

Highways, Street Lighting &
Winter Maintenance Services

apse

Innovation Awards





Environmental Services Innovation Awards

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This brochure contains everything you need to know about the winners and finalists in the Highway Services Innovation Awards 2017 and 2018.

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Street Lighting Finalists

Knowsley Metropolitan Borough Council

The Dragon Patcher

Knowsley Council, in partnership with SSE Enterprise, successfully delivered a four year, multi-million pound street lighting and traffic sign improvement programme. The major investment introduced the latest energy efficiency technology. Illuminated bollards were replaced with non-illuminated self-righting bollards, Central Management System (CMS) technology was installed in new and upgraded equipment, and LED equipment was introduced for new housing developments and regeneration schemes. As well as contributing towards the built environment, the Street Lighting and Traffic Sign Replacement Programme supported the Council's key aims of attracting business investment and building new houses. The improvement programme has also meant energy and maintenance cost implications have been minimized; the overall inventory for lighting (1.9%) and signage (17%) has been reduced, bringing revenue savings of £40k per annum, or £800k for the PFI contract life.

Northumberland County Council

Northumberland Street Lighting Modernisation Project

Knowsley Council, in partnership with SSE Enterprise, successfully delivered a four year, multi-million pound street lighting and traffic sign improvement programme. The major investment introduced the latest energy efficiency technology. Illuminated bollards were replaced with non-illuminated self-righting bollards, Central Management System (CMS) technology was installed in new and upgraded equipment, and LED equipment was introduced for new housing developments and regeneration schemes. As well as contributing towards the built environment, the Street Lighting and Traffic Sign Replacement Programme supported the Council's key aims of attracting business investment and building new houses. The improvement programme has also meant energy and maintenance cost implications have been minimized; the overall inventory for lighting (1.9%) and signage (17%) has been reduced, bringing revenue savings of £40k per annum, or £800k for the PFI contract life.

Bolton Council

Lighting the Way for Bolton's "Smart Green" Future

In April 2015, Bolton Council introduced a three-year LED street lighting programme. This, combined with a new Central Management System (CMS), was part of the initial phase of a seven-year package of measures designed to reduce energy consumption, carbon emissions and achieve savings. The overall programme required an investment of £10m. However, the Council has predicted they will make savings of £14m over 20 years and will reduce energy use by around 50%. The savings link to the Government target of reducing carbon emissions by 80% before 2050 and the Council's participation in the Greater Manchester Climate Change Strategy 2010-2020, which seeks to cut carbon emissions by 48% between 1990 and 2020. Added benefits are being realised through the platform for future Smart City technology.

Winner

Kingstown Works Limited

Super Six - Lighting the Way

Due to having a proven track record of delivering customer focused, value for money construction and maintenance services, KWL was approached by Hull City Council (HCC) in September 2012 with a proposal to transfer in HCC's Street Lighting department.

At the point of transfer, the Street Lighting department was under-resourced, under-achieving and had a demoralised workforce. KWL had never previously delivered Street Lighting works. With no management structure being transferred over with the department, understanding the service requirements and turning its fortunes around was a significant challenge.

Rebranding the service was vital in demonstrating to employees that KWL was committed to providing necessary investment to facilitate the transformation. Giving the service a new identity kick-started the improvement process and the team immediately felt valued.

Within the first month, a skills audit was undertaken to identify the level of training each member of the team had. A training programme costing in excess of £50,000 was implemented and delivered within six months of transfer, which helped close the skills gap.

The Street Lighting vehicles were assessed and a vehicle stock management process was introduced. The vehicle assessment proved that some of the vehicles were not fit for purpose. A

16.8m mobile elevated working platform was purchased to add much needed capacity to the fleet. A vehicle management system was installed allowing more effective job allocation through direct interface to KWL's IT system. By introducing technology facilitating real-time contract monitoring, services were streamlined and repair turnaround times were dramatically improved.

Within a period of six months, KWL overcame what seemed like insurmountable obstacles in turning around the fortunes of HCC's street lighting department. Not only did KWL reduce costs, it did so whilst greatly improving service performance. Daily complaints were also reduced to zero, resulting in a huge reduction in back-office time.

Following the early success of the Street Lighting transfer, KWL became a trusted partner of HCC. In 2015, KWL were again approached by HCC to develop a scheme whereby 36,000 street lighting assets would be upgraded to LED technology.

This £9M project commenced in November 2016. Due to the shortage of suitably skilled labour available to undertake this work, six support operatives (driver/labourers) already employed by KWL were voluntarily transferred to the Street Lighting team. The team was 'up-skilled' through an intense training programme, tailored to the needs of each individual.

The training covered MEWP, harness, ihab, Chapter 8, LGV, CPC, Electrical awareness/repair and G39. Through this bold and substantial investment, KWL were able to offer a unique and fantastic opportunity for existing lower paid employees to develop valuable lifelong skills and experience, rather than procuring a contractor to undertake the works. The training for these workers - known as 'the super six' - ran from July 2016 and was completed in November 2016.

Within one month of the Hull City of Culture year 2017, KWL was commissioned to work in partnership with the Police Service and The Culture Team to facilitate the removal of street furniture allowing a 75 metre wind turbine blade to be moved from the Docks and positioned in the City's main Victoria Square.

The secret operation began at 10pm Saturday evening and was completed by 9am Sunday morning. The operation involved the entire 18 person Street Lighting team removing and reinstating 50 street lighting assets.

Since its transferral into KWL 5 years ago, the Street Lighting team has become one of KWL's star performers; delivering the repair and maintenance of Hull City Council's Street Lighting stock. The failing service had a backlog of over 1000 incomplete repairs at transfer. Only one year later, that had been reduced to just 66.



Highways Maintenance Innovation Awards Finalists

Cheshire East Council

Asset Management Innovation in Highway Drainage Maintenance

There are currently over 92,000 gullies in Cheshire East. With the number of flooding events growing and increasing pressures on revenue budgets, it was recognised that a more intelligent and risk-based approach to highway drainage maintenance was required. In order to tackle this industry-wide problem in Cheshire East, and to be consistent with the Council's Highways Asset Management Strategy, the Council established a Gully Care Team; investing in fleet, plant, technology, training and equipment. Condition data has been collected for each gully. By having a better understanding of the condition of drainage assets, the Council was able to effectively schedule maintenance and repairs, and continually update asset information. The team has improved communications with customers; reducing complaints from 3,400 to 2,500. Most importantly, the team has been able to reduce the impact of rainfall events.

Dorset County Council

Ecological innovation on the A338 Bournemouth Spur Road

The Council developed an innovative new approach to preserve and enhance highly protected species as well as internationally protected heathland before, during and after successful completion of a major road reconstruction. The A338 Bournemouth Spur Road is Dorset's busiest road carrying 59,000 vehicles per day. The road also runs through several blocks of sensitive heathland; home to all 6 British species of reptile. To protect the heathland and habitat during reconstruction of the road, the Council collaborated with Natural England, the Environment Agency and independent specialists to carefully disperse protected species out of the works corridor. This was achieved through designing out habitat attractive to particular species and enhancing habitat on directly adjacent heathland. The approach provided notable savings on future verge maintenance costs and is estimated to have saved £450k compared to the usual licensed capture, rescue and relocation method.

Dudley Metropolitan Borough Council

Repairing pot holes by working smarter not harder

Historically, pothole repairs in Dudley had typically been seen as a low quality and temporary repair solution. Traditional techniques were noisy, dusty and placed the Council's workforce at risk from hand arm vibration syndrome and manual handling injuries. To remedy this, the Council established a small project team to look at the end to end pothole repair function and to identify any opportunities to work smarter and more cost-effectively. The team then implemented new ways of working for the repair of potholes using an articulated telescopic loader fitted with a planer attachment. The cost of 'planer' pothole repairs compared to traditional repairs has shown efficiency gains of circa 17%, equating to cash savings of £18,742. The loader has reduced noise and dust levels, causes less damage to the substructure of highways and presents no vibration risk to the workforce.

East Ayrshire Roads Alliance

Ayrshire Roads Alliance

The Ayrshire Roads Alliance is the only shared integrated roads and transportation service in Scotland and was established on 1 April 2014. It was formed in response to the Christie Commission. Its overall objective is to improve roads and transportation in East and South Ayrshire by fully integrating two former roads

services in the most cost effective, environmentally sensitive and socially responsible way. In its first 2 years, the Alliance has implemented a net revenue saving of £1.35 million through reduced plant and vehicles by 2023/24, secured capital investment of £10 million by South Ayrshire Council over five years and reduced environmental impact through ISO 14000 accreditation. The Alliance has also improved road conditions; In 2015/16, 39.4% of East and South Ayrshire's road network was classified as requiring maintenance treatment, a decrease from 45.3% in 2010/11.

North Ayrshire Council

Innovation in Road Maintenance

The challenge for the Council's road service is to provide more with less. A review of work practices and methods was essential to enable efficiency savings. The Council specifically targeted efficiencies in the provision of road maintenance by addressing carriageway improvements, the cost of temporary repairs and multiple contracts for external works. The council aimed to establish whole life costing treatment cycles rather than worst first, investigate new methods/equipment that could provide first time permanent repairs, and examine current procurement methods for external works. The innovative improvements made resulted in significant savings which have been re-invested into the network. Through effective targeting of resources, The council has also improved its Road Condition Indicator (RCI) by 10.1% since 2011, being recognised as the 4th most improved Authority over that period.

Peterborough City Council

Gritcam

Faced with continued budgetary pressures and the need to deliver Highway Services as efficiently and effectively as possible, the council developed Gritcam. The idea behind Gritcam was to utilise precautionary gritting treatments to capture asset data, and in particular, the reflectivity of Road Markings, Studs and Signs. An HD quality camera was fitted to the dashboard of a 26ton gritter to record the route being travelled on each precautionary treatment. The cameras produce excellent footage. The recordings give the inspectors the opportunity to be able to use the footage when they receive reports from members of the public regarding defects. Gritcam also takes out the need to have two highway inspectors out on the network at night; saving approximately £142.10 per hour. Additionally, Incorporating the night time reflectivity survey within the gritting operation takes out the risks associated with night working and driving for the highway inspectors.

Winner

South Gloucestershire Council on behalf of the Southwest Highways Alliance (SWHA)

Highways Infrastructure Resilience Assessment Modelling (HIRAM) tool

The importance of road networks to the national economy and delivering local government services is enormous. Weather events and the changing climate present a significant risk to the integrity of local road networks. To mitigate this risk, the 15 authorities in the SWHA recognised the need for a cross authority and collaborative approach to maintaining a reliable road network.

In response to the publication of the Transport Resilience Review, the SWHA set up a Task and Finish Group in 2014. The Group brought together knowledge within the region to investigate and produce a methodology for the highway authorities to use. They could then assess the resilience risk on their networks and investigate how to tackle the increasing problems presented by the increase in extreme events affecting the network.

Working in collaboration with local authority highways specialists, the Met Office, Climate UK and the Environment Agency, the SWHA was able to create the HIRAM tool.

HIRAM is a web based tool that helps an authority identify the weather risk on road networks, especially those networks critical to providing an integrated highways transport system. The tool allows the authority to qualify and quantify the risk weather events present to the continuity of that network. It also assesses the economic benefits of the resilience measures.

The tool kit is structured so it can be used in full or in part depending on the requirements of the users and their position in developing their resilience approach. It helps answer some key resilience questions by bringing together in one place all the information needed to objectively assess resilience risk and financially evaluate impact and adaptation.

HIRAM is simple to set up and use. For each risk location, a GIS location pin is located on the mapping and a simple fully-editable form is completed with the relevant information. The form contains tool tips within it and an accessible user guide, so everything needed is at hand.

HIRAM is able to provide outputs on an individual location, a route or at a whole network level. The outputs can all be exported direct from the tool into Microsoft Excel, meaning an authority can slice and dice the information in whatever way suits their use or audience.

The tool supports and encourages collaboration between authorities by enabling cross authority outputs to support regional stakeholder engagement such as LEPs. Not only does it provide useful financial outputs, it forms an important part of any authority's asset management approach. HIRAM also encourages greater understanding of resilience and climate change within an authority's service teams; enabling them to collaborate more effectively when tackling resilience risk issues.

HIRAM is in use by the 15 South West Authorities and recently the Eastern Highways Alliance consisting of 11 Highway Authorities has joined in. The tool is relevant to any authority large or small, rural or urban and can be applied to a location, route or whole network.



Winter Maintenance Innovation Award Finalists

East Riding of Yorkshire Council

Winter Service Resilience and Development Programme

Over a number of years, the Council's Winter Service has been developing its systems and processes to ensure it is resilient and able to deliver a consistent service in line with Council Policy. To ensure this is the case, systems and procedures have been developed which ensure that the investment the Council has made in modern equipment is used to best effect. Through a regular vehicle replacement programme, the Council was able to achieve a modern fleet, all of which have the same salt delivery body. This assists operatives as they are all familiar with the equipment and facilities. A comprehensive management system - 'WINLOGIX' – has also been introduced which is used to manage everything from weather monitoring to managing

the call out and eventually paying timesheets. The Service now also delivers training in-house, resulting in higher satisfaction levels from the drivers.

Harrow Council

Winter Service

As the Council's revenue budgets have been reduced by approximately 35%, it was necessary for the Council to review its Winter Service and ensure that the cost of the service could be reduced to fit with the revised budget. The Council worked with their term contractor, Kier, to re-evaluate their service and identify where efficiencies could be made. The Council considered the capacity of the lorries, how efficiently they were being utilized and what effect was made by using an unnecessarily large fleet. The Council opted to rationalize the service from an existing six routes to three. This allowed for a reduction in the labour resources required to operate the service. By making these savings, the Council made savings of approximately £70,000.

Northumberland County Council

Improving Winter Services in Northumberland

As a large rural county with five climatic zones, delivering winter services and getting messages out to residents, workers and visitors is challenging. A number of erratic winters with heavy snowfall and flooding found the Council assessing their Winter Service delivery. With costly downtime and repairs, the Council's aging fleet of gritters was in need of replacement. The Council developed a three point approach focusing on a communications review, acquisition of a multipurpose fleet and income generation combined with partnership development. The £1m investment in 7 new vehicles significantly reduced the need for intervention, maintenance costs and downtime. The Council entered into partnerships with Colas and the North Pennine Link Group. The council also adopted a more informative approach about the reasons behind decisions and used more modern methods to get the message across.

Winner

Dundee City Council / Tayside Contracts

Retrofitted Automated Gritting Control Technology

The Dundee Road Maintenance Partnership (DRMP) team is a combination of Dundee City Council road maintenance staff and Tayside Contracts operational staff. The team delivers all

aspects and elements of the Council's road maintenance service including: inspections, engineering design, asset management, construction operations and winter gritting. The team consists of 25 professional, technical and administrative staff and a direct labour resource of 60 road workers.

Winter service is a fundamental element of the Council's road maintenance service. The service is entirely funded through the revenue budget. In recent years, there has been a continued drive to maintain the exemplary service standards which Dundee's residents and businesses expect and rely on, while achieving cost reductions through efficiency. Easy win efficiency measures and operational delivery efficiency improvements have been implemented and realized in previous modernization reviews.

The remaining scope for value reduction in service delivery now lies in the harder to reach and more ambitious projects. A key area the team identified for value savings was in automation; using GPS and computer programmed control to vary salt deployment in salt spreaders. Despite being relatively new to the market, The DRMP embraced this technology and commenced a programme of fleet renewal; moving to purpose-built, GPS-enabled, automated vehicles in 2015 (Schmidt Autologic vehicles). To expedite the fleet replenishment programme and to achieve an earlier saving return from the efficiency system, the team embarked on an innovative project to retrofit the same system capability in existing fleet vehicles.

The project associated 79 task activities with a delivery and implementation duration of 6 months. Effective project management controls were operated throughout the project to ensure programme progression and robust financial planning. Being a new technology development, the project encountered a number of unforeseen barriers to progression, most notably during the hardware installation phase as the equipment available wasn't purpose built for the nature of the project task. Additionally, the testing and implementation phase encountered system errors associated with GPS tracking and also the practical realities of transferring computer generated operational processes to physical delivery plans.

The retrofitting of automated material deployment control to existing winter fleet vehicles is currently unique to the DRMP. The system has been developed by the DRMP staff in conjunction with a specialist software consultant and a winter fleet manufacture. While other winter service providers have started to phase in vehicle replacements with purpose-built technology-enabled vehicles, this is still very much in its infancy. Without the ability to retrofit systems to existing plant, it may take a decade to modernize fleet capability and fully achieve the potential efficiency savings (based on a phased vehicle renewal programme). The DRMP team has promoted this innovation both regionally with our neighbouring authorities (with whom we directly collaborate), and nationally through the Society of

Chief Officers of Transportation in Scotland (SCOTS).

The automated control of material deployment has reduced route salt use requirement by 30%. In monetary terms this is £100,000 annual revenue saving, which represents 7% of the winter maintenance budget for Dundee City Council.

This modernization project has not altered the service standard in that the same routes are still treated to the same standard and same service delivery obligations. The Council requires to achieve revenue budget savings. This project represents one of the few examples of being able to achieve savings by advancing technological capability and conceptual aspirations.

A secondary benefit of this innovation is in the project's environmental credentials. The lessening of salt usage by 30% results in a lesser volume of sulphate run off entering the drainage system. Additionally, reductions in route travel length achieved through optimisation, coupled with reductions in vehicle material loads carried, lessens fuel use. These direct environmental benefits continue internationally as the Council imports less salt from the Mediterranean; ensuring a smaller carbon footprint through both the extraction process and haulage.



Street Lighting Finalists

Glasgow City Council

Intelligent Street Lighting

Glasgow City Council (GCC) was successful in a bid to the European Regional Development Fund (ERDF) 8th City Programme to secure funding for the procurement and delivery of an Intelligent Street Lighting (ISL) Network in Glasgow City Centre. The project includes the installation of LED lights along with a Central Management

System (CMS) to obtain further energy efficiencies and extend a Low Bandwidth Wireless Canopy to enable the deployment of sensors. This will enhance the Smart City maturity level of the City through the deployment of ISL and associated Smart infrastructures. Through the addition of data collection devices such as sensors and cameras, intelligent street lighting infrastructure will be used as a platform to host a variety of applications including environmental monitoring, traffic optimization, smart parking and public safety. The collected data (real time or historical) will be used to improve service delivery i.e. bin collections, car parking etc.

Renfrewshire Council

LED Street lighting Replacement Programme

Renfrewshire Council embarked on the ambitious "Street Lighting Investment Strategy" to transform 30,756 street lights from sodium to LED Lanterns through an innovative £11m capital investment fund within a 18 month period. Renfrewshire's sodium street lights cost over £2.5m annually, in electricity and operational maintenance costs, and were responsible for 20% of the Council's total carbon consumption and associated footprint. The transformation has successfully reduced carbon and electricity consumption by 64% and reduced operational costs by £1.4m p.a. Renfrewshire leaped from 26th to 1st place in the Scottish Futures Trust (SFT) tables (released October 2017) having converted 98.5% of all street lights to LED lanterns, leading the sustainability and innovation agenda for street lighting technology.

Wigan Council

Street Lighting LED project

This review of the Wigan Council street lighting service was initiated through the Council's efficiency agenda and street lighting 'Fresh-Look' service review process. This review provided the Council with the opportunity to embrace new LED technology, increase the resilience of the service and optimise the cost of delivering the service; thereby reducing the environmental impact and energy consumption. The Council commenced its street lighting LED replacement programme in April 2014 and completed the project in March 2018. Thus far the project has: installed 31,775 lighting units with CMS controls; replaced of around 3,500 life expired street lighting columns; reduced energy consumption by 51%; reduced carbon emissions by 3,000 tCO₂; reduced annual street lighting energy cost by over £800k (to date) - compared with 'do-nothing' scenario; and reduced the annual number of street lighting faults by over 50%.

Winner

Bolton Council

Lighting the Way for Bolton's "Smart Green" Future.

In 2015, Bolton Council's cabinet approved a budget report to progress with the implementation of £43m savings options. Included within these options was the need to identify sustainable and alternative service delivery models to help deliver the savings needed. In addition, the council's cleaner, greener strategy makes a clear environmental and financial case for remodelling services and opportunities to reduce energy consumption and carbon emissions, coupled with associated cost benefits to the public purse.

The LED programme combined with a new Central Management System is an innovative approach designed to reduce energy and carbon omission issues. The CMS provides an effective approach to street lighting management, which is playing an important role in meeting revenue reduction demands.

The aims of the project is to replace existing stock with LED lanterns to meet the current British Standards and also ensure that design lighting levels are met – with a view of having "The right light in the right place at the right time".

Mid-February 2018, the project has successfully delivered: 24,670 LED's in 4,323 streets have been upgraded; 92 tonnes of existing lantern materials has been recycled back into the environment, to which Bolton won a National Live Lux Award for recycling to which other Local Authorities are copying Bolton's processes; 49.13% energy cost reduction and a carbon tonnage saving of 5,582 tonnes.

Bolton demonstrated excellent partnership working involving a neighbouring Council, in-house team, AGMA framework contractor and as a result the programme was on target to finish in April 2018.

LED units use less energy and last six times longer compared to the standard lantern. Built in CMS allows the Lighting Engineer to govern exactly when to set variable lighting levels to individual lighting points throughout the Borough. This allows control and capping of the energy as and when it is needed, thus reducing bills further.

The LED programme has resulted in a reduction in energy costs of 49.13% (£961,097) when comparing 1 April 2014 – 31 March 2015 (£1,956,097) with 1 April 2017 – 31 March 2018 (£995,000), based on 11.48p KwHr. 92 tonnes of existing lantern materials has been recycled back into the environment with a further reduction in carbon tonnage saving of 5,582 tonnes. Furthermore, if Bolton did not invest in the Residential LED replacement, a payment of £2,131,000 for energy alone would have been paid to the supplier.

Longer term revenue savings will also be made on maintenance, which are expected to come to fruition later in the programme.

These include; the current lanterns have a short life (4 yearly maintenance cycle), compared with the LED lanterns which last for 20 years, which are much more sustainable; use of the CMS 'fault detection function' means a reduction in site visits; reduced costs for materials associated to Lamp, capacitor and ballast replacement, which has been calculated at 17.35% over the 3yrs.

The CMS provides the street lighting team automatic on-site notifications for each individual lantern status which can then be dealt with in accordance with priority and weekly schedules. Residents with queries or complaints were given direct access to the Council's 'Streetcare' team and dealt with individually contacted and issues/outcomes recorded.

All residents and local businesses were notified in advance on the associated benefits of the LED programme which is featured quarterly in the Bolton News and proactive in promoting it on the Council's Twitter and Facebook as a mechanism to voice comments, issues and concerns.

To Date Customer satisfaction has been well evidenced, since its roll out; only 1.2% of complaints have been received pertaining to LED's being too bright, 99% of these complaints were resolved satisfactorily following the introduction of variable lighting profiles through the CMS.

The overall feedback, proves improvement in public lighting and the new LEDs are visibly brighter and keep the streets well-lit and safer, for pedestrians, cyclists and drivers.



Highways Maintenance Innovation Awards Finalists

Dorset County Council

"Working Together" A Collaboration Between County, Town and Parish Councils to Deliver Highway Maintenance In Dorset.

Reduced revenue maintenance funding is a common problem for Highway Authorities across the UK. In Dorset this has seen the revenue budget reducing from just below £9 million to £4 million since 2011/12. "Working Together" is an initiative that offers Town and Parish Councils an opportunity to commission minor highway maintenance activities that can no longer be financed, or alternatively, supplement current activities by funding additional work cycles that have been reduced in frequency. The scheme has promoted increased collaboration with participating Town and Parish Councils - to date the scheme has seen 40 Town and Parish Councils engaging in the process - and seen the reintroduction of works programmes previously under threat within their respective areas.

Via East Midlands Ltd (Nottinghamshire County Council)

Creation of a collaborative local authority joint-venture company to deliver highway services in Nottinghamshire

In response to the unprecedented challenge faced by local government, in 2016 Nottinghamshire County Council and Cornwall Council created a collaborative, Teckal complaint company called Via East Midlands Ltd. Via delivers a wide range of highway design, network management, construction, maintenance and fleet services to the Council and to external customers. At the end of the first full financial year, Via had secured and delivered £3.8m of external business, turnover had grown from £39.9m in 2016/7 with an expected £55.7m in 2017/8. By the end of the second year, Via will have delivered a dividend to its shareholders of almost £2m. By March 2017, 36% of employees voluntarily moved from TUPE protected employment contracts to Via contracts - a sign of genuine buy-in to the company. The external income means that the Council can continue to sustainably deliver high quality highway services for

residents, visitors and the travelling public of Nottinghamshire.

Northumberland County Council

Channel Shift for reactive agile working process

The Council undertook a full review of its highway inspection with a view to using technology more effectively to improve the time management of resources. The Council also wanted to create a system which would reduce the backlog of over 9,000 potholes within the County in 2015. The old system was overly complicated and there was a large amount of "back office work" required so the Council devised a system that is fully remote and promotes agile working within the County. The new system helped to improve time management, audit regime and reduce the amount of time that all parties spent in the office or at the depot. The performance of the inspection regime and quality of repairs has increased 10-fold.

Oxford City Council

Innovative Income Generation

Oxford City Council's Highways and Engineering Team took an innovative approach to solving the risk of central government budgetary cuts by identifying opportunities to generate additional income streams utilizing; expert contracts managers, highly trained workforce, and state of the art fleet and plant. This was achieved by developing the team's reputation and brand to ensure new and existing customers repeatedly used the Council's services. The Team also invested in additional plant and fleet, recruitment, training and development in order to facilitate winning additional work. This additional income generated has been reinvested in the teams' expansion and back into Oxford City Council in order to maintain its high level of public services in its continued aim to be a world class city.

Cambridgeshire County Council / Peterborough City Council

Cambridgeshire and Peterborough Drought Damaged Roads

This project is a joint collaboration between the Councils to address the issue of drought damaged rural Fen roads. In March 2017, the Councils submitted a joint application to the DfT for Challenge Fund Tranche 2A funding to repair 65.61km of drought damaged fen roads. The Fenland area suffers from failure caused by unstable or soft sub-soil. In order to get the best Value for Money from the funding provided by the DfT, a couple of innovative schemes were needed to address the issue

of drought damage, both in repairing and maintaining the roads. The scheme provides the foundation for preventative long term asset management for the affected highway network and has minimised costly short term reactive repairs.

Winner

Derbyshire County Council

Steering Derbyshire to top road ranking

Derbyshire County Council maintains almost 3,500 miles of roads and has 12 gangs for reactive maintenance across the county. The Council continues to face considerable service pressures – including the highway maintenance revenue budget being reduced by more than half over the last six years.

The state of Derbyshire's roads is vitally important to the Council's reputation. It consistently emerges as the hottest topic in resident surveys and across the authority's social media channels. Every year there are around 25,000 reports of potholes or other highways faults which need fixing. Prior to 2015 the Council was fighting a losing battle – both identifying and fixing potholes, and maintaining a positive image in the minds of residents.

Due to a complicated and inconsistent paper system, it was incredibly difficult to accurately say how many potholes there were or pinpoint their exact location without a paper chase. The team also had no real-time record of where gangs were working, and didn't have enough information to prioritise urgent jobs. In light of these problems, the Council embarked on the biggest ever overhaul of the way the highways team operates.

The previous asset management system was due for renewal – providing the perfect opportunity to launch a new project called Single Asset Management System (SAMS). The processes within the system were completely reviewed and re-engineered – with emphasis on the priority area of reactive maintenance.

The new system went live in November 2015 and it was game-changing. There is now an end-to-end electronic process, starting with a web form which automatically populates the system from a resident's report. Jobs are allocated by a scheduler and transferred to a gang via a mobile device. The new system generates robust, reliable data to monitor performance, based on real time information.

Roads workers have 'tough book' mobile devices which allows them to: access their daily schedule and record progress; photograph jobs before and after; and sign off jobs in real time, generating an email to the resident who has reported the fault.

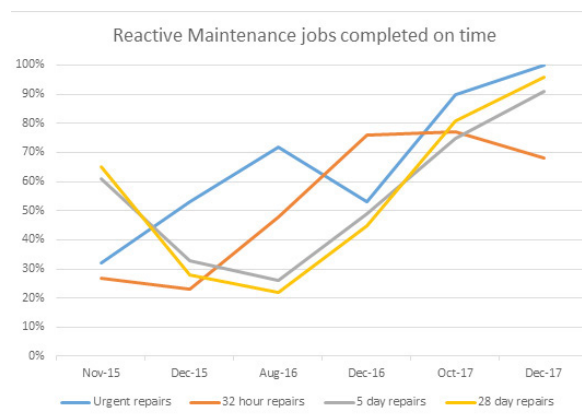
Another key factor was the creation of the Derbyshire Highways Hub, bringing together teams: responding to customer enquiries; processing works permits; handling insurance claims; co-ordinating roadworks; reactive maintenance scheduling; and temporary traffic management. There is now much closer working between schedulers and managers in charge of the road gangs. Regarding the positive outcomes of the scheme, records in the system are now robust enough to defend insurance claims, which have reduced by around 50% since 2013/14.

In 2017, the council surface dressed around 200 miles of road and invested an additional £6m to implement a coordinated, cyclical maintenance programme, where the focus is on prevention rather than cure. The wider use of Jetpatcher and 'hot box' technology also helped repair almost 38,000 potholes.

On-line reporting now enables people to pinpoint the exact location of defects and upload photographs and the telephone contact centre ensures callers are asked correct questions to generate required information. The new software provides automated updates to the person reporting a defect – from report to repair. The Team's communications ensure clear and consistent messaging – focussing on the authority's social media channels, which are now the first point of contact for most residents.

In November 2015 the team was still doing better on less urgent jobs than those where the need for repairs was more immediate. By August 2016 the systems and new working practices were becoming embedded and this trend turned around, with much higher performance for the most important jobs. By autumn 2017, the team was meeting the targets for urgent jobs – 100% on time.

Defects fell from 4,500 in July 2016 to less than 700 in December 2017 – a near 80% decrease which led to a wave of positive media coverage. The 2017 National Highways and Transport Network residents' satisfaction survey ranked Derbyshire top for highways and transportation services out of 31 county councils taking part



Winter Maintenance Innovation Award Finalists

Newcastle City Council

Winter Maintenance in Newcastle

Newcastle City Council is working collaboratively with Colas Ltd and Northumberland County Council to deliver an efficient, resilient winter maintenance service to the customers of Newcastle. The Council has established a steering group and developed a Relationship Management Plan in line with BS11000 Collaborative Business Relationship Management principles. This is based on the Council's combined accredited quality management systems and is a unique long term arrangement which is believed to be a first. It is hoped that this model could be an exemplar delivery model for other authorities to benefit from in the future. Through the implementation of this innovative contract it has allowed Newcastle City Council to further focus resources onto other areas of the winter maintenance services, such as footpath treatment, grit bin replenishment and key shopping areas around the city.

Ringway North Yorkshire

Enhanced Driver Training

In 2016 there was a serious incident on the North Yorkshire Highways Maintenance contract when a Gritting vehicle slid on ice, hit the verge and tipped over onto its side. Although shaken, the driver managed to raise the alarm via his "Skyguard" alerting the emergency services and his supervisor. A thorough investigation was undertaken which looked for the root causes and put actions in place to reduce the risk of similar instances. One of the recommendations was to improve the training given to staff carrying out Winter duties by introducing training on a low friction surface, replicating real life situations. Working with another supply chain partner, R3Rockingham, Ringway designed, developed and implemented a new approach to Winter Driver training. The new training led to a reduction in crash damage repairs for the 2017 season, a reduced risk of third party claims and an expectation of lower insurance premiums in the future. In 2018, there was a reduction of driver fault incidents involving winter vehicles.

Telford & Wrekin Council

Highways Incident Room

In preparation for winter 2017 and on the back of the lessons learnt from the water leak emergency, the Council developed a proposal for the 'Highways Incident Room'. The Highways Incident Room can be established for any emergency or planned event and provides a central control center for co-ordinating the Council's highways response to such an event. The main difference for the Highways Incident Room is the plan to utilise the Council's Urban Traffic Management Centre (UTMC) to co-ordinate such a response. The approach provided real time and instantaneous information to the public and allowed the highways team to respond to issues quickly. In terms of data this produced record levels of customer engagement with more than one million impressions from 8-15 December 2017 and a record level of 332,000 social media impression on 10 December 2017 alone. In addition, one of the Council's tweets was the 5th most viewed tweets out of all government related tweets

Winner

Wigan Council

Winter Maintenance Service Review

The review of the Council's winter maintenance service was initiated through the council's Highways 'Fresh-Look' service review process. This review provided the team with the opportunity to embrace new technology, increase the resilience of the service and the borough and to optimise the cost of delivering the service

Historically Wigan has deployed de-icing salt across the borough with 10 individual gritting routes. The routes broadly divide up the geographical area of the borough to ensure an efficient service. The creation of this plan is somewhat historical with new assets being added to the plan with little thought given to whether the gritting routes could be optimised or even reduced in number.

The team engaged a route optimisation consultant Webaspx, who analysed the network of highways and ascertained a more efficient gritting arrangement. One factor in the design of the new gritting routes was the permitted number of hours each of the vehicle drivers can work. The Working Time Directive limits drivers to 4 hours of driving work and applies to any planned gritting runs.

The analysis from Webaspx confirmed that the gritting routes could be reduced from 10 routes to 9 and this has been implemented.

Having established a reduction in the number of gritting routes from 10 to 9, the next area of investigation related to the most cost effective and efficient fleet procurement strategy that meets operational, financial and whole service requirements.

Four options were considered which ranged from retaining the existing fleet to leasing in a complete new fleet. Analysis determined that the best option was to change the whole fleet to a 'leased' fleet. This approach offered a significantly improved fleet reliability and reduced maintenance down time. The approach also provided modern vehicles for the operational staff with improved fuel efficiency and allowed on board IT control and accuracy to manage the rate of grit spreading.

Prior to the review, the Council used a 10mm rock salt to cover all its gritting requirements. However, an alternative 'coated' salt product was identified that could offer numerous advantages including cost savings. An analysis was therefore carried out of the use of coated salt to see whether this could be used in Wigan.

The analysis showed that whilst the Council would pay slightly more for the coated salt, it had the key quality of being a very good de-icing agent and other significant benefits such as: less volume needs to be spread - saving of around 30%; Reduction in effects of corrosion by up to 82%; reduction in freeze-thaw carriageway damage; reduced environmental impact; and the removal of the need to wash gritters down each night.

After an initial investment cost of £35.5k (2016/17) the Council estimates a monetary saving of £334,432 over a three year period (2017-2020).

Currently Wigan has one weather forecasting station providing the Met Office with accurate weather forecast information and road surface temperatures for the network. This information is used to decide on whether to grit and which treatment is required. The system is updated every 20mins and enables managers to monitor actual temperatures against forecast temperatures.

In order to investigate route based forecasting, the Council has been working with Dr Simon Bell of Birmingham University and deployed five 'Wintersense' road temperature sensors over the 2016/17 winter season.

Following on from a successful trial which identified a theoretical potential saving of 205 tons of salt and 167 hours of operational

time, the Team has now deployed an additional five sensors for the 2017/18 winter season. Each of the routes now have a sensor and the team continues to work with the university to develop the sensor technology with the aim of being able to have a robust route based winter maintenance service that will only deploy teams to individual route as/when the need arises.

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