed in good time.
8. The operation of the system is sophisticated and relies on interdependencies between buses, signs, the command and control radio system and data about planned bus workings. Because of this, the underlying cause of a fault is often not obvious at the time it is observed and further investigation is required before it can even start to be remedied. This emphasises the need for time to be devoted to system management and because of the division of responsibilities staff from all partners may be involved.

Environmental Impact

9. One of the ways the system will encourage bus use is by increasing the confidence of users and prospective users. This will not be achieved if the signs do not deliver real time information in a regular and reliable way.

Risk Assessment

10. Because it represented a new generation of technology, although provided by an established supplier, there was no previous experience to draw on when estimating the management and technical input that would be required once the system was in full operation. Other similar systems, such as the one at Poole, had not been fully commissioned at the time work started. This was addressed at the time by specifying features to minimise intervention as explained above. It was not considered possible to plan for the ongoing management of the system in detail, but the overall strategy for Intelligent Transport Systems in Salisbury included consideration of an Urban Traffic Control centre that could also undertake monitoring of bus movements, variable message signs for car parks and closed-circuit TV.
11. There is currently no provision for a greater level of officer involvement in monitoring and managing the system. This would either require greater staff resources or would reduce the time that could be spent on other activities.
12. However, a business case is currently being developed for the creation of a County "Traffic Control Centre" that would bring together a host of information and network management business streams.

Financial Implications

13. No additional software or equipment is needed to monitor and manage the system as suggested. At present the staff involved are all mainly employed on other matters so there would be no cost saving if they ceased to work on RTPI.

14. However, if the decision were taken to more actively manage the system or to expand it, then additional staff resources would be required, which would have a financial implication. Although this has not been examined in detail, it appears that to maximise the potential of the system, daily management would be required, approximately 18.5 hours per week and that this should take place in the south of the County, where the majority of the signs are located, in order that the staff managing the system could more easily observe the workings of the system at the roadside. (In practice the system has to be managed from the Council's command and control system console, which is currently located at 37 Endless St, Salisbury).

Options Considered

15. A number of options are available for measuring and monitoring the functioning of the system.
16. Monthly meetings with AIM and the bus operator partners have taken place since the inception of the project, initially chaired by the consultants charged with project management. Due to the experience gained by staff and to reduce costs the consultants' services have been dispensed with and the meetings occur at the instigation of the officers and other partners in the project. These meetings continue to be useful, and provide a good opportunity to monitor the performance of AIM in terms of maintenance and other technical issues. It is intended that these meetings will continue.
17. Daily reports are provided by AIM covering all faults reported and progress with resolving them. These are reviewed by all parties at the meetings as described above.
18. Observations of individual signs and comparisons with the timetable and the actual movement of buses are made from time to time by Council officers and bus company staff. This is a very good way to gain an understanding of how the system appears to the general public. However it is very time consuming because each observation has to extend over the arrival and departure of several buses in order to see all the features of the system work.
19. Furthermore, some possible issues with signs may be related to the specific location of the sign (e.g. radio coverage is not equally good throughout the County and in some locations can vary with weather conditions), so it is necessary to observe several signs in order to distinguish between local and system issues. The fact that most of the signs are in the south of the County, whereas staff resources are mostly located in Trowbridge, only adds to the challenge of this approach. It is intended that this method of monitoring will only be used selectively when other methods are not suitable.
20. A limited number of standard reports are available from the system through the command and control system console in Salisbury. These are primarily designed for fault finding and diagnosis but can shed some light on wider performance issues. It is not possible to carry out ad-hoc interrogations of the system or to produce customised reports because of the complexity of the programmes and the sheer volume of data. A future enhancement of the system is being developed by AIM that will improve its ability in that regard.
21. It is proposed to use standard reports to initiate two new local performance indicators that will be added to the Service Plan for the Environmental Services Department. One indicator will illustrate the performance of roadside signs and the other will indicate the success of the system in tracking the buses. Taken together the two indicators set out below illustrate the performance of the system in delivering information to passengers. However, the ability of the Council to deal with shortfalls in performance will be limited by the staff resources available as there are currently no Council staff dedicated to managing and developing the system.

Name of PI	Description of PI	Target
% sign clears acknowledged	When the bus approaches the bus stop it establishes a local radio link with the sign. The sign then clears all information about the bus off its display and makes the following bus the first bus displayed. If successfully carried out this is acknowledged and recorded by the system. The process involves virtually all the communication links on the sign and the bus, requires the bus to be successfully identified and the system data to be correct. It is therefore a good test of the functioning of the system at the roadside	To be developed
% of active buses against bus workings	The number of buses operating services at any time is known from the requirements of the schedule and the number of buses logged into the system can be expressed as a percentage of this. The figure will not normally be 100% because buses waiting at terminals between journeys may not be logged in for legitimate reasons. Nevertheless this is an indication that the buses in use are fitted with equipment that is working correctly	To be developed

Conclusion

22. The real time bus information project is coming to the end of its implementation phase and it is appropriate that formalised arrangements for monitoring its operation should be put in place. In addition to the existing monitoring and review arrangements it is intended to adopt two new performance indicators dealing with the functioning of signs and recognition of buses respectively, as these represent the two main areas affecting the delivery of information by the system to the public. However the ability to deal with any shortfall in performance will be limited by the staff resources available.
23. The above deficiency is to be reflected in the "Traffic Control Centre" business case currently under development.

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The following unpublished documents have been relied on in the preparation of this Report:

None.