Asset Management Case Study

Local Authority	Warwickshire County Council
Region	West Midlands
Sector	Highways
Theme	Highways Asset Management
Benefits	Improved the quality of information to assist the asset management decision making process and reduced energy and carbon emissions.
Publication Date	November 2010

Key lessons

- In respect of developing the drainage system, the IT requirements to develop a maintenance system are cutting edge and the team have found that the available technology is not quite up to speed. As such, there is a lot of work required upfront to develop a suitable long-term and inclusive system.
- The development of a central management system for street lighting has had huge benefits in terms of long-term maintenance schedules.

Summary

Warwickshire County Council was successful in obtaining a share of the £7m DfT funding for the development of its asset management plan. In the bid it identified four key areas for action, being;

- Traffic and highway management to help reduce bus journey times
- Reducing street lighting material use and energy consumption
- Improving drainage solutions
- Reducing material use whilst maintaining asset value.

Background

Warwickshire already had good quality, comprehensive data for most of its highway assets and are able to use this information to ensure that transport and highway maintenance programmes are delivered effectively and efficiently. However, it had identified gaps in asset inventory information and highlighted areas of improvement that would enable it to improve the scope and quality of information in order to assist the asset management decision making process and sustain and expand the many benefits already accrued to date.

Climate Change is also a significant issue for Warwickshire, and the causes and effects of extreme weather conditions need to be managed appropriately. Warwickshire recognise the importance of these issues when managing the highway asset, and to demonstrate its commitment to reducing carbon emissions it established an overarching aim to *'reduce*

greenhouse gas emissions in Warwickshire to at least the level set out by Government policy; 15-18% reduction by 2010 and a 60% reduction by 2050 (against 1990 levels)'. To achieve this it was essential that the highway assets could adapt to help meet the Warwickshire climate change targets, and also respond to the effects of climate change.

Drivers for Change

There were specific drivers for change for each of the areas that Warwickshire highlighted in their bid, as follows:

- Traffic and highway management to help reduce bus journey times –Warwickshire were keen to establish some of the main reasons for delay on their key routes. This would enable it to develop an action plan to target these issues, thus improving both traffic management and customer satisfaction.
- Reducing street lighting material use and energy consumption and reducing material use whilst maintaining asset value - in respect of reducing street lighting and material waste, these initiatives were driven by the desire to reduce energy consumption and tackle climate change issues across the county.
- Improving drainage solutions - the drive to improve drainage solutions was driven by the need to increase efficiency by developing a 'smarter and slicker' new asset management system that would provide a full inventory of the highways assets, enabling them to develop a maintenance system based on need.

Improvement action

Warwickshire's 'Element 2' submission to DfT describes in detail its methodology and success in using data to ensure that transport and highway maintenance programmes are delivered effectively and efficiently, see *www.helg.org/asset management.* Reward funding of £500,000 was awarded. The four areas of improvement action that Warwickshire developed are as follows:

<u>Bus Punctuality</u>
Warwickshire allocated £30,000 of the funding to do a survey and associated report, looking at how to improve punctuality on a pilot study of 3 bus routes. The survey was done in partnership with Stagecoach which is the bus service provider. Part of the funding was used to purchase GPS data loggers that could be attached to the buses and track the routes. The loggers could provide a multitude of information for analysis, including: timings/duration of the bus routes and the ability to pinpoint specific areas of delay. Warwickshire then appointed a consultant (one of their existing highways partners) to analyse the data collected and draft a report identifying the key problem areas (and the reasons), and giving recommendations on how to reduce delays along the routes.

The report contained two sets of recommendations, being 'quick wins' that could be implemented straight away, and also some long-term ideas that could be implemented if further funding can be obtained. The survey using the GPS data loggers began in April 2010 and the consultants submitted the report to Warwickshire in August 2010. Warwickshire are now looking to implement some of the quick wins ASAP.

<u>Drainage</u>
The drainage department received £125,000 of the funding to develop and implement a new electronic asset management system. The issue it faced was that it did not have a full electronic inventory of the highways assets (excluding street lighting and signs) as this had

previously proven to be too cost prohibitive. Everything was only available as hard copy which is very difficult to access and maintain. Specifically the problems they faced were as follows:

- There is no electronic record of where gullies are located, making systematic maintenance almost impossible
- The drainage department was previously allocated budget to empty each gully within the county once a year. However, this method is very inefficient as dependant on their location, each individual gully could require less (e.g. on a modern housing estate) or more (e.g. near an industrial site) maintenance to keep it in peak condition.

The solution then, is to develop a new asset management system that is smarter and slicker. The initial aim is to collect an inventory of gully stock, and then use the data to manage the gully maintenance regime. The maintenance regime will be driven from devices within the gully machine cab. The status of each gully will be recorded by the operator against the asset record. This information will then be used to:-

- Develop a needs based variable frequency cyclic maintenance regime.
- Create a maintenance history against each gully.
- Create programs of work for jetting and general repairs.

Warwickshire require GIS touch screen technology to give the required accuracy to enable development of an efficient gully management system. Furthermore, it wants a system that also allows for future asset management data collection.

Warwickshire started to evaluate various systems in March/ April 2010 and has faced some challenges in developing suitable software. It is currently considering a system that will provide its requirements, but the 'in cab' usability of the hardware creates problems. The application runs on PDA type machines from a windows mobile platform, and they would prefer to see a full windows application running on tablet type machines. Despite these challenges, they hope to start collecting asset data soon and then move onto the second phase, which involves analysing the data and using it to develop a ‘variable frequency cyclic gulley maintenance regime’.

<u>Reducing Material Waste</u>

Prior to receipt of funding, the team produced an electronic spreadsheet listing the entire recorded surface dressing for the past 20 years. This has been extended to include a separate spreadsheet of all surfacing recorded during the past 25 years.

What it is trying to achieve next is a record of the age of each of the roads in Warwickshire. The benefits of these records is to ensure a wide availability of past treatments for all roads so that engineers considering future treatments can have a full knowledge of what has taken place in the past and make decisions based on fact, not guess work. Thus, any preventative work to a road can be properly programmed, eliminating premature failure, and assessments can be made of how long past treatments have lasted so that future decisions will only use the amount of material necessary, thus reducing waste.

<u>Reducing Street Lighting / Increased use of reflective signs</u>

Street Lighting

The lighting department received £50,000 of the funding to enable it to implement a programme to help achieve a reduction in energy and reduce CO^2 emissions from street lighting. In order to achieve these targets, the team decided to develop a central

management system that would enable it to vary street lighting at non-peak hours across the county. The scheme would be applied to different areas as appropriate, so for example on main travel routes, full lighting would be applied during the peak hours of 6.30-9.30 and 16.30-19.00. At other times of the day, the lighting can be dimmed down (by one classification) or even switched off during the night. Another benefit of establishing the central management system is that it provides data about any lights that are failing, enabling the maintenance teams to schedule repairs as appropriate.

A trial of the scheme has now been implemented. The team has installed a central management system and is currently retrofitting the appropriate hardware onto lights across the county. Furthermore, the team has done a lot of research into hardware and software providers, and has identified a technology partner to assist them with the further development of the scheme. The team is also developing the business case to enable it to expand the scheme.

Illuminated signs
A further £100,000 of the funding was allocated to the street lighting department to enable them to bring existing illuminated signs to within the parameters required by law. Following a change in the law - as outlined in the traffic sign manual 'TSRGD' – a lot of signs were still being illuminated to previously required standards. However, the new manual only required certain signs to be illuminated, and the rest could be reflective only. As such, Warwickshire identified an opportunity for them to reduce the number of illuminated signs within the county. Again, the drivers for this were to reduce energy consumption and CO^2 emissions.

This process began about 6 months ago, and Warwickshire is sending out maintenance teams to switch off some lights or if appropriate, disconnect them. This has resulted in a huge reduction in both maintenance time and costs. For each sign, they will achieve a saving in the range of £7-40 pa. Furthermore, this equates to a huge energy saving. For the future, anything that doesn't need to be lit won't be.

Barriers

No barriers have been encountered to delivery of the projects.

Outcomes
The additional funding has enabled Warwickshire to improve and expand their transport and highway maintenance programmes further than would have previously been possible. Furthermore, it has targeted additional measures to help it address climate change issues.

In respect of shared learning, Warwickshire has had a lot of contact with other local authorities to share their knowledge and experiences. These include Blackburn and Darwen, Leicester and Nottinghamshire, Gloucestershire and Worcestershire.

Contact Details

Victoria Mumford Senior Transport Planner
t: 01926 418251
e: victoriamumford@warwickshire.gov.uk