

asphalt now



Reporting on the asphalt industry

Issue 40 | Spring/Summer 2018

ALARM SURVEY

Is funding adequate for our local roads?

LONG TERM SOLUTION

Sustainable resurfacing on industrial estate

THE TRUTH ABOUT RECYCLING

Using waste products on roads



DIFFICULT CHOICES



How long can underfunding, heavier traffic and severe weather be withstood?

To be blunt: there are difficult funding choices ahead if we want a well-maintained local road network to support our communities and drive the economy.

This year's Annual Local Authority Road Maintenance (ALARM) survey, launched in March, highlights the scale of the task our local authority highway engineers are facing: more than 24,000 miles of local roads need to be repaired in the next year if they are to remain fit for purpose (see pages 8 and 9).

Cash-strapped local authorities are unable to provide the highway maintenance budget needed and so highway teams continue having to make tough decisions about prioritising maintenance work to keep us all moving. But how much longer will they be able to continue to do so given the decades of underfunding, impact of increased volumes of heavier traffic and severe weather such as we endured earlier this year?

There is some small relief in the form of an additional £100 million top-up to the Pothole Fund from the Department for Transport (DfT) to help repair the roads worse hit by the winter weather, but it's just not enough. ALARM 2018 reports that local authorities in England and Wales would need more than £9 billion and 14 years to get our roads back into a reasonable steady state.

The AIA will continue to advocate investing in our local roads so they can be properly maintained and we recognise the role that materials innovation can play in improving the durability of the network. Two examples of products that have been designed to overcome specific issues are covered on pages 7 and 12. There has also been much media interest – and debate – on the inclusion of wastes in asphalt and this is the topic of our industry viewpoint on page 10.

Our free-to-attend annual **Sharing Best Practice** event is an opportunity for local authority highway teams and industry stakeholders to share knowledge and ideas and we look forward to seeing you at the National Motorcycle Museum on October 3.

Rick Green
Chairman, Asphalt Industry Alliance

ONLY ESSENTIAL IMPROVEMENTS FOR THE NEXT TWO YEARS

■ **Transport for London (TfL)** has said that no non-essential road improvements will be made in the capital over the next two years.

The announcement is part of a strategy to deal with the government's decision in 2015 to

remove all TfL's central funding by the end of the 2017/18 financial year.

TfL has seen its funding cut by an average of £700 million a year over the last five years and is predicted to be facing an operational deficit of almost £1 billion in 2018/19.

In addition, from 2020, the £500 million collected in Vehicle Excise Duty paid by London car owners

will, at present, only be invested in roads outside of the capital. Rick Green, Chairman of the Asphalt Industry Alliance, said:

"The results of our ALARM survey have shown that, in the past, London has fared slightly better than the rest of England and Wales

when it comes to funding deficit for local roads.

"But the removal of all TfL's central funding will put the capital's existing budget shortfall – which already stands at an average of £3 million per authority – under even greater pressure. And the policy of limiting road improvements over the next two years is just storing up major problems for the future."



FOOTWAYS SET TO BEAR THE BRUNT OF WORK BY UTILITIES

■ **Utility companies** are being told to shift roadworks to footways to prevent potholes and cut congestion, reports *The Times*.

Laying pipes and cables under footways and soft grass verges is set to become the default procedure.

Transport secretary Chris Grayling said: "Change is needed because potholes are far more likely to appear on sections of roads that have recently been dug up.

"The solution cannot simply be to come up with more and more money and to fill potholes that collapse a year or two later."

Rules for the reform, set out by the DfT, will state that gas, electricity, water and telecom companies will have to put new pipes and cables under footways or grass verges before seeking to dig up roads.

Footways on both sides of the road would not be allowed to be dug up at the same time to retain pedestrian access.

The government is also proposing to expand 'lane-rental' systems which allow councils to charge £2,500 a day for work done during peak times in a bid to encourage overnight work to try and minimise disruption to daily traffic.

PARTNERSHIP ADDRESSES MISERY OF ROADWORK DISRUPTION



■ **Bristol City Council** is working with five utility companies to help minimise the disruption and frustrations caused by roadworks.

The Active Roadworks scheme will give people more up-to-date information about the progress of maintenance work to roads, footpaths and utility apparatus in the city, where there are around 40,000 roadworks each year.

The new agreement, signed by the council and utility companies (Bristol Water, Wessex Water, Wales & West Utilities, Western Power Distribution and Virgin Media), called the Streetworks Code of Conduct, is designed to ease congestion and reduce the impact of essential roadworks and maintenance.

NORTHERN TRANSPORT BODY GETS POWERS TO SHAPE ITS OWN DESTINY

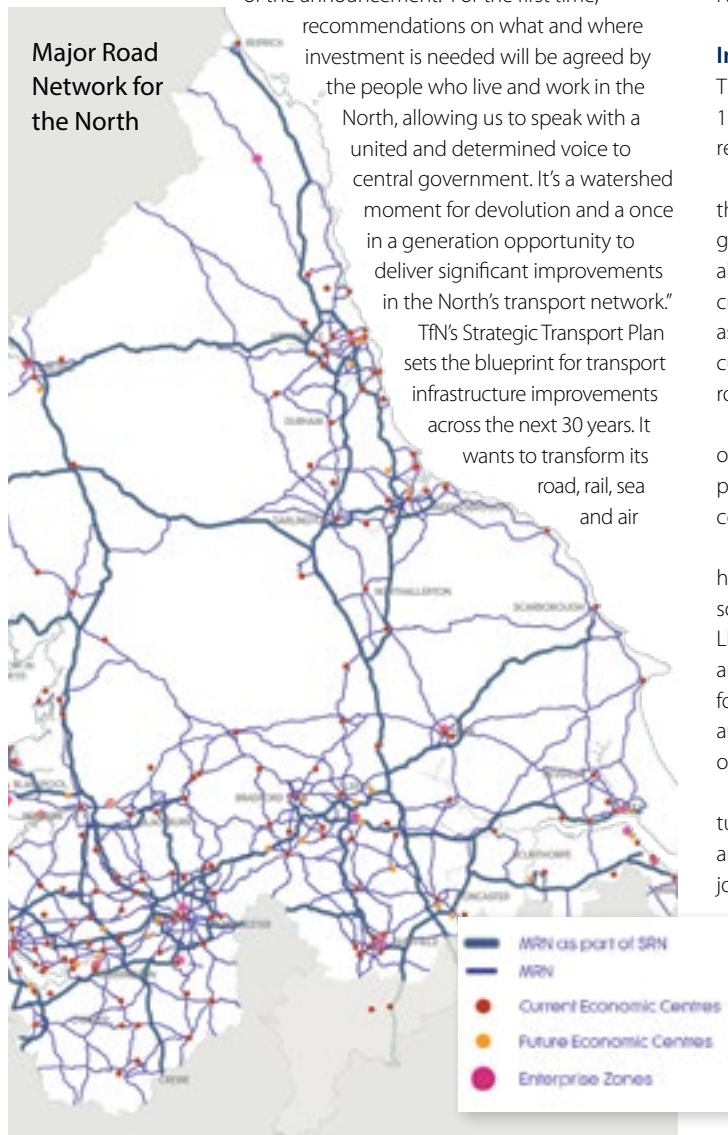
■ **Transport for the North (TfN)** has become the first sub-national transport body in England to achieve statutory status, allocating it powers to shape its own transport future.

TfN Chief Executive Barry White, pictured right, explains the significance of the announcement: "For the first time,

recommendations on what and where investment is needed will be agreed by the people who live and work in the North, allowing us to speak with a united and determined voice to central government. It's a watershed moment for devolution and a once in a generation opportunity to deliver significant improvements in the North's transport network."

TfN's Strategic Transport Plan sets the blueprint for transport infrastructure improvements across the next 30 years. It wants to transform its road, rail, sea and air

connections to help drive long-term economic growth. The plan explains the need for investment in transport across the North, identifies the priority areas for improved connectivity and will allow the organisation to make a strong and consistent case to government for sustained investment in the North.



Infrastructure investment

The leadership board for TfN includes elected leaders from the North's 19 local and combined authorities, co-opted business leaders and representatives from Highways England, HS2 and Network Rail.

"Becoming a sub-national transport body will enable us to agree on the transport infrastructure investment needed to drive transformational growth and rebalance the UK economy," added Barry White. "Working alongside our partners, we want to improve the North's road network by creating reliable, safe and efficient roads for the future through new routes as well as better use of existing infrastructure and planned upgrades. We're currently working with Highways England and the DfT on three strategic road studies aimed at alleviating the pressure on the road network.

"Our Northern Trans-Pennine Routes Study has been investigating options for a new strategic east-west corridor north of the M62, with plans to upgrade the A66 to dual carriageway between the M6 and M1 confirmed last year, alongside improvements to the A69.

"The Manchester North-West Quadrant and Trans-Pennine Tunnel studies have been investigating how we can improve east-west journeys across the southern Pennines, where connectivity between the major city regions of Liverpool, Manchester, Sheffield and Hull is hampered by poor road links and congestion. With the Manchester North-West Quadrant, we're bringing forward options to radically improve journeys around the north-western area of Manchester, where the M60 is one of the busiest stretches of road outside the M25.

The Trans-Pennine Tunnel study is drawing up options not just for a road tunnel and route upgrades to the Woodhead Pass route to link Manchester and Sheffield but also associated improvements which would improve journeys further across to the Humber ports.

"As part of our plans we have also identified a Major Road Network for the North that will support advances in productivity and growth; both now, and in the future. Working with our partners in local authorities across the North, we've mapped the local and strategic roads which are vital for future economic growth. These key local roads serve an essential function connecting important economic centres and we will work with our local partners and with the DfT to ensure that they get the investment required."

NEW HUB'S FOCUS ON MATERIALS INNOVATION AT HIGHWAYS UK

■ **The Mineral Products Association (MPA)** is working with the organisers of Highways UK on a Materials Innovation Hub, which will form a major new component at this year's event.

The hub is competition-based, with short-listed entries invited to present to a panel of judges in a Dragon's Den style format.

"There are four categories and we are looking for entries that improve road safety

and the materials used in, on, or around, the pavement," explains Malcolm Simms, Director of MPA Asphalt. "They should clearly be innovative, but also sustainable and offer real world solutions to the challenges facing highway engineers."

The competition will open for entries in June, with those short-listed to present at the event, which is being held at the NEC on November 7 and 8.

An industry briefing theatre dedicated to

materials and maintenance will run alongside the hub to offer visitors to the event an authoritative and topical account of what is on offer to the highways sector.

"Our ambition is that the Materials Innovation Hub will become a major focal point and meeting place for suppliers, contractors, specifiers and clients involved in pavement materials aspects of highways across the national, regional and local roads networks," added Malcolm.

DATA GATHERING SYSTEM WILL PROTECT STAFF

■ **Aggregate Industries** has introduced a new automated data gathering system to help improve the health and safety of its road surfacing contractors' staff.

The Automated Inspection and Testing (AIT) system uses GPS, infra-red sensors and a data recording unit fitted to pavers, rollers and survey vehicles to automatically capture data before,

during and after road surfacing.

Neil Leake, National Technical Manager at Aggregate Industries, explains: "Traditionally, the road surfacing process requires at least one or two technicians to manually gather and record data on everything from material temperatures to ride profile.

"During this task, they are working in close proximity to live traffic and

construction vehicles and also face other risks including lone working and hot material interface.

"By removing the need for technicians in data capture altogether, our AIT system has improved health and safety while helping to plug the industry-wide skills shortage as data capture operatives can be redeployed to other contracting areas in need of skilled staff."

JOINT COURSE ADDRESSES COMPETENCY AND LIFELONG LEARNING



■ **Budding highways** engineers, technicians and those in associated disciplines can build their knowledge and understanding of road materials by attending a CPD-qualifying residential Asphalt Materials and Flexible Pavements course at the University of Newcastle.

Jointly developed by the University in conjunction with the Mineral Products Association (MPA), the popular course provides students with an important understanding of the properties and performance of asphalt, as well as the design, construction and maintenance of asphalt pavements – all of which are fundamental requirements for client highway engineers and those in the supply chain.

The course, which is being held from September 2-7, reaches another landmark in 2018, being its 45th consecutive year. It is recognised across the sector in continuing to provide relevant training to address competency, development and lifelong learning requirements.

It is promoted and verified for CPD in conjunction with

sectoral professional institutes (CIHT, IAT and IHE).

Details about course content and how to book a place can be found at <https://bit.ly/2wAWtln>



POPULAR: the Asphalt Materials and Flexible Pavements course is in its 45th year

NEW INVESTMENT IN VEHICLE INNOVATION

■ **The government** is investing more than £900,000 in innovations using connected vehicles to help local authorities manage and plan maintenance works more efficiently.

Trials will assess if the vehicles can provide suitable data to enable highway teams to repair potholes before they occur and maintain their assets more effectively to help prevent further defects forming.

Among the local authorities to benefit is Blackpool, which has been given £100,000 to lead a digital inspector scheme with eight councils. The project will see high definition cameras mounted on vehicles to collect road and footway data in order to highlight where roads are deteriorating.

The City of York will get £72,000 to build on its pothole spotter trial (which uses refuse collection vehicles, buses and bicycles to collect data), while Transport for the West Midlands, West Sussex County Council, Buckinghamshire County Council, Croydon Council and Southampton City Council have also been awarded funding for road condition monitoring innovations.

Other trials include collating road

condition data through smartphone sensors (Swindon Borough Council); working with Daimler to use information collected by cars (Essex County Council); using connected vehicles to collect data on road sign condition (Derby City Council and Oxfordshire County Council); and using cameras to provide real-time updates so people can locate parking spaces more easily (Westminster City Council).

The DfT is also providing £30,000 to the Association of Directors of Environment, Economy, Planning and Transport (ADEPT) to work on technological and innovative improvements to future-proof the local road network through the use of SMART infrastructure.

"We welcome the involvement of the DfT in supporting our work," said Neil Gibson, the First Vice President of ADEPT.

"Its co-funding, alongside our other commercial partners, will help our ambitious programme achieve a step-change in the performance of highway assets. We are exploring how to link innovative infrastructure with people, the assets they use, the places they visit and the activities they undertake."

SAVINGS FROM EFFICIENCY MANUAL

■ **The introduction** of Highways England's *Best Practice Pavement Efficiency Manual* has resulted in efficiency savings of more than £120 million since its introduction last year.

The guide has been produced to influence the way projects are designed and delivered on the strategic network. It is the work of the Pavement Efficiency Group (PEG), which looks at how savings can be achieved through design, asset management and improved efficiencies generated in the construction phase.

The PEG was set up in 2015 to help realise Highways England's target of £1.2 billion in capital efficiencies during the first Road Investment Strategy (by March 2020). The group includes representatives from across Highways England as well as the category management pavement community (Aggregate Industries, Hanson UK and Tarmac), designers and tier 1 contractors.

Jon Cole, Head of Pavement Efficiency and Productivity at Highways England, said: "The



work of the PEG is essential to help deliver our efficiency targets and its success is based on the commitment of all those involved.

"Our challenge for the remainder of this first roads period is to keep raising the bar in our performance for our customers and ensuring we keep the safety of our combined workforce at the centre of our thinking when bringing forward innovative materials and ways of working."

■ The category management team behind PEG was recognised in the recent Highways England Supplier Recognition Scheme Awards, as winners in the Efficiencies and Continuous Improvement category.

Hosted by Highways England's Chief Executive Jim O'Sullivan, the awards celebrate the work Highways England's supply chain contributes to improving performance, driving innovation and delivering more efficient and effective customer services.

DIARY DATES

Some dates for your diary:

- 13-14 June 52nd IAT National Conference, the North East and Cumbria branch, Slaley Hall, Hexham www.iatconference.co.uk

- 14-15 June 1st Euraspalt & Eurobitume (E&E) Event: 'Preparing the asphalt industry for the future', the Andels hotel, Berlin, Germany www.eeevent2018.org

- 26 June National Infrastructure Expo, ExCel, London www.infrastructure.co.uk

- 27-28 June Traffex Seeing is Believing event, Bruntingthorpe, Leicestershire www.sib.uk.net

- 3-4 July New Civil Engineer (NCE) UK Transport 2018: 'investment, innovation and integration', Inmarsat, London <https://transport.newcivilengineer.com>

- 11 July Improving the Condition of Our Roads: Repairing Potholes and other Road Surface Defects, Westminster, London <https://bit.ly/2ryofcD>

- 2-7 Sept 45th Annual Residential Course in Asphalt Materials and Pavements, Newcastle <https://bit.ly/2wAWtln>

- 3 Oct AIA Sharing Best Practice event 2018, National Motorcycle Museum, Birmingham www.asphaltuk.org/events

- 7-8 Nov Highways UK: 'Roads for a Modern Britain', NEC, Birmingham www.highways-uk.com

INQUIRY INTO ROAD CONDITION AND PROJECT DELIVERY



The Economy, Infrastructure and Skills Committee, part of the Welsh National Assembly, is undertaking an inquiry into the State of Roads in Wales.

It focuses on the condition and approach to maintenance, and delivery of enhancement projects, on the local road, trunk road and motorway network and how far these are sustainable and provide value for money.

The committee has completed a period of consultation, which received 29 responses from interested stakeholders including local authorities, Welsh Police Forces, RSPB Wales and the Institution of Civil Engineers Wales. The Asphalt Industry Alliance also submitted a response with support from MPA Wales.

The AIA response included findings from its Annual Local Authority Road Maintenance

(ALARM) survey 2018 to highlight local road maintenance and funding issues and also drew attention to the disparity of spending

“certainty of funding... would allow local highway engineers to plan with even more confidence and drive greater efficiencies.”

Rick Green

on highway maintenance in Wales, despite the introduction of the Wales Infrastructure Investment Plan in 2012. Between 2009-2018, Welsh authorities spent the equivalent of £40,148 per mile of local road on highway

carriageway maintenance, compared with £70,300 per mile reported for the same time period by English councils.

AIA Chairman Rick Green said: “The efficiencies and savings found following the introduction of asset management plans will inevitably level off. Without further and sustained investment in highway maintenance funding, this will lead to a decline in the condition of Welsh roads with continued prioritisation on key routes to the detriment of the rest of the network. The findings from successive ALARM surveys indicates that providing certainty of funding to local authorities on a longer-term basis would allow local highway engineers to plan with even more confidence and drive sustained efficiencies.

“Looking ahead, the AIA would advocate the importance of investing to save with further enhanced and accelerated investment in maintaining the existing road network, which ultimately underpins the social and economic development of the entire country.

“We would also recommend setting up a group, made up of supplier, contractor and local authority representatives, to identify where and how efficiencies and cost savings could be achieved through the supply chain. This has been successfully developed by Highways England with its Pavement Efficiencies Group, which is helping to realise its target of £1.2 billion in capital efficiencies.”

The results of the committee’s inquiry will be made available later in the year.



The first International Road Maintenance Day (IRMD) was held on April 5 to highlight the importance of properly maintained roads to people, the economy and the environment. The initiative was launched by Juan José Potti, president of the Spanish Association of Manufacturers of Asphalt Mixture (ASEFMA) at the 2018 Pavement Preservation and Recycling Summit (PPRS) in Nice, France. This year’s campaign focused on the importance of well-maintained roads on the environment, using a number of key messages linked to climate change, and was promoted extensively through social media as well as a number of events in countries including Ecuador, Mexico, Slovenia and Spain. Find out more at <http://roadmaintaineday.org/>

IN BRIEF

The Local Government

Association (LGA) is calling on the government to reinvest 2p per litre of existing fuel duty into local roads maintenance.

It follows the LGA’s announcement that drivers in England travelled 277 billion miles in 2016, up 17.4 billion on the 2010 figure, with two-thirds of these journeys being made on local roads.

Cllr Martin Tett, LGA Transport spokesman, said: “The government needs to recognise the need to match the increased pressures and demand on our local roads with additional funds. Only long-term and consistent investment in local road maintenance will allow councils to embark on the widespread improvement of our roads that is desperately needed.

“The reinvestment of 2p per litre of existing fuel duty into local road maintenance would generate £1 billion a year and begin addressing the £9.31 billion roads repair backlog reported in this year’s Annual Local Authority Road Maintenance (ALARM) survey.”

CRACKING SOLUTION 10 YEARS ON

Innovative asphalt technology is found to be still performing well a decade after it was first applied to a cracked road.

IN 2008, the A45 near Northampton was resurfaced using a new asphalt technology designed to prevent reflective cracking – and, a decade later, the road surface is still performing well.

The product used is a high-performance asphalt stress-absorbing membrane interlayer (SAMI), which was developed by Tarmac to tackle the issues associated with concrete roads overlaid with asphalt.

David Markham, Head of Asphalt Technology at Tarmac, explains: "There are more than 1,500 miles of concrete roads on our network, many of which have been overlaid with asphalt to provide a quieter, smoother, more skid-resistant surface.

"While they are durable, over time these asphalt surfaces can suffer from reflective cracking, caused by the concrete below, which ultimately leads to the roads failing."

Causes of reflective cracking

Reflective cracking can be caused by a number of factors, including thermal movement, which occurs as the concrete slabs expand and contract horizontally. This is concentrated at the slab joints and is transferred to the asphalt layer above, causing 'bottom-up' cracks to develop in the surface.

Traffic loading can also have a significant effect: as heavy vehicles move across the joint



BEFORE AND AFTER
Inset right: the A45 near Northampton was heavily over-banded to keep it serviceable before it was resurfaced using SAMI in 2008 (main picture), which is still performing well 10 years later



“[SAMI] was developed by Tarmac to tackle the issues associated with concrete roads overlaid with asphalt.”

**David Markham,
Head of Asphalt Technology,
Tarmac**

from one slab to the next, vertical movement is created which puts additional stress on the asphalt overlay.

On the A45 site at Billing, the existing asphalt thin surface layer had suffered extensive cracking and been heavily over-banded to keep it serviceable. In 2008 this stretch was resurfaced using Ultilayer SAMI laid 25mm thick directly on top of the jointed concrete, using conventional paving equipment, with 50mm of high performance polymer modified binder thin surfacing on top.

The solution provided enhanced flexibility to accommodate movements in the jointed concrete, protecting the asphalt surface course, which is showing no sign of reflective cracking 10 years after it was laid.

Tarmac has worked with the University of Nottingham to measure its asphalt stress-absorbing membrane interlayer's (SAMI) resistance to fatigue damage by running long-term studies on both strategic and local roads. The results have demonstrated that when SAMI is used to repair concrete roads the material's fatigue resistance is over 200 times better than conventional asphalt.

Dr Nick Thom, Assistant Professor in Civil Engineering at Nottingham Transport Engineering Centre (NTEC) and the University of Nottingham, said: "The material that Tarmac has developed has a remarkable resistance to fatigue. As part of an overlay system it presents a very effective barrier to reflective cracking, most especially thermally driven reflective cracking, leading in many cases to a considerable enhancement in road life."

GDPR: OPT IN TO KEEP HEARING FROM US

Changes to the procedures covering data protection, known as the new General Data Protection Regulation (GDPR), require us to confirm that you would like to go on receiving Asphalt Now and other communication from the Asphalt Industry Alliance (AIA), including our Annual Local Authority Road Maintenance (ALARM) report.

You will have received an email from the AIA asking you to confirm that you wish to carry on hearing from us. If you haven't already done

so, please contact us at info@asphaltuk.org or click the link provided in that email. This is especially pertinent for our local authority highway contacts who want to keep on receiving information on our free-to-attend Sharing Best Practice event on October 3 at the National Motorcycle Museum, Birmingham.

We only send information that we believe is useful and relevant to you and you can, of course, opt out at any time by clicking UNSUBSCRIBE at the bottom of all our emails.

Further information on our Data Protection Privacy Policy can be found at www.asphaltuk.org or, if you have any questions or require further information, please call us on 020 7222 0136.



NO PUNCHES PULLED IN ALARM SURVEY



The latest survey of the general condition of local roads in England and Wales paints a grim picture of repairs needed in the next 12 months.

THE 2018 Annual Local Authority Road Maintenance (ALARM) survey reports that more than 24,000 miles of local road in England and Wales need essential repair work in the next 12 months.

“It’s almost unfathomable to think that you could drive almost the entire way around the world on the length of local authority roads that need to be repaired in the next 12 months – but that is the reality,” said Rick Green, Chairman of the Asphalt Industry Alliance (AIA), which produces the annual report.

“It makes me question how we have arrived at this point and whether our local road network is ready to meet the changing needs of our society and economy in a post-Brexit world – a future also expected to include connected and autonomous vehicles, which will rely on

...you could drive almost the entire way around the world on the length of local authority roads that need to be repaired in the next 12 months..”



Rick Green

roads that are fit for purpose.”

The ALARM survey, now in its 23rd year, aims to take a snapshot of the general condition of the local road network in England and

Wales based on information provided directly by those responsible for their maintenance.

The DfT’s local highway maintenance funding for English authorities is now around £1.2 billion a year – the highest it’s been in over a decade. Local authorities are also in receipt of other central government funds from devolution deals, local enterprise partnerships and the like but, significantly, around 45 per cent of highway budgets are reported to come from local authorities’ own sources, including council reserves and borrowing.

Local authorities have reported an increase in average highway maintenance budgets – up from £17.1 million in ALARM 2017 to £20.6 million – although the figures hide a wide disparity between the winners and losers with some councils spending £100 million and others less than £1 million.

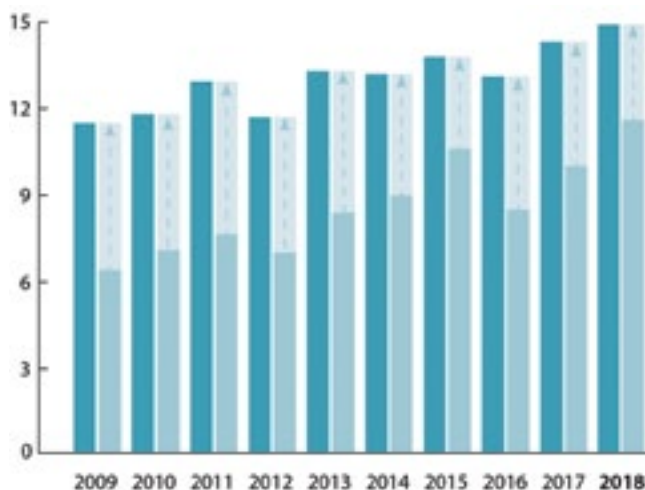
“Although local authorities have reported an overall increase in their highway maintenance budgets this year, looking back over the last decade they have barely kept in line with inflation and the total spend is still way short of the amount needed to halt the decline,” said Rick. “This is reflected in road condition, with one in five of our local roads now classed as structurally poor – meaning they have less than five years’ life remaining – compared with one in six reported last year.

“Other condition indicators and feedback suggest other authorities are still struggling to keep pace with the need for maintenance and, as a result, are failing to meet their own

Carriageway maintenance budget needed

Annual average per authority (£m)

- Annual average carriageway maintenance budget needed
- Annual average budget for carriageway maintenance
- ▲ Shortfall





Our ageing local road network has seen years of under-funding and now we have to be prepared for the tidal wave of deterioration that is on the horizon.

targets. Ultimately they expect a 'tidal wave' of deterioration sooner rather than later."

Highway teams in England and Wales report that the gap between the funds they received in 2017/18 and the amount they actually needed to keep the carriageway in reasonable order approached £556 million – a shortfall of £3.3 million for every authority. And it would now take 14 years to get local roads back into a reasonable state provided adequate funds and resources were available.

Over the last decade, the ALARM survey has reported that almost 18 million potholes have been filled at a cost of more than £1 billion. Since 2015, when the number of potholes

reported to have been filled reached record levels (2.67 million), the number has been steadily declining. This is a positive move as it may reflect a shift towards more efficient whole-life asset management. Nevertheless, potholes are symptomatic of poorly maintained roads and potential underlying structural issues and, at 1.5 million, the reported number filled last year in England and Wales is equivalent to one every 21 seconds.

Rick added: "Local roads are a vital asset, worth in the region of £400 billion, and they support all aspects of our daily work and home lives. But funding for their adequate maintenance has fallen short for so many years

that the rate of deterioration continues to accelerate.

"We accept that there is no magic wand to wave, nor is there a bottomless pot of money to tap into. There are difficult choices to be made at both local and national level but the government needs to provide adequate funding for a well maintained and safe local road network if it wants to support communities and drive economic growth."

The ALARM survey is widely respected throughout industry and local and national government as the most authoritative and comprehensive study into local road maintenance funding and condition. The full 2018 ALARM survey is available to download at www.asphaltuk.org

SCOTTISH ROAD MAINTENANCE APPROACH 'UNSUSTAINABLE'

North of the border, roads are faring no better and transport bosses have said that budget cuts are likely to make the structure of 32 separate local highway authorities in Scotland unsustainable.

The comment has been made by the Road Maintenance Strategic Action Group (SAG), set up to provide a response to Audit Scotland's *Maintaining Scotland's Roads: a follow-up report*, which is chaired by Scottish transport minister Humza Yousaf.

The SAG is made up of representatives from Transport Scotland, the Convention of Scottish Local Authorities (COSLA), the Society of Chief Officers of Transportation in Scotland (SCOTS), the Society of Local Authority Chief Executives (SOLACE); the Roads Collaboration Programme and the Office of the Scottish Road Works Commissioner.

Its response highlights that current expenditure on roads is not sufficient to address Scotland's maintenance backlog of £1.2 billion. In fact, spending on local roads has declined by 26 per cent over the last five years as a result of prioritisation of education and care, which now account for around 60 per cent of all local spending.

Budget restrictions have also eroded the local authority management and change capacity necessary to develop collaboration between authorities. This has resulted in the progress in the development of regional arrangements for roads services, recommended by Audit Scotland, being less rapid than envisaged.

It also suggests that, given predicted financial and demographic pressures in the future, a model for roads maintenance based on the 32 local highway authorities as well as Transport Scotland is unsustainable.

The Department for Transport (DfT) has announced an extra £100 million for local authorities following this winter's bad weather.

The money is in addition to the £75 million Pothole Action Fund for 2018/19 which is already allocated. Chris Grayling, Minister for Transport, described the move as being intended to "help repair almost two million potholes and protect the roads from any future severe weather".

More than 15 authorities have been allocated more than £2 million, with the North East Combined Authority – covering; County Durham, Gateshead, Newcastle, North Tyneside, Northumberland, South Tyneside and Sunderland – being the biggest recipient with an allocation in excess of £4.5 million. Slough Unitary Authority received the smallest single allocation at £91,000.

The biggest recipients regionally were the South West and the North West, which each received more than £17.3 million for their councils.



Waste reduction and recycling form significant strands of government policy and the war on plastic, in particular, is in full swing as images of our polluted oceans and the effect on wildlife have acted as a clarion call for action. **David Giles**, General Manager at Eurobitume UK, assesses the case for re-using waste in our roads:

ONE OF THE most effective ways of reducing waste and minimising its environmental impact is to maximise the time a product remains in use and this is something the asphalt industry is very good at. Data from the European Asphalt Pavment Association (EAPA) estimates that over 80 per cent of asphalt planings made available from roads during maintenance are recycled. One reason why we are able to achieve such high recycling levels is that the performance of the new asphalt is not compromised by including recycled asphalt planings, providing optimised material design has been executed.

EAPA's position statement *On The Use Of Secondary Materials, By-products And Waste in Asphalt Mixtures* recommends priority be given to the re-use of recycled aggregate into

hot and warm mix asphalt as this represents a very significant potential to save on the overall consumption of bitumen in Europe. It also recommends that waste, or waste derived materials, offered to the asphalt industry can only be incorporated if it can be shown through a risk assessment that:

- There are no disadvantages with respect to health and safety of workers and the general public during processing, use and application, now or in the future.
- There are no environmental impacts and/or liability problems during processing, use and application, now or in the future.

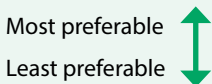
- The future re-use and recyclability of asphalt is not endangered.
- The value for money analysis remains positive for our clients.
- There is no negative impact on the technical product performance of asphalt, now or in the future.
- The introduction of waste should not affect the competitiveness of asphalt solutions versus alternative roads.
- The health and environment classification of bitumen or asphalt is not affected by the addition of the waste.

In recent years there have been many initiatives aimed at including waste streams into asphalt. Generally, these have proven unsustainable as durability and/or recyclability of the asphalt has been compromised.

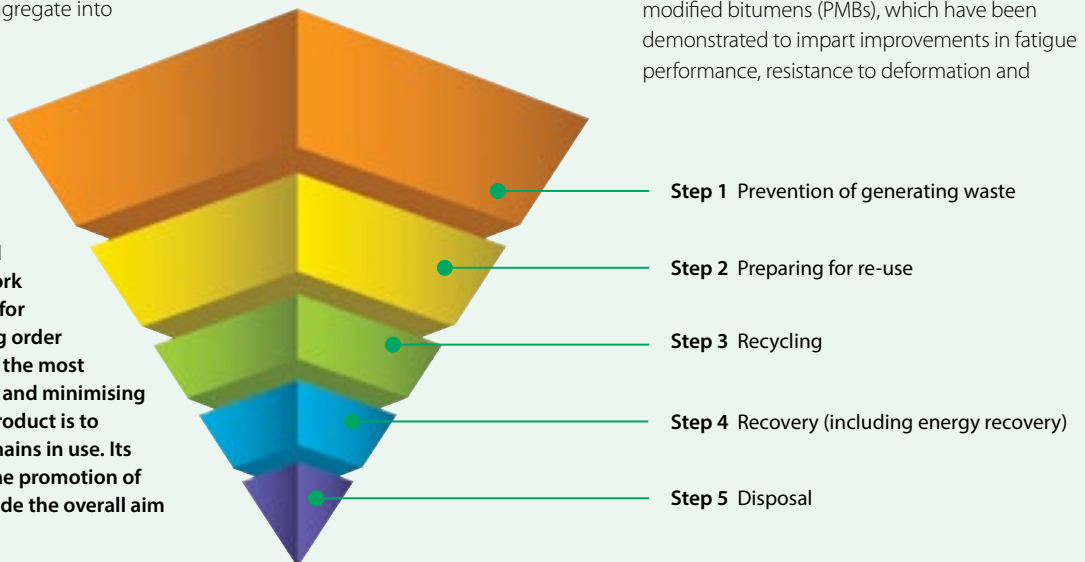
Recycled tyre rubber

A good example is tyres. The synthetic rubber used is derived from the same polymers used in the manufacture of many polymer modified bitumens (PMBs), which have been demonstrated to impart improvements in fatigue performance, resistance to deformation and

The waste hierarchy



The EU waste hierarchy, included in article 4 of the Waste Framework Directive, refers to the five steps for dealing with waste in descending order of environmental impact. One of the most effective ways of reducing waste and minimising the environmental impact of a product is to maximise the time a product remains in use. Its objective is also to ensure that the promotion of recycled products does not impede the overall aim to reduce use



Evidence suggests there is a performance compromise if recycled tyre rubber is used as it does not exhibit the same degree of polymer cross-linking found in virgin co-polymers



therefore improved durability of asphalt mixtures. In the process of making tyres, this synthetic rubber undergoes a process called vulcanisation which changes the chemical properties of the synthetic rubber to make it more resistant to wear when used in a tyre. However, evidence suggests there is a performance compromise if recycled tyre rubber is used in comparison to virgin co-polymers, and this understanding has enabled users to ascertain appropriate levels of recycled rubber addition to suit various applications.

An environmental impact assessment also needs to be completed when using any recycled

than acting as a binder replacement with a consequential impact on stiffness.

While increase in stiffness potentially improves resistance to deformation, it also negatively impacts fatigue life, which is detrimental to durability. In order to use significant quantities of recycled plastics in asphalt it will be necessary to overcome this potential 'Catch 22'. If the conflicting properties can't be reconciled, highway engineers and specifiers may have to accept that the approach is not suited to all locations rather than having to accept a compromise in product performance.

Technological change

This year's Annual Local Authority Road Maintenance survey (see pages 8 and 9) reports that our local authorities are continuing to battle with underfunding and filling potholes rather than having sufficient funds to maintain roads to an appropriate condition. Against this backdrop it seems highly unlikely they will be able to replace existing asphalt mixes with alternatives that might result in a compromise in durability or whole life cost in order to achieve potential perceived environmental benefits.

While the pace of technological change may appear slow, the need to innovate has been tackled for decades. Highways England, Eurobitume UK, the Mineral Products Association (MPA) (and their predecessor organisations) have co-sponsored independent research into performance and developments in asphalt mixtures and pavements. This brings together the major specifier and producers in a collaboration to achieve technical advancement for the benefit of all.

To have an informed debate about the use of a wide range of waste products in asphalt we must develop the tools to properly assess their potential impact on product whole life performance and cost, in combination with the environmental impact or benefits of using them in asphalt mixes. Only then will we be able to discover the truth about wastes in asphalt and decide whether its use constitutes 'linear landfill' or is an environmentally sustainable solution for their future (re-)use.

APPG FOCUSES ON MRN



The focus of the latest All Party Parliamentary Group on Highways meeting was the DfT's consultation on proposals for a Major Road Network (MRN). Clive Hall, Head of Highways & Community Services at Herefordshire Council, spoke on behalf of the Midlands Service Improvement Group (MSIG) to the assembled MPs and Lords on its take on the plans.

MSIG is supportive of the core principles underpinning the proposals, however Clive outlined concerns that, at present, the DfT's approach does not represent a holistic approach to developing a coherent road network – undervaluing the importance of connectivity between locations.

An area of particular concern is the criteria on which roads are deemed to be included or not. "The MRN should be identified on the basis of a route's current and future importance to the economy and resilience of the region," said Clive. "Not all de-trunked routes have retained such importance, particularly in areas of the country where the density of the strategic road network and proposed MRN is comparatively high."


Absence of maintenance detail

The MRN proposal's lack of detail on highways maintenance was subsequently an area of lively discussion, with attending members of the AIA supporting the view that it is a critical missing component. "It's vital to ensure that sufficient maintenance funding is available – as a poorly maintained MRN will mean it will not operate well as part of a whole road system – adding to the burden faced by cash-strapped local authorities unless suitably resourced," said AIA Chairman Rick Green.

Clive finished his presentation by flagging up that the proposal's focus on new schemes and major renewals, at the expense of maintenance, could lead to unintended consequences. He speculated that local authorities could be inadvertently rewarded for letting their networks decline so that they qualify for major renewal programmes, rather than maintaining them as part of an asset management approach. "This will result in poor investment choices and is contrary to life cycle planning," he said.

A formal response to the consultation is expected from the DfT later this summer.

Full minutes from the meeting are available on the APPG on Highways' website: www.highwaysmaintenance.org

 To have an informed debate about the use of waste products in asphalt we must develop the tools to properly assess the environmental impact of using them in asphalt mixes..."

material in asphalt. This considers the carbon footprint; environmental impact of collecting and processing the waste; and any additional emissions during manufacture and installation of the asphalt compared to virgin asphalt.

Recycling plastics

A more recent example is the marketing of waste plastic pellets for inclusion in asphalt as a route to 'recycle' plastics. While this sounds like the perfect solution, there is little evidence that it has been proven technically for in-situ performance, nor for its impact on the recyclability of the asphalt.

Most commonly recycled plastics are not miscible in bitumen so don't readily form part of the binder content without the addition of chemical modifiers and, even then, there is a weak bond between the recycled plastic surface and the bitumen. As a result, recycled plastic waste included in asphalt typically forms part of the aggregate and filler mixture (rather



SUSTAINABLE SOLUTION IMPROVES DURABILITY

AFTER: no road maintenance issues after nearly two years

Applying a heavy-duty, sustainable repair system to cope with punishing traffic volumes at the entrance to a Rochdale distribution park has worked well.



BEFORE: deterioration from heavy traffic at the entrance to the distribution park

ROCHDALE BOROUGH Council has used a heavy-duty asphalt mix to improve the lifespan of a road junction servicing one of the busiest industrial estates in Europe.

On one side of the junction is the entrance to a 200-acre distribution park, while on the other is a quarry. And there are major interchanges with the M62 and M66 less than half a mile away. As a result, it is very heavily trafficked, particularly by heavy goods vehicles (HGVs).

The road was resurfaced in traditional hot rolled asphalt more than 12 years ago but was subject to regular maintenance issues within two years. In 2016, after nearly a decade of remediation treatments, Rochdale Borough

Council decided to look for a more sustainable, long-term solution that would ensure it could withstand heavy trafficking without the need for constant maintenance.

Applying the solution

That solution involved planing off the existing surface and replacing it with a geotextile layer and then new binder and surface course layers incorporating Hanson's Tufflex HD+ heavy duty asphalt mix.

"The design required a solution for slow moving HGVs negotiating the junction," said Paul McCaffrey, Assistant Engineer at Rochdale Borough Council. "After speaking to Hanson, Tufflex HD+ was recommended to us. The technical data indicated that the surfacing would achieve very high resistance to deformation."

Tufflex HD+ contains Endura Z2, a premium polymer modified hot mix binder made

by Nynas for heavy duty applications. It significantly enhances the toughness, rutting resistance and flexibility of the mix and provides good protection against damage caused by heavy, slow moving traffic.

Hanson recommended Tufflex HD+ 20mm for the binder course and Tufflex HD+ 14mm for the surface course. A total of 1,000 tonnes was supplied from the company's Leeds asphalt plant – and, so far, the material is performing very well.

"We hope that Tufflex HD+, combined with the geotextile layer, will give the surface a much longer lifespan," added Paul. "So far the material is holding up well: 21 months on and we have had no maintenance issues regarding the condition of the surface."



“21 months on and we have had no maintenance issues regarding the condition of the surface.”

Paul McCaffrey,
Rochdale Borough Council

Asphalt Now is published by the AIA, a partnership between the Mineral Products Association and Eurobitume UK. The generic term 'asphalt' used in this magazine refers to the range of asphalts and coated macadam available in the UK. Views expressed in Asphalt Now are not necessarily those of the Mineral Products Association or Eurobitume UK.

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