

asphalt now



Reporting on the asphalt industry

Issue 36 | Summer 2016

ALARM SURVEY

Significant challenges ahead

ROAD TO INNOVATION

Adding value to the network

NEW ASPHALT PLANT

Investment driving sustainability



PLEDGES YET TO BE FELT



Over the last two decades the overarching message of our Annual Local Authority Road Maintenance (ALARM) survey has been one of underfunding.

Successive governments have failed to grasp the scale of what needs to be done to fix our local roads and the resilience of the network continues to be tested.

This year's survey reports, once again, that most local authorities are unable to tackle the backlog of carriageway maintenance repairs and are, at best, standing still. In fact, average local authority funding is reported to be down 16 per cent on last year, highlighting that central government pledges to commit £6.1bn to our local roads up to 2020/21 are yet to be felt at a local level (pages 8 and 9).

One of the more positive trends to come out of this year's ALARM survey is the increased efficiencies being made by local authorities and this will continue to be recognised at our annual Sharing Best Practice event. We hope you can join us at this free conference at the National Motorcycle museum in Birmingham on October 11, which will also highlight innovation and collaboration.

Innovation is a theme in this issue of Asphalt Now, which looks at advances in product, vehicles and technology, and we also cover the latest skills and training initiatives.

In the coming weeks the debate around the EU referendum will gather pace. Whatever your viewpoint, when it comes to roads, either outcome will probably have little immediate impact. Health and safety legislation and standards agreed over many years will remain, and employment rights will be unaffected. What could cause more of a shakeup is the way in which increased regional devolution may change how local roads are managed in England. Although the devil will be in the detail, an obvious concern could be increased prioritisation on key routes at the expense of the local roads on which we all rely.

If you have any comments or suggestions for future content, please get in touch at info@asphaltuk.org

Alan Mackenzie

Chairman, Asphalt Industry Alliance

MAJOR CHANGES TO ROADWORK RULES PROPOSED

■ The government

is considering a major crackdown on the disruption caused by roadworks on local roads as well as the start of seven day working.

Councils and utility companies could face paying up to £5,000 a day if roadworks inconvenience motorists unnecessarily by being left in place without justifiable reason. Similar charges could also be imposed on those leaving temporary traffic lights in place after work has been completed on local A roads.

It would mean highways teams either having to work over the weekend – so the project is finished sooner – or remove the traffic control until they resume.

Patrick McLoughlin, Secretary of State for Transport, said: "I want to deliver better journeys for drivers. Roadworks can be



essential, but that doesn't mean they should be in place any longer than is absolutely necessary. That is why I am looking at proposals to reduce queues and make drivers' lives easier."

Details of the DfT's consultation can be found at [www.gov.uk/government/consultations/reducing-](http://www.gov.uk/government/consultations/reducing-roadwork-disruption-on-local-a-roads)

[roadwork-disruption-on-local-a-roads](http://www.gov.uk/government/consultations/reducing-roadwork-disruption-on-local-a-roads)

Road signs, such as New Road Layout Ahead and Changed Priorities Ahead, must now also be taken down within three months. The move is part of an attempt by a DfT taskforce to reduce roadside clutter.

The number of road signs has almost doubled over the last two decades, but now local authorities in England are able to remove unnecessary signs that create an eyesore and distract motorists.

DIARY DATES

Some 2016 dates for your diary:

- | | |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1-3 June | Eurasphalt and Eurobitume Congress, Prague: 'Investing in our greatest asset' www.eecongress2016.org |
| 8-9 June | 50th anniversary IAT National Conference, Luton Hoo, Bedfordshire www.iatconference.co.uk |
| 6-7 July | New Civil Engineer (NCE) UK Roads Conference 2016: 'future proofing and expanding the UK road network' – third annual roads event, Inmarsat, London www.roads.nce.co.uk |
| 4-9 Sept | 43rd Annual Residential Course in Asphalt Materials and Pavements, Newcastle http://bit.ly/1NGIZHm |
| 20-21 Sept | Highways Management 2016: 'Smarter roads for the future', in partnership with Surveyor and Traffex, The Ricoh Arena, Coventry www.highway.surveyorevents.com |
| 11 Oct | AIA Sharing Best Practice event 2016, National Motorcycle Museum, Birmingham http://bit.ly/1WcBbjn |
| 18-20 Oct | European Road Federation (ERF) and Road Safety Markings Association (RSMA) European Road Infrastructure Congress (ERIC), Royal Armouries Museum, Leeds www.eric2016.eu |
| 9-10 Nov | Highways Magazine Seeing is Believing event, Bruntingthorpe, Leicestershire www.sib.uk.net |
| 16-17 Nov | Highways UK: 'Roads for a Modern Britain', NEC, Birmingham www.highways-uk.com |

NEW CONSTRUCTION ACADEMY TO TRAIN SURREY HIGHWAYS TEAMS

■ **Kier and Surrey County Council** have joined forces to launch a 'construction academy' to allow them to train their own highways workforce.

The training centre is part of plans agreed by the council in a four year extension to the highways contract to completely overhaul more than 300 miles of Surrey's roads. It aims to tackle the skills shortage, which is currently forcing the contractor to bus staff into Surrey from as far afield as the Kent and Hampshire coasts.

The initiative will feature a scheme to give young people not in education, employment or training a leg up on the career ladder. Former members of the armed forces, as well as people with mental health problems or learning disabilities, will also be among those able to benefit from the course to equip recruits with the skills needed to earn an apprenticeship with either Keir or the council.

John Furey, Surrey County Council's cabinet member for highways, said: "Not only will this project create jobs and opportunities for local people, it will also equip Surrey with the expertise to improve our highways and drive forward the county's economy for years to come.

"On top of that, it will also mean giving some of our most vulnerable residents a leg up on the career ladder while benefiting highways services across the region."

SHELL INCREASES BITUMEN SUPPLY CAPACITY

■ **Shell is continuing** to invest and grow its bitumen business in Europe, improving supply availability throughout the region by increasing production capacity at Rheinland in Germany and Pernis in the Netherlands.

The move comes as demand for bitumen is increasing in parallel with the investment being made in infrastructure projects in the UK.

"We are committed to supply bitumen for the long term and are constantly looking to

enhance delivery when, and where, the right opportunities arise," said Thomas Moons, pictured, Shell Bitumen General Manager Sales and Operations Europe and South Africa.

"We are also introducing new technologies and applications to help our customers achieve projects with a lower environmental impact as well as provide project staff with safer working conditions."



IN BRIEF

■ **Product testing company Intertek** has launched a new service which offers around the clock inspection to the UK bitumen market. Led from its laboratory in West Thurrock, Essex, the facility covers the full the testing requirements for standard bitumen used in road construction to BS EN 58, BS EN 13924-2, BS EN 12591 and BS EN 13808 specifications.

■ **Antwerp Terminal and Processing Company (ATPC)** is the latest organisation to join Eurobitume. The company has 30 years' bitumen production experience and owns one of the largest dedicated bitumen processing plants in Europe.

■ **Breedon Aggregates'** continued success in major Scottish road projects is being facilitated by the opening of its new £2.2 million asphalt plant at Daviot quarry near Inverness.

Investment in the facility, which can produce 180 tonnes of asphalt per hour, shows the firm's commitment to contracts in the Highlands.

This includes supplying asphalt to the £35 million A9 dualling project between Inverness and Perth as well as its joint venture with Whitemountain to provide more than 500,000 tonnes for the Aberdeen Peripheral Route/Balmedie-Tipperty project – the longest road scheme under construction in the UK.

■ **A new asphalt road surface** that delays the formation of ice is being developed by researchers at Koç University in Istanbul. Laboratory tests reveal that the combined bitumen, salt potassium formate and polymer styrene-butadiene-styrene mix can release de-icing salt for two months while maintaining strength. The research is being funded by EAPA associate member Tüpraş.

ONLINE TRL HIGHWAYS ASSET MANAGEMENT TOOL

■ **A new highways asset management tool** has been designed to give engineers detailed options on the wide variety of asphalt and treatment solutions available.

Developed by the Transport Research Laboratory (TRL) in consultation with the Road Surface Treatments Association (RSTA), the tool is available free to RSTA members and local authorities.

The new tool is part of TRL's iROADS suite of software and is hosted on its website. It was developed in response to growing demand from local authorities for an asset management tool which can rank the economic benefit and lifecycle costs of different treatment options.

It includes all of the road surface options – including asphalt and treatment options – and training will be needed in order to use the tool.

Any RSTA member or local authority interested in gaining access to the tool can request a login by emailing iroads.support@trl.co.uk



EFFICIENCIES DELIVERED BY SUPPLY PARTNERSHIP

■ **A developing partnership** is helping the highways sector to support the delivery of national and local roads.

A successful example of collaboration is the supply partnership between Tarmac and Total Bitumen, which is leading to better customer service and logistical efficiencies.

As Tarmac continues to invest in developing its capacity – resulting in a switch to 24 hour operations at many of its plants – Total has responded by introducing night-time deliveries.

Many of Tarmac's plants are now receiving 95 per cent of their bitumen at night, which offers greater capacity to customers as well as more efficient tanker utilisation.

Brian Kent, Technical Manager for Tarmac said: "We understand the pressures and restrictions that our highways customers face. To assist them, we are expanding our existing asphalt network capacity to help them deliver projects more efficiently. Support from suppliers, such as Total, is central to being able to provide a more flexible service."

Harper Lane, Tarmac's modern new plant inside the M25 near Radlett, which opened last October, was one of the first sites to successfully roll out the new approach.

John Tuite, Total Bitumen's National Sales and Marketing Manager added: "Working together has shown that plants can effectively handle materials out of hours and this logistics model is now being rolled out to other asphalt operations around the UK."

■ **This year's AIA Sharing Best Practice event will be held at the National Motorcycle Museum in Birmingham on Tuesday October 11.**

To reserve your place at this free event, aimed at local authority highways engineers, please call 020 7222 0136 or email info@asphaltuk.org

POTHOLE CASH FOR LOCAL COUNCILS IN ENGLAND



■ **In the March 2016 Budget** Chancellor George Osborne announced plans for a £250 million Pothole Action Fund – £50 million a year over the next five years – to be allocated to local authorities in England.

Details of the first £50 million pot reveal that over 100 councils will receive funding to help remove around 943,000 potholes from local roads during this financial year.

The aim is to improve local roads and deliver better journeys but, industry experts warn, it will do nothing to address the cumulative effect of decades of underfunding and perpetuates the downward spiral of the 'patch and mend' approach.

Cllr Martin Tett, Local Government Association transport spokesman, said: "While £50 million is a step in the right direction, councils need more than 230 times that amount to cover the £11.8 billion cost to bring our roads up to scratch.

"Councils fixed a pothole every 15 seconds again last year despite significant budget reductions leaving them with less to spend on fixing our roads. Local authorities are proving remarkably efficient in how they use this diminishing funding pot but they remain trapped in a frustrating cycle that will only ever leave them able to patch up those roads that are inadequate."

It is a sentiment shared by the AIA: "The most efficient way to deal with the

problem of our failing roads is to fix them properly and stop potholes forming in the first place," said Chairman Alan Mackenzie.

"Poorly maintained roads simply cannot withstand the combination of severe weather and increased traffic, which is why potholes form, and which will, in time, undermine the entire structure of the road.

"Our research has shown that an invest-to-save approach pays dividends with every planned investment providing long-term savings of more than twice the amount spent. Throwing money into potholes is complete madness."

RAC Chief Engineer David Bizley added: "While any cash to fix potholes is welcome, we will not get on top of the problem until there is a recognition that potholes arise because of a lack of preventative maintenance.

"Until we start talking about how many potholes we have prevented rather than how many we have filled, we are doomed to a local road network that is the weak link in the transport infrastructure."

The Pothole Action Fund is one part of the government's commitment to provide £6.1 billion of funding for local highways maintenance between 2015/16 and 2020/21. In the Budget the Chancellor also announced £130 million to repair roads and bridges damaged by storms as well as the money to create a four-lane M62 and funds to upgrade the A66 and A69.

THIN LAYER SURFACING ADDS STEEL TO DONCASTER BRIDGE'S ASPHALT

A HIGH PERFORMANCE steel slag-based asphalt has been used to replace the surface of St George's Bridge in Doncaster.

The 620 metre dual-carriageway bridge, built in 2001, is a crucial gateway into the town centre, carrying around 44,000 vehicles a day. A refurbishment project for Doncaster Council included replacing corroded movement joints, bridge drainage works and allied junction improvements as well as the carriageway resurfacing.

The decision was taken to move away from the previous porous asphalt surface as its gradual deterioration in performance contributed to the corrosion of the original movement joints. Instead, a dense binder layer topped with a special thin surfacing material that displays both enhanced durability and high resistance to skidding was chosen.

"Steelflow is a mixture of 6mm steel slag aggregate and a tough, but very flexible, polymer modified binder," said the asphalt producer Steelphalt's Commercial Manager Dean Raynor.

"We receive and process steel slag from a number of different steelworks, turning the material into a durable aggregate equivalent to natural stone with a PSV of 63."

Bitumen supplier Nynas worked with Steelphalt to design Steelflow, which uses the company's Nypol S89 polymer modified binder to provide enhanced flexibility and resilience.

St George's Bridge is the first time Steelflow has been used on a major elevated structure, a decision supported by research carried out by transport research consultancy TRL.

TRL's assessment included visual inspections of in-service sites, skid resistance surveys using SCRIM and laboratory testing. The in-service sites assessed were in Rotherham (laid 2011), Flouch and Dodworth (both laid 2013).

"Visual inspections found the materials to be in good or excellent condition," says TRL Senior Researcher in Technology Development, Stuart McRobbie.

"SCRIM surveys showed that the skid resistance demonstrated by 6mm Steelflow was higher, by a significant margin, than the Investigatory Level (as per the Design Manual for Roads & Bridges) for any of the site categories on which it was laid."

The work to remove the porous asphalt and resurface the bridge deck with around 15,000m² of new material was carried out at night to minimise disruption.

The new surfacing comprises 50mm of conventional binder course and 20mm of Steelflow to provide impermeability, durability, ride quality and resistance to skidding.

Jukka Laitinen, Nynas Asphalt Engineering Support Consultant, said: "Long bridges by their nature can move up and down under load, which can challenge conventional asphalts.

"Our binder is engineered to ensure that Steelflow displays both extra resilience and enhanced flexibility, making it an ideal choice for St George's Bridge."



The government has committed to the largest road investment programme for a generation, giving the highways sector the ideal opportunity to capitalise on advancements in technology and introduce product and process innovations to provide long term benefits.



Paddy Murphy, Managing Director of Aggregate Industries' contracting business, shares his views and experience on how his business is seeking

to make a difference and add value to the road network:

THERE IS no single answer or magic recipe for innovation. Every organisation must develop its own strategy in response to its business specialisms, culture, opportunities, resources and capabilities. Over the past few years we have focused ours to assess what tools and resources are available to help us do the job that we have always done, but more efficiently.

For example, communication between the site and back office can sometimes be difficult, which can lead to safety issues, installation delays, ineffective management and cost overruns. Over the past three years Aggregate Industries has been developing and trialling the SmartSite app technology as a works management tool, to provide a seamless interface between office and site.

Use of the app improves efficiencies and health and safety, while monitoring key performance indicators and delivering high levels of reporting.

What's more, we have found it to be a key tool in enabling our site managers to communicate with our back office in real time, speeding up our processes.

Another example has been our pioneering use of the Trimble® paver control system to help speed up paving production while laying a smoother surface.

Trimble® is the preferred system for setting-out earthworks operations and sub-base, so it was a logical progression for us to extend this technology to setting-out for bituminous pavement layers.

A1 Improvement Scheme

It allows data to be pre-programmed into the system, which then calculates the different

thickness of material required – removing the need for a lengthy manual checking process between each layer. This system was applied to all layers in the construction of the A1 Improvement Scheme between Leeming and Barton, which also allowed for the use of Titan ABG heavy duty pavers.

These pavers are the only ones in Europe capable of laying mixtures in a single layer up to 13 metres wide and 300mm thick, allowing a full carriageway width to be laid in a single pass. This eradicates joints associated with standard sized paving machines laying in echelon and reduces health and safety risks associated with two gangs working in close proximity, as well as potential time management issues – all while keeping costs and paving carbon footprint to a minimum.

Technological changes

We are now on the verge of many demand-driven and technological changes that would justify higher stakes in research and development: companies that are open to cross-industry collaboration and use professional research resources can gain a competitive advantage.

An example of this is the development of SuperBond, a high performance polymer modified bitumen bond coat. The idea behind the product was to improve health and safety by eradicating the two-stage manual application process of spraying the surface and joints with a bond coat separately, while also achieving a stronger and more durable bond between the asphalt layers.

Applied using electronic spraybar technology, the '2-in-1' solution allows the surface and joints to be sprayed and 'bonded'

simultaneously in one clean process. This saves time and the reduction in vehicles on the surface – and the immediate application of asphalt onto the bonded surface – ensures a stronger finish.

The government's road investment programme gives the highways sector a unique opportunity to be forward thinking. With significant investment taking place and a strategic approach to managing the highway network set, it is a refreshing time to be a part of the industry and an opportunity for suppliers and contractors to push the boundaries in innovation.



UNMANNED VEHICLE TRIAL UNDERWAY

Plans have been announced to build and trial the UK's first unmanned impact protection vehicles (IPVs), used to direct and block traffic to provide protection for operatives and motorists.

Colas has agreed a partnership with American companies Royal Truck & Equipment and Micro Systems in the move which could dramatically improve roadworker safety.

Unmanned IPVs could be used in situations where having a driver in a 'crash cushion' vehicle for the safety of colleagues could consequently be dangerous for the driver.

SOLUTION TO A CONCRETE CONUNDRUM

CONCRETE ROADS are frequently overlaid with asphalt to provide a quiet, smooth surface with adequate skid resistance. While these asphalt surfaces are durable, over time they can suffer from reflective cracking caused by a range of factors including thermal expansion in the underlying concrete, movement at joints and the effects of traffic loading.

Critically, reflective cracking eventually leads to water ingress and failure, requiring specialist and costly remedial work.

For many years, authorities faced with a deteriorating reinforced concrete carriageway were forced to remove the concrete and reconstruct the entire road from scratch or overlay it with asphalt – both of which are expensive and time consuming.

Tarmac has been working with local authorities and network operators for the last eight years to find a solution to roads suffering from reflective cracking.

David Markham, Senior Manager, Asphalt Technology at Tarmac, explains: “The best solution has been to lay a high-performance asphalt stress-absorbing membrane interlayer (SAMI), capable of resisting stresses and providing long-term protection. It extends life and provides longer resurfacing intervals and lower maintenance requirements to offer local authorities improved return on investment.”

Tarmac’s Utilayer SAMI is designed to be laid directly on concrete using conventional asphalt paving equipment. It is a fine-grade asphalt containing a high performance polymer

“[SAMI is] capable of resisting stresses and providing long-term protection.”

David Markham, Tarmac

modified binder (PMB) which provides a durable buffer to allow movement and resist reflective cracks appearing in the asphalt layers above.

“The material is specifically designed for overlays onto jointed concrete,” added David. “It is not a surface course but delivers deformation resistance to allow it to be placed in the top 100mm of a road. When combined with advanced PMB binder and surface courses it can form a complete asphalt overlay system for concrete roads.”



Conventional asphalt overlay



Asphalt overlay with Utilayer SAMI

CASE STUDY:

A45, BILLING, NORTHAMPTON

■ A section of the A45 near Northampton was suffering from extensive reflective cracking and required resurfacing. The road consisted of a jointed concrete pavement overlaid with asphalt thin surfacing. In 2008, as part of the resurfacing contract, trial sections were laid using Utilayer SAMI to overlay the existing concrete pavement, alongside a conventional asphalt control section and another section incorporating a geogrid with a polymer modified SMA surface course.

The trial sections were inspected the following year and again in 2010. No discernible faults could be identified in any of the three panels but, by 2014, cracking had started to become visible in the conventional asphalt control section. A subsequent inspection in 2015 confirmed that the SAMI section is still performing as well as the standard detail of geogrid with a polymer-modified SMA surface course.

THE NON-TIPPING TIPPER TRUCK

HANSON UK has added an articulated trailer that doesn't tip to its transport fleet. The load is discharged by a series of sweeping rams which push the material out of the truck and into the asphalt paver or stock pile.

All the risks associated with traditional articulated tipping trucks – high winds, uneven ground or overhead trees and cables – are eliminated and the trailers are perfect for sites in tunnels or underpasses.

The moving floor trailers carry the same payload as regular vehicles and feature triple body insulation and remote wireless operation with manual override.

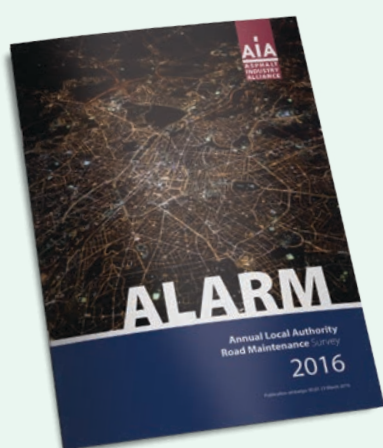
Tim Sage, Hanson's Regional Transport Manager, said: “Our new 27.25 tonne trailers are really revolutionary as – other than their size – tippers have changed very little over the years. We invested £2.8 million in 14 trailers last year and have a further 50 on order.”

He said interest from customers had been high, with one local authority postponing a contract start date so they could have a moving floor trailer available for deliveries. “They complement our

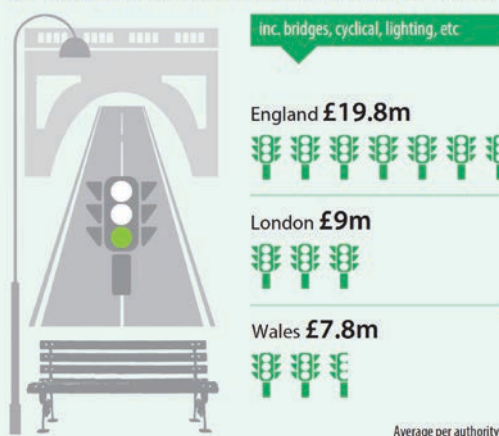
traditional fleet and, with many contracts now specifying non-tipping vehicles for health and safety reasons, they are becoming more and more popular,” he added.



Hanson is investing in moving floor trailers which offer a range of benefits over traditional articulated tipping trucks.

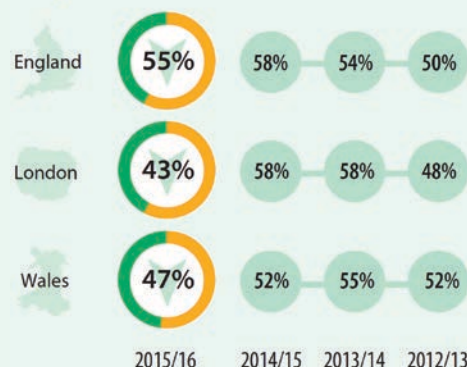


OVERALL HIGHWAY MAINTENANCE BUDGET 2015/16



STRUCTURAL MAINTENANCE BUDGET

Proportion of overall budget spent on structural maintenance



SIGNIFICANT CHALLENGES LIE AHEAD FOR OUR LOCAL ROADS

The findings from this year's **Annual Local Authority Road Maintenance (ALARM)** survey paint an unsettling picture. Underfunding, severe weather and increased traffic are relentlessly undermining the resilience of the local road network in England and Wales – with further decline predicted.

THE 2016 ALARM SURVEY, published in March, is now in its 21st year and provides a detailed picture of the condition of the local road network. The independently verified research, which combines quantitative and qualitative data, offers insightful analysis into road maintenance and funding issues from the perspective of local authorities' highway teams.

Responses show that central government pledges to commit £6.1 billion to local roads between 2015 and 2021 have yet to be felt at a local level, while budget shortfalls and the time it would take to clear the carriageway maintenance backlog are increasing.

Average local authority funding is down across all regions from £18.3 million as reported in last year's survey to £16.2 million. Although Welsh and London councils experienced a slight rise in overall road maintenance budgets, in England these have fallen by 16 per cent on last year, compounded by the fact that the proportion of the overall budget spent on the carriageway itself has also dropped across all areas.

Shortfall increase

These trends are reflected in the overall increase in average annual budget shortfall figures per authority, which has increased from £3.2 million last year to £4.6 million. This is the difference between the annual budget that highways departments calculate they need to keep the



Alan Mackenzie,
Chairman, AIA

carriageway in reasonable order and the actual budget they receive.

In England (excluding London), this average shortfall has increased from £3.7 million last year to £5.3 million this, while the figure in London has more than doubled (from £1.2 million last year, to £2.7 million this) despite an increase in overall road maintenance funding in the capital. In Wales, authorities have seen the average shortfall remain the same at £3.7 million.

"Ten years ago, ALARM 2006 warned that increasing shortfalls would be the outcome of putting off the investment," said Alan Mackenzie, Chairman of the AIA.

"It is disheartening that we have been proved right and the feedback received from highways engineers is that long term underfunding means that the local road network continues to deteriorate

at a faster rate than it can be repaired. Add in the age of the network and the impacts of increased traffic and severe weather, which are accelerating that rate of decline, and you start to appreciate the scale of the problem our local authorities are facing."

The precarious position is underscored in this year's report by the maintenance backlog figures – how long it would take, given adequate funding and resources, to get roads back into a reasonable condition. In 2006, highways departments estimated that the time needed to carry out such work would be 10 years. This year the response was, on average, 14 years.

BUDGET SHORTFALL

Average required per authority and average budget shortfall

England £16.2m required: shortfall £5.3m



London £6.6m required: shortfall £2.7m



Wales £7.3m required: shortfall £3.7m



But, even with reduced budgets and rising backlogs, the amount local authorities say they need to bring the roads up to scratch is £11.8 billion, in line with the previous two years' findings (£12.2 billion 2014/15; £12 billion 2013/14).

This suggests that, despite having less funding to maintain our roads, the amount needed to fix the network is remaining constant because local authorities are achieving 'more with less' as a result of improved efficiencies.

Incentive funding

For the first time, the 2016 ALARM survey asked local authorities about the move towards incentive funding based on self-assessment. This new performance-based strategy, introduced by DfT, is a complete step-change to funding "by right" and will impact capital budgets from the 2016/7 financial year. By 2018/19 it will represent a quarter of this funding available to local authority highways teams.

To drive efficiencies councils have to self-assess on asset management, resilience, customer satisfaction, benchmarking and efficiency, and operational delivery. Only five per cent of respondents placed themselves in the highest band 3 for 2016/7 so, with all councils needing to reach this band by 2018/19 to maintain current capital funding levels, a significant challenge lies ahead.

Key routes

Feedback also suggests that maintenance work is increasingly being prioritised on key routes. While this may seem like a pragmatic use of limited resources, it has led to a drop in the number of roads classed as being in good structural condition – those with 15 years or more of residual life.

Conversely there has been a marked improvement in the percentage of local authority roads reported as being in poor condition (defined as the road having less than five years of remaining life). This means that more of the network is reported as 'acceptable' – with between five and 15 years life remaining.

"The government's commitment to £6.1 billion of funding for local road maintenance between 2015 and 2021 is a step in the right direction as it has provided some security of funding, but in reality it is only just enough for local authorities to keep pace with repairs and clearing the maintenance backlog remains out of reach for the majority," said Alan Mackenzie.

"This is concerning for the future as, with much of the network coming to the end of its structural life, it suggests a move towards managed decline."

The full 2016 ALARM survey is available to download at www.asphaltuk.org

ALL PARTY PARLIAMENTARY GROUP

A SUSTAINABLE APPROACH TO RESOURCE USE



The benefits of embracing the principles of the circular economy were reviewed by the All Party Parliamentary Group (APPG) on Highways Maintenance at its first 2016 meeting.

The circular economy describes a more sustainable approach to resource use, in which materials are used as long as possible before being recovered and regenerated for further use (reduce, reuse, recycle, repeat).

Environmental specialist Tom Green of SLR Consulting outlined how designing out the inefficiencies in the way materials are used can reduce the environmental impacts associated with their production, as well as costs.

"Road materials that have reached the end of their initial service lives can still be a valuable resource that should be reused in the most practical and effective way possible," said Tom Green.

"In order to do this there needs to be a good understanding of where the resources lie, when they would be available and what their best future use might be."

Alan Mackenzie, AIA Chairman, observed that existing roads need to be

viewed as a resource: "Asphalt is 100 per cent recyclable. However, all too often it is more cost-effective to use primary aggregates for local road resurfacing. We need a more joined-up approach in which the regulatory regime better facilitates the treating and stockpiling of materials to enhance recycling rates"

The AIA, along with the Institute of Highways Engineers, supports the APPG to ensure key stakeholders are kept informed on the issues that impact the condition of the roads on which we rely.

Commenting on how adopting circular economy principles could impact on local roads, Christopher Chope MP, APPG Chairman, said: "The discussion raised some important points about sustainability. The better reuse of existing materials would limit the amount downgraded or discarded to landfill as well as cutting the energy use that is associated with producing primary materials."



THE ROAD INFRASTRUCTURE SUMMIT

■ AIA Chairman Alan Mackenzie challenged the road sector to pro-actively adopt the principles of the circular economy at the Road Infrastructure Summit in London, organised by Dods.

His presentation 'Reaching a smoother, smarter and sustainable road infrastructure' highlighted that while some larger schemes remove and reuse the road planings, storage and waste legislation hampers uptake of this approach.

"Storage of these reusable materials is a key issue and, even if available, environmental restrictions may mean road planings are classified as hazardous waste, placing further restrictions on storage and reuse," he said.

"When thinking about road

improvement projects, we should consider the existing carriageway as a linear quarry. Those involved in the design, planning and assessment of land requirements could support the increased reuse of materials by developing specific areas along the route as (temporary) asphalt recycling facilities."

Alan also set out another constraint to improving recycling: failure to specify products and systems suited to maximising reuse.

"As suppliers we need to get better at communicating, especially to those at local authority level, the benefits of using reduced temperature or 'warm mix' asphalts, so that recycled asphalt can be specified more frequently as a component of these technologies," he added.

The construction industry is facing increasing pressure from policymakers to become more resource efficient due to it being both the UK's largest industrial producer of waste and largest consumer of natural resources.

ACCORDING TO the UK Green Building Council, the sector uses more than 400 million tonnes of material every year and both the EU's Circular Economy Package and the London Circular Economy Route Map (a scheme led by the London Waste and Recycling Board) highlight that construction's support is critical to making the shift to a circular economy – a concept which aims to maximise the lifecycle of resources as much as possible.

Highways and infrastructure construction is no different when it comes to the demand for materials.

Investment

Thanks to initiatives such as Highways England's £15.7 billion Road Investment Strategy, significant improvements are planned for England's strategic roads over the next five years which will require the sector to supply huge amounts of finite resources.

This renewal programme also gives the highways sector a unique chance to lead the wider construction industry in the push to adopt a more sustainable approach to materials.

Recyclable

"Much of the inherent value of Britain's road network is in the billions of tonnes of asphalt that make up its highways," said Tim Metcalf, Aggregates and Asphalt Director at leading infrastructure services company FM Conway.



DRIVING RESOURCE EFFICIENCY



"Asphalt is 100 per cent recyclable... vast quantities of the material could be recovered for reuse."

Tim Metcalf, FM Conway

"Asphalt is 100 per cent recyclable and, with over 50 per cent of the strategic road network likely to be resurfaced by 2020-21,

vast quantities of the material could be recovered for reuse."

While it is not unusual to incorporate 50 per cent recycled content asphalt into the base and binder courses of roads, the recycled content of surface course mixes is traditionally limited to around 10 per cent.

This is mainly due to concerns that high recycled content asphalt cannot provide satisfactory skid resistance for strategic routes: doubts that are being addressed through a trial with Transport for London (TfL).

A1 Mill Hill trial

FM Conway is using an asphalt surface course containing 50 per cent recycled aggregate on the A1 in Mill Hill, which will be compared against primary aggregate asphalts on an ongoing basis to monitor its durability and skid resistance.

"We're confident the results will show that high recycled content mixes can provide both an environmentally sound and safe way of maintaining the nation's strategic roads," added Tim. "Change won't happen overnight, but we hope that trials such as this one will encourage others to reassess the role that recycled asphalt can play in road maintenance plans."

A CHANGE OF APPROACH

■ The key to ensuring high recycled content mixes meet specified safety requirements may be to re-examine the way asphalt is recovered from our highways.

Asphalt is often taken from existing roads up to a depth of 100mm in a single operation, meaning the recovered material contains both higher skid-resistant asphalt from the surface course and lower skid-resistant product from the base and binder courses.

But, says Tim Metcalf, recovering asphalt containing high Polished Stone Value (PSV) aggregates from selected sites and through selective planing, up to a depth of 35mm, makes it much easier to control the properties of the material.

"With similar recovery strategies in place, there is no reason why the benefits of high recycled content surface course mixes could not be extended across the road network," he said.

ENVIRONMENT BENEFITS AT NEW ASPHALT PLANT

The completed £9 million asphalt plant and (below) during the build process.

WAINWRIGHT HAS opened a new £9 million asphalt plant in Avonmouth, Bristol, to extend its supply capacity and reach across the South West.

Construction of the 3.5 acre site was completed last month (April) and the plant will have the capacity to produce 240 tonnes of asphalt per hour when fully commissioned.

The asphalt plant is one of the most advanced in the country and features a range of environmental and technological benefits.

These include the use of natural gas in the burner, reducing the amount of CO₂ produced, and an integrated recycling facility which allows the input of two different grades of reclaimed asphalt into the mix.

Sustainability features

The site also benefits from using solar PV panels, reducing grid electricity consumption by up to 30 per cent during peak production and up to 100 per cent in periods of low energy demand.

It features LED lighting to reduce power consumption and rainwater harvesting is used for site and equipment cleaning. In total it is estimated that the sustainability features at the plant will save more than 200,000 tonnes of CO₂ emissions each year. A timelapse of the build can be viewed at: <http://bit.ly/1OILxj1>

Peter Barkwill, Chief Executive at Wainwright, said: "The new facility is a bold move for our 125-year-old quarrying company and we believe now is the right time to invest and build on our reputation for quality, service and efficiency.

"The site is ideally located within one mile of the South West motorway network giving us access to a range of additional markets throughout the region.

"Our new plant is by far the largest single investment the company has made and we are particularly pleased with the sustainable aspects of its design, which dovetail with its location on the edge of Bristol – which, in 2015, was the first UK city to achieve European Green Capital status."



"...we are particularly pleased with the sustainable aspects of its design..."

Peter Barkwill,
Chief Executive, Wainwright



An aerial view of the site shows the scale of the plant and the solar PV panels.



The construction industry represents more than six per cent of the UK economy but lags behind other sectors when it comes to attracting talent.

BRITAIN NEEDS TALENT

A YOUNGOV SURVEY, on behalf of the recently launched Construction United group, found that only 11 per cent of the public think a career in construction would be exciting, with the perception being that there are limited options for those with academic qualifications.

With the roads sector alone needing an estimated 15,000 additional employees by 2020, before factoring in the impact of an ageing workforce, addressing the human resources gap is now a critical issue. Investment in recruitment is stepping up and skills development to aid staff retention is also becoming part of many companies' approach.

Tarmac's *Make Your Mark* programme aims to inspire those considering a construction career as well as those already working in the sector. Combining a new website, social media and a digital recruitment strategy, the initiative centres on current employees sharing their stories and demonstrating how their work helps meet the challenges of the 21st century.

Martin Riley, Tarmac's Senior Vice President, said: "With such a diverse range of roles on offer, each of which enables people to say genuinely 'I made my mark', this is a hugely exciting time to be in our industry."

Hanson UK aims to attract graduates via its two-year structured trainee manager programme. The scheme gives exposure to all aspects of the business, providing the broad skills and experience needed to become an effective manager. In addition, the company's *Leadership, Education and Development (LEAD)* higher management apprenticeship offers sixth formers a path that combines hands-on experience with study at Derby University.

Government target

The Department for Transport (DfT) has announced its aim to create 30,000 new transport apprenticeships within the next four years with the support of its employer-led *Strategic Transport Apprenticeship Taskforce (STAT)*. With representatives from Highways England, TfL and HS2, STAT will work to support the development and uptake of quality transport apprenticeships throughout the supply chain. Key aims include enhancing

Second year student of mineral product technology, Hanson LEAD apprentice, Reece Phillips, said: "I didn't want to take the traditional university route. This way I will gain formal qualifications while also learning to make site-related decisions."



diversity and dispelling the outdated stereotype that it's all about "men in hard hats and hi-vis".

At the STAT launch Transport Minister Lord Ahmad said: "Transport these days is about computers in laboratories as much as cranes in landfill sites. STAT will help inspire and enable people from all walks of life to choose transport and ensure we have the diverse and skilled workforce we need to deliver our ambitious agenda."

The government acknowledges that encouraging people to switch into the sector mid-career – as well as encouraging those who have left the transport sector to return – will need to form part of its approach if its target figures are to be reached.

Returning engineers

The Institution of Civil Engineers (ICE) is already encouraging those who have taken career breaks to return to engineering via its *Civils Comeback* programme, which helps prospective returnees to rebuild confidence and learn new skills.

Its new tie-up with a number of engineering companies also offers 'returnships' which recognise that returnees need guidance to get back up to speed. These involve 12-week paid internships and one to one mentoring for the successful candidates.

Seán Harris, ICE Director of Membership said: "It's no surprise that we need more engineers and industry can't rely on new graduates and apprentices to fill the gap. We also need qualified engineers who have left the industry – as well as those who have the skills, experience and qualifications – to pick up where they left off."

Driving professionalism and improving competence is behind Total's tie-up with French engineering school, École des Ponts ParisTech and online training platform developer Coursera. The free, Massive Open Online Courses (MOOC) in English will focus on the scientific, technical and economic fundamentals of bitumen and its applications. The modular sessions, which take up to four hours a week over a four week period, are the equivalent to four days training and combine videos and online tests to monitor progress.

The first MOOC course, *Mastering bitumen for better roads and innovative applications* is now available and can be accessed by anyone who wants to understand more about bitumen.

"The construction industry shed thousands of jobs during the downturn," said Nigel Jackson, Chief Executive of the Mineral Products Association. "Now, during the upturn, we must reverse this in order to meet demand."

"We are working together to retain our highly skilled personnel and attract the workforce of the future by highlighting the range of career opportunities that exist within an industry that affects all our lives every day."

Asphalt Now is published by 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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