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ASPHALT INDUSTRY ALLIANCE

Reporting on the asphalt industry

Issue 38 | Summer 2017

BRIDGING THE SKILLS GAP

Attracting future talent

ALARM SURVEY

Local roads reach tipping point

INNOVATION

Resurfacing the steepest roads

LITTLE CHANGE PREDICTED

With another general election coming in June, this time of year feels more like Groundhog Day.

Whatever the outcome of the snap election, I am not sure that much will change, at least in the short term, particularly when it comes to improving the condition of our local roads.

Our 22nd Annual Local Authority Road Maintenance (ALARM) survey, launched on March 28, highlights once again the impact of decades of underfunding on the local road network. ALARM 2017 reports that many roads are approaching the end of their structural life – and limited resources mean that local authorities are increasingly having to make tough decisions when it comes to prioritising maintenance work (see pages 4 and 5).

Roads are the lifeblood of our local economies and communities and are an asset worth in excess of £400 billion. It's disappointing that less than 1% of their value is spent annually on maintaining them, especially as the strategic road network receives more than six times the level of maintenance funding per mile than local roads.

No doubt politicians of all parties will be reminded how much voters care about local roads as they canvass for votes. In fact, a recent Comres poll for the Tax Payer's Alliance found that the public ranked repairing local roads at the top of a list of investment priorities – above broadband connectivity, repairing motorways and better rail links. The AIA has long been calling for a level of funding which ensures our local roads can be maintained properly and we will continue to advocate this with the incoming government.

Maintaining and developing a skilled workforce for the years ahead is a growing challenge facing the highways sector and we take a look at the innovative approaches being implemented by industry on pages 6-8.

Ensuring excellence is showcased across the sector will also continue to be a priority for the AIA and our Sharing Best Practice event for local authority highways engineers will take place on September 27. More details on page 11.

Alan Mackenzie
Chairman, Asphalt Industry Alliance

NEW GUIDE WILL HELP LOCAL AUTHORITIES ASSESS RISK

■ **A new guide** – Well Managed Highway Liability Risk – has been published by the Institute of Highway Engineers (IHE) to help local authorities implement the risk-based assessment approach required by the new code of practice for highways maintenance.

The code, Well Managed Highway Infrastructure, commissioned by the Department for Transport and published in late 2016 by the UK Road Liaison Group, was designed to

promote an integrated asset management approach to highway infrastructure. IHE's supporting guide provides further insight and practical advice on the risk and evidence-based approach to strengthen the links between risk, resilience and levels of service.

The document also covers the basics of dealing with highway claims for new managers as well as being a source of tactical, operational and reference guidance for the more experienced.

"We were asked by the UK Roads Liaison Group to look at how a local authority manages the liability associated with the new risk-based approach set out in its Well Managed Highway Infrastructure document," said IHE Chief Executive Richard Hayes, pictured above.

"The resulting guide will help local authorities create a robust, transparent approach which considers wider levels of outcome. The aim is to clearly set out to council members: this is the asset; this is what it costs to maintain; these are the risks; and these are the likely consequences if we don't maintain it.

"Local authorities considering reductions in road maintenance budgets need also to consider the additional costs other services may have to bear if road maintenance service standards drop. For example, revision to the acceptable levels of a tripping hazard or pothole depth could lead to more injuries occurring, which, although they may save on highway costs for the local authority, could see an increase in health and social care costs.

"Our guidance will help highways teams present a case for looking at costs as a whole, so spending a pound on a repair might actually save thousands of pounds in terms of the overall risk and liability process."

To download the Well Managed Highway Liability Risk guide visit: **http://bit.ly/2qudnwO**

ASPHALT ADVANTAGES TOOLKIT

■ **Updated materials** setting out the advantages of asphalt are now available to view and download at **www.asphaltadvantages.com**

The Asphalt Advantages website has recently added details on a further 12 benefits associated with the use of asphalt – each backed up by statistical information that supports the long-term, positive impacts the material provides.

The website, supported by Eurobitume and EAPA (European Asphalt Pavement Association), acts as a hub for information on the benefits of building and maintaining roads with asphalt set out under four headings: sustainability, safety, economics and comfort.

"We want to stimulate conversations with specifiers and road-users about the advantages of using asphalt and the website is an engaging way for industry stakeholders and advocates to do this," said Siobhan McKelvey, President of Eurobitume.

Road-related statistics and information on funding is available through RoadFile, an AIA-supported website containing data highlighting the role the road network plays in underpinning the economy and society. It can be accessed at www.roadusers.org.uk

A report for the RAC Foundation warns that self-driving and connected cars will require improved highway maintenance and communications networks.

Readiness of the road network for connected and autonomous vehicles, carried out by consultancy CAS, suggests that there could also be a need for a more highly-qualified and highly-paid workforce to ensure road surfaces are kept in better condition and to look after the network of telecoms equipment that connected cars will rely on.

The report – which can be viewed at **http://bit.ly/2pTwxMQ** – says that much will depend on the ability of autonomous vehicles to read the road and make allowances for potholes, poor road markings and complex signals and signs.

In practice

Oxford City Council has a project trial with the University of Oxford's Robotics Institute to help with the development of autonomous vehicles and as a way of transforming how the council manages its services.

The new street mapping project involves attaching sensors to a city centre street cleaner to create 3D maps while also enabling the collection of data such as road and pavement surface damage, air quality and broken streetlights and signs. The information will enable more effective planning while creating records of unreported road-related issues for the council to act on. If the project is successful, the council could add the mapping tool to its fleet of street cleaners and refuse collection vehicles.

SOUTHERN ASPHALT BUSINESSES ACQUIRED

FM Conway has acquired two asphalt businesses in the south of England to help enhance its supply capacity for projects on both the strategic and local road networks.

Berkshire Macadam Ltd, which operates asphalt plants at Reading, Berkshire, and Aldershot, Hampshire, and United Asphalt, which has a rail-fed asphalt plant at Theale, Berkshire, a second plant at Croydon in south London and a recycling depot at Coltrop, Berkshire, will be integrated into the business.

Michael Conway, CEO of FM Conway, said: "These acquisitions strengthen our production capability to provide customers with greater network coverage and will build on the success of our Erith and Heathrow facilities which have already set a benchmark for asphalt recycling and resource efficiency."

WOLFSON FINALISTS ANNOUNCED

The five finalists for the 2017 Wolfson Economics Prize , which this year focuses on highways, have been unveiled.

The competition received more than 120 entries, each aiming to 'make roads better, safer and more reliable in a way that is fair to road users and good for the economy and the environment'. Shortlisted projects include road charging and mileage allowance schemes, with one suggesting that corporate sponsorship of roads would help them remain pothole free. Details can be found at **http://bit.ly/2rvr9xW**

Founder Lord Wolfson said: "The crisis facing Britain's roads may not be at the forefront of policymakers' minds, but it should be. Road congestion is a source of daily misery for millions of commuters, families and businesses: undermining our quality of life, environment and economy. The problems with our roads and how we pay for them, affect us all.

"This year's Prize seeks that fresh thinking needed to tackle one of the great infrastructure challenges of modern times – to deliver a better way to pay for better roads."

The winning scheme will be announced in July.

DORSET PARTNERSHIP RENEWAL

Dorset Highways has renewed its strategic partnership with Hanson for maintenance of the county's road network. The agreement has a potential duration of 10 years and a total value of more than £100 million.

The county council's highway service has been working with Hanson since 2002, laying over one million tonnes of asphalt and delivering high profile projects including the Olympic transport package in Weymouth, Swanage recycling centre and, most recently, the A338 Bournemouth spur road upgrade.

Andrew Martin, Dorset's service director for highways and emergency planning, said: "We are delighted to be able to extend our partnership arrangements with Hanson into a third generation contract."

STRAIGHT TALK FROM THE ALARM SURVEY

Within the next five years one in six local roads will need to be repaired, or may even have to close, reports this year's Annual Local Authority Road Maintenance (ALARM) survey.

THE CUMULATIVE effect of an ageing network, decades of underfunding, increased traffic and wetter winters has led to around 17 per cent of all local roads in England and Wales reported as being in poor structural condition, with less than five years of life remaining.

The 2017 ALARM survey, produced by the Asphalt Industry Alliance (AIA) and published in March, is now in its 22nd year. It 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 government acknowledges that well-maintained roads are vital to support the economy and deliver growth but, when it comes to the local road network, the picture is one of underfunding and on-going decline," says Alan Mackenzie, Chairman of the AIA.

"Deterioration continues at a faster pace than cash-strapped local authorities can ever hope to deal with and, if this downward spiral continues, we will end up with a network that is just not fit for purpose."

Maintenance backlogs

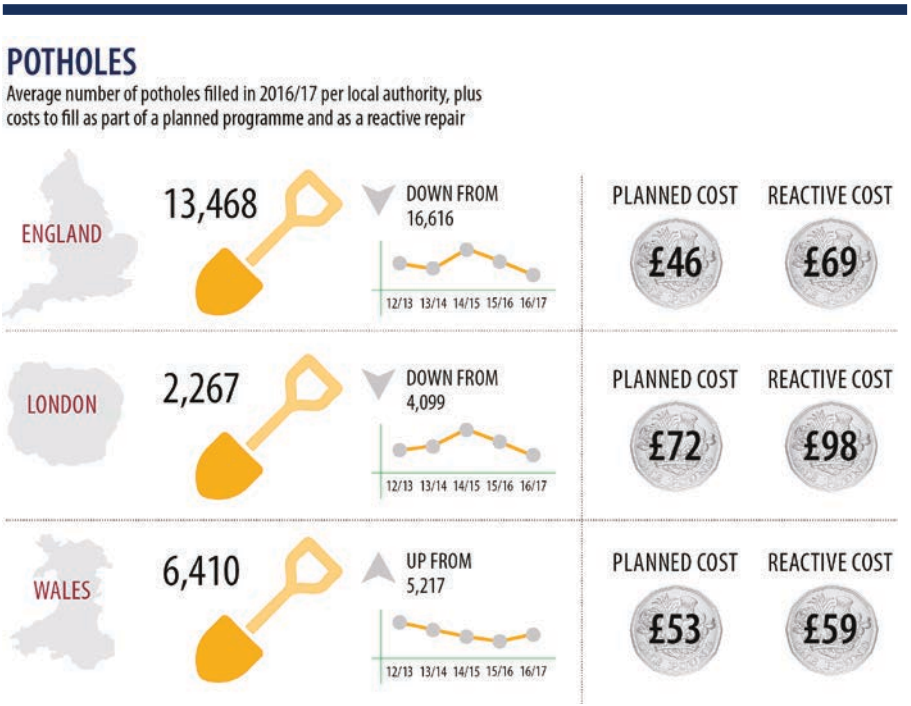
For many years the headline from the AIA's ALARM survey has been one of increasing maintenance backlogs and a widening funding gap. Once again, this year's report shows that over £12 billion would be needed to bring the network up to scratch. And the time that would be needed to implement this one-time catch up, given adequate funding and resources, remains well over a decade.

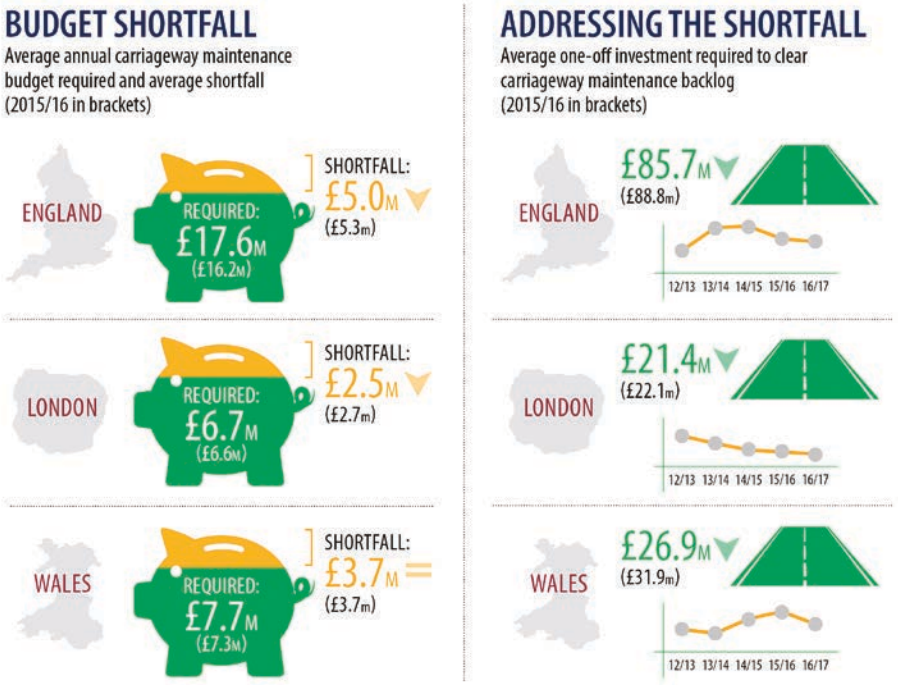
The ALARM survey states the findings of those working at the sharp end of the sector, with the figures and feedback reported coming directly from those responsible for maintaining local roads. The report highlights that the local roads maintenance budget continues to represent a tiny fraction of the value of the asset, which is put at more than £400 billion by the Department for Transport (DfT).

> "Deterioration continues at a faster pace than cash-strapped local authorities can ever hope to deal with..."
>
> **Alan Mackenzie**

In England and Wales, the reported average local authority budget for carriageway maintenance is now just under £10 million, but the total gap that exists between the amount local authority highway teams received in 2016/17 and the amount they say they need to keep the carriageway in reasonable order is £730 million.

"Almost all journeys begin and end on a local





road," said Alan Mackenzie. "We rely on them every day of our lives so it's not surprising that the public believes improving the condition of our roads is a national priority.

"Unfortunately central government doesn't seem to agree. Behind the smokescreen of big numbers aggregated over several years to make them sound impressive, lies decades of underfunding which has led to cash-strapped highway teams having to prioritise maintenance activity, with a disastrous effect on overall road condition.

"In the face of this shocking under-funding from central government, the efficiencies achieved by highway teams through asset management should be applauded. Working smarter, great collaboration and improved communication are all contributing to their ability to do more with less – though there will, of course, come a point when there are no further efficiency savings to be found."

Potholes

Almost half of local authorities have also been hit with unforeseen costs, primarily as a result of structural failures caused by adverse weather and increased traffic, which have put additional pressure on resources.

Although the ALARM survey reports that the number of potholes filled in England and Wales over the last year has dropped for the second successive year, it is still very high at 1.7 million – one every 19 seconds. It is well appreciated that water penetrates existing cracks or crevices, leading to the formation of potholes but can also, in time, undermine the entire structure of the road.

Alan Mackenzie added: "Potholes are a symptom of poorly maintained roads and can have a serious effect on road users but spending money fixing them in isolation, although essential, is wasteful. The most efficient way to deal with our crumbling roads is to fix them properly and stop potholes forming in the first place. ALARM 2017 underscores the fact that we are approaching a watershed moment for local roads. Long term underfunding coupled with changes in governance, regionalisation, competition for local authority resources, technology, increased volume and weight of traffic, as well as the impact of more intense rainfall as the result of climate change, all mean the resilience of the network is coming to a tipping point.

"The message couldn't be clearer: it's time we had an open debate about how to adequately fund our roads because we are rapidly moving towards a network that is not fit for our future."

The full 2017 ALARM survey is available to download at **www.asphaltuk.org**

HIGHWAYS GROUP DISCUSSES THE ROAD AHEAD

An effective All Party Parliamentary Group (APPG) is described as one that "provides its membership with information of public interest and encourages constructive debate". This was certainly the case of the Highways APPG's latest meeting at the Houses of Parliament.

It included four short presentations, all of which stimulated wide ranging discussions among the attending group of MPs, Lords and industry representatives. Alan Mackenzie, Chairman of the Asphalt Industry Alliance, outlined the key findings of the ALARM survey 2017 and Richard Hayes, Chief Executive of the Institute of Highway Engineers, set out the principles behind the new report Well Managed Highway Liability Risk (see page 2).

In addition, Malcolm Simms, Asphalt Director at the Minerals Products Association, highlighted some of the potential regulatory and technical challenges facing the highways sector in the run up to, and post-, Brexit. Finally, Charlie Elphicke, MP for Dover and Deal, spoke about FairFuelUK group's report, commissioned from Centre for Economics and Business Research (CEBR), on the economic effects of road investment.

In line with Parliamentary procedure, APPGs are suspended until after the general election when the Highways APPG will be re-formed.

PLANNING FOR THE FUTURE: RESPONSE TO THE SKILLS SHORTAGE

Fiona Bradshaw, who is in her first year of Hanson's LEAD programme, is enjoying the combination of site experience and self-development and values the support received from her mentor and others across the business. She said: "It's great to know that on finishing LEAD, not only will I have a Foundation degree and no debt, but I will also have three years work under my belt – plus the option to secure a BSc in Minerals Management, also funded by Hanson."

There has been much talk of the need to bridge the skills gap in the construction industry, but what is the roads sector doing to ensure it is attracting the talent it needs to cope with predicted future workloads?

INVESTMENT IN UK road infrastructure is anticipated to be strong (at least for Highways England) so attracting new and more diverse recruits into the sector – as well as nurturing and retaining existing talent – are key priorities.

"These are exciting times," says **Paul Fleetham**, Managing Director of Tarmac Contracting, "and we must convey that sense of excitement and opportunity to ensure that current and future colleagues feel enthused and motivated about the careers and development that this industry offers."

Joanne Garwood, Central Services Director at FM Conway, agrees: "The man or woman in the street still thinks of highways as a predominantly low-paid, manual industry. We know it's an exciting and dynamic career but the sector isn't selling itself as well as it could be.

"We need greater engagement with school children – primary and secondary – their parents, teachers and wider influencers to communicate the breadth of opportunities on offer and get young people excited about the potential to shape UK infrastructure."

School visits, careers fairs, community involvement and targeted social media campaigns are some of the initiatives the industry is involved in to challenge and change perceptions about the sector.

Aggregate Industries, for example, has forged partnerships with schools across the country to provide students with a hands-on understanding of the modern construction world through a combination of classroom visits, presentations and even trips to key sites within the business.

David Butterfield, Head of Learning & Development at Aggregate Industries, said: "We have a real job to do in reaching out to the younger generations to showcase the opportunities available and actively promote our sector as an attractive employment option."

Peter Barkwill, Chief Executive, John Wainwright & Company Ltd, added: "The industry is competing for talent from a pool of young people who may regard other sectors as somewhat more exciting. So the challenge is to demonstrate the great prospects that exist in our businesses.

"A company like ours has a huge range of career paths available, from hands-on roles in our quarry or asphalt production facilities to office-based roles in finance, communications, HR and sales. So whatever a person's skills and interests, the chances are we have an opportunity that will suit."

Government support

The government is committed to supporting quality apprenticeships, which are a key platform for attracting new talent and helping develop a diverse and highly-skilled workforce. From 6 April 2017, all employers with a payroll bill over £3 million each year must pay the apprenticeship levy (0.5% of annual pay bill), with funds raised used

for apprenticeship training and assessment. Those that don't qualify for the levy (i.e. those with an annual payroll bill under the £3 million threshold) will pay 10% towards these costs, with the government paying the rest.

Many apprenticeship schemes have long been available in the sector. They all offer school leavers the first steps towards a rewarding and varied career, as well as the opportunity to gain transferable skills and industry qualifications.

Hanson UK, for example, operates its Leadership, Education and Development (LEAD) apprenticeship scheme; a three-year programme which combines practical hands-on experience with a distance-learning Foundation degree in Minerals Extractive Technology from the University of Derby.

"Our LEAD programme, launched in 2012, has proved to be an ideal launch pad for a successful career,"

says **Karen Wright**, Hanson's Learning and Development Manager. "We now have former LEAD programme participants employed across the business in a diverse range of roles from cement process engineer to assistant quarry manager. Earning while you learn is a fast-track way of gaining experience and qualifications without accumulating the debt now associated with traditional university courses. Plus, on completion, you have a ready-made career on which you are already a few rungs up the ladder."

Graduate training

Graduate training schemes are another platform utilised by the sector. For example the Aggregate Industries scheme is centred on the ethos of 'learning by doing' to offer graduates a development path tailored specifically to their individual interests and needs.

"We also need to open our minds and our industry to a more diverse talent pool," added Joanne Garwood. "It's easy for prospective employers to overlook disadvantaged groups due to a perceived lack of skills or experience, but doing so means we miss out on a significant talent pool that we should be tapping into.

"We've overhauled the way we recruit and train our teams to make it easier for more diverse groups to apply. Our work with the Worshipful Company of Paviors at the London Construction Academy is helping young people, often those who've never worked, to develop skills and build the confidence they need to kick-start a construction career. The success of the programme means that we now employ 26 of the Academy's graduates.

"Similarly, we've worked on our apprenticeship programme and the roles we offer are deliberately as broad as possible, with positions for a variety of entry skill sets. We value each applicant on his or her own merits, removing barriers to entry where we can. One of our graduate lighting apprentices is a fantastic example of this approach in action. Profoundly deaf, he unsuccessfully applied for 300 jobs before we recognised his talents and employed him – needless to say he has quickly become an integral part of our team and is now helping to inspire others to pursue a career in construction."

It is also vital that the sector invests in its current employees to allow them to be deployed on a wider range of projects and progress their careers through initiatives like the Wainwright Academy, which has been designed to develop the skills of the company's managers. This investment in people naturally supports retention and advocacy. Another example is the Institute of Asphalt Technology's (IAT) involvement with Preston College: it

continued over the page...

> "...the challenge is to demonstrate the great prospects that exist in our businesses."
>
> **Peter Barkwill, Chief Executive, John Wainwright**

FM Conway apprentices receiving on-site training

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has developed a Level 3 NVQ Diploma in Laboratory and Associated Technical, with input from its members.

The first cohort of 10 industry employees – from companies such as Total, Aggregate Industries, Nynas and Tarmac – are being fully funded by the IAT and will take part in lectures, demonstrations and laboratory testing.

They will be assessed in the workplace and during a week-long training course in order to gain the qualification, which will allow them to carry out on-site asphalt testing. The qualification meets the requirements to obtain a Construction Skills Certification Scheme (CSCS) gold card at supervisory level.

Last year Tarmac launched a careers campaign called Make Your Mark, which features real employees talking about their role in shaping the infrastructure of the future, rather than simply the details of their job. "It's a campaign to set out the great opportunities that exist in our business for new recruits as well as the support we provide existing colleagues to encourage continuous professional development and drive career progression," said Paul Fleetham.

"Hearing my colleagues talk about their experiences in this way provides a truer reflection of their roles and plays to the heart as well as the head. And this is significant if our industry is to become a more aspirational career choice."

Cara Greaves, Higher Apprentice Trainee Manager based at Aggregate Industries' asphalt plant in Tinsley, Sheffield.

TWIN POLICY **WORKING IN CORNWALL**

The shortage of skills within the contracting sector has become acute, particularly where work is seasonal. It has led some companies, such as Cormac (owned by Cornwall County Council), to change its culture to be more outward looking and accepting of innovation.

Ian Bounsell, Head of Surfacing at Cormac, explains: "There was an appreciation that altering the corporate demographic was not only necessary, as skilled operatives were reaching retirement age, but could be beneficial in terms of younger people's more ready acceptance of innovation, new treatments and the need to achieve cost benefits. But where to get these new, younger people?

"We had to think out of the box. Attempts to recruit skilled staff outside of Cornwall were not successful, a function of sector shortages nationwide, so we gave thought to a different, two pronged approach. We had the work to guarantee our organisational structure so we could look to the longer term.

"We decided to take on 10 apprentices, youngsters with at least three GCSEs at Grade C, on a three-year programme. We knew that we could lose up to half of these as surfacing work is hard – you either like it or you don't – and we have to cope with working at night for 20 weeks in the summer to accommodate daytime tourist traffic.

"So we hedged our bets by introducing a non-academic route into Cormac as well, employing a Job Centre scheme where we take on job seekers for 12 weeks. This allows them to experience a surfacing operative's life and us to gauge their suitability for employment.

"Both prongs of this recruitment policy are working well and we have made some excellent appointments."

SURFACE COURSE EVOLUTION IN THE UK

Over the last four decades the profile of the material used in surface course applications has changed dramatically. Rewind 40 years to the 1970s and most major roads in the UK were surfaced using hot rolled asphalt (HRA), while many now use thin surface courses which take advantage of the use of polymer modified binders (PMB) to improve durability.

THE SUMMER of 1976, the hottest on record, highlighted deformation issues with HRA – particularly caused by slow-moving heavy goods vehicles (HGVs) – leading to a redesign to improve stability. But when the European Union moved to ‘super single tyred’ axles for HGVs (which focus weight over a much smaller footprint) in the early 1990s, issues returned.

Further development into HRA followed the introduction of Clause 943 to The Specification for Highway Works (SHW), which checked wheel tracking performance. This started an intense period of innovation with PMB, which was used to increase the HRA’s resistance to deformation at higher temperatures to comply with the specifications and improve durability.

Thin surfacing

At this time in Europe PMB was being used in different types of surface course asphalt to provide durability: stone mastic asphalt (SMA) in Germany and ULM thin surfacing in France. These products particularly displayed resistance to deformation, which UK engineers studied with interest.

The first UK roads were surfaced with French ULM thin surfacing around 1993 using EVA type PMB. Quality control was very strict due to the thin application (25-30mm), compared with traditional HRA at 45-50mm, and other thin surface courses began to be developed by all the major manufacturers.

A couple of years later SMA-variants started to be used in the UK at a similar thickness, based on Clause 942 (thin surface course systems) of SHW requiring BBA/HAPAS certification and with texture depth limits set around the previous tolerances applied to HRA (typically a minimum 1.5mm texture depth).

But this may have proved detrimental to durability in the long run as HRA and thin surface course are very different materials when specified primarily by the same texture.

In the following 10 years various thin surfacing and SMAs were introduced in the UK. These were popular as they were less expensive than HRA and easier to install, as they required a reduced workforce, less equipment and could be carried out under contraflow conditions instead of requiring lane closures. In addition, the materials reduced noise and spray from vehicles which was also popular with specifiers.

There was no formal Standard for SMA until the introduction of EN 13108-5 in 2006, but reports of certain failure modes in early generation SMA and thin surfaces led to evaluation of a range of mixes by the Transport Research Laboratory, which concluded that texture of some types of UK clause 942 materials may be too high (particularly for evolved local authority roads).

A subsequent review of the SHW specification has resulted in typical textures of 0.8-1.2mm becoming more widely adopted, depending on road type and the nominal size of the aggregate used. The resultant fuller grading curve and increased binder contents is expected to increase durability over the earlier materials used.

At the same time TS2010 SMA was introduced by Transport Scotland, which specifies no texture requirement, only skid resistance compliance. The material features fibres and a highly modified PMB with a soft base penetration binder (75/130) to give flexibility but a high softening point (>75°C) to resist deformation. The material is thus far proving to be very durable.

Since 2013 regional variations on the Scottish style SMA have been starting to appear throughout England with several local authorities, including Transport for London, adopting and developing their own SMA specifications with similar PMB to the TS2010 product.

In recent years a group of industry experts, led by Highways England, was formed to update clause 942 in SHW for the SRN by focusing on reducing voids content and increasing minimum binder contents to enhance durability.

Blue sky innovation

Gary Schofield, Technical Manager at Total UK, who sits on the research steering group, said: “In addition, collaborative research projects involving Highways England, the Mineral Products Association and Eurobitume UK, have been investigating the potential next generation of thin surfacing designs which will seek to further enhance durability and maintain low noise characteristics.

“A blue sky innovation day resulted in the progression of two ideas, both building on the concept of a dense lower part of the layer and a slightly textured surface and trials are commencing on the strategic road network to validate performance. This sort of industrial scale evaluation over many years is essential as there are currently no genuinely robust laboratory methods to characterise durability in comparison to real world application.

“Client/supply chain collaboration is improving the transparency around material design. As materials improve, along with the methods of installation, our deterioration modelling will also improve, assisting the asset management systems we now see as so crucial to highways funding. Predictable surfacing performance will allow more accurate long term budgeting which is what is really required for all the nation’s highways network.”

HI-TECH MAKEOVER FOR TEST TRACK

The latest asphalt technology and equipment have been used to resurface a banked track in Warwickshire for independent vehicle testing experts HORIBA MIRA.

THE TRACK IS USED for conducting vehicle durability, emissions, braking and NVH (noise, vibration and harshness) testing, so quality and durability of the surface are vital.

The existing track suffered from persistent cracking due to severe loading from the test vehicles, which reach speeds of up to 168 mph, and the paving team had to contend with a 34 degree gradient on the parabolic banked curve.

The original circuit was jointed concrete overlaid with asphalt, but movement in the concrete over time had additionally created reflective cracking in the asphalt surface. The project included resurfacing the high speed straight and one of the banked curves as well as reconstruction of the access track to the top of the banked area.

Tarmac took a tailored approach to the different sections of the circuit. For the banked curve, a geogrid was used to reinforce the concrete joints, overlaid with 14mm Ultilayer binder course and a 40mm thickness of 50/10 HRA surface course (with a polymer modified binder).

The company's contracting team used specialist paving techniques, previously tried and tested on some of the UK's top velodromes, on the steep, banked section. This included an asphalt paver with a tilted engine and driving position, a parabolic screed and also remotely controlled parabolic drum rollers, paired with support rollers. To compensate for the slower processes dictated by the track gradient, Tarmac's Ultilife binder technology was used to maintain workability and achieve the required compaction and finish.

On the sections of the track where reflective cracking had been a problem, a 25mm thick Ultilayer SAMI (stress-absorbing membrane interlayer) was used along with a 40mm thick polymer modified 50/10 HRA surface course. This offered a proven, long term solution to cracking and enabled the planing depth to be reduced from 100mm to 70mm, saving the client time and cost and reducing the volume of site waste.

In total, 2,700 tonnes of asphalt was laid over the seven week construction period. Tarmac worked closely with the client to agree the most cost-effective and practical solution to the banked track repair and to programme the works in order to minimise site closure and operational impact. Through careful planning, vehicle testing was able to proceed on the remainder of the MIRA circuit during the programme of works, which was achieved ahead of the target completion date.

The finished track, which was completed ahead of the target date.

COVER STORY:

RESURFACING JOB PROVES A BIT STEEP

ONE OF THE STEEPEST roads in the country has been successfully resurfaced.

The A39 at Porlock Hill in West Somerset, on the edge of Exmoor National Park, has a gradient of 25 per cent and is managed by Somerset County Council.

"There's routine road maintenance and then there's routine maintenance on a hill with a 1 in 4 gradient," said Councillor David Fothergill, Somerset County Council's cabinet member for highways. "Clearly, this was no ordinary resurfacing job, and required specialist equipment as well as harnessing the expertise of our team."

The specialist equipment included an integrated paver and an all-terrain forklift truck that came from Germany. Due to the steepness of the hill, safety barriers were erected to protect the workforce and nearby properties.

"Porlock Hill was certainly a challenging job for our team," said Lee Seviour, general manager, surfacing for John Wainwright, who carried out the work. "It involved two weeks of concerted effort, including one week of 24/7 closure to the road. The fact we finished on time and on budget is testament to a lot of hard work, careful organisation and forward planning."

The asphalt was supplied from Wainwright's Avonmouth plant and included a 14mm Elastermat PSV 68 heavy duty dense surface course, using a rubberised binder that helped overcome the challenges of resurfacing the steep gradient.

Specialist equipment was used to complete the resurfacing of Porlock Hill in West Somerset.

DEVON CAR PARK SURFACE IS MADE TO MEASURE

A BESPOKE ASPHALT developed specifically for car parks has been used to create a new facility for Torbay and South Devon NHS Foundation Trust.

The Trust identified that quicker, easier and safer car parking was vital to maintaining a high level of efficiency for the local population of 300,000 as well as the 6,000 staff and 800 volunteer employees. It therefore decided to improve the parking facilities with construction of a new 200-space, 2,000ft^2 car park.

A common issue with car parks can be from static loading – where the weight of the vehicle can cause asphalt deformation over a period of time – which may be aggravated by rain puddles forming in the indentations, eventually leading to premature surface failure.

To overcome this issue contractor JTT Contracting built the new hospital car park using 140 tonnes of SuperParking, which has been designed and engineered by Aggregate Industries to provide a tough, hard wearing, low maintenance asphalt surface.

The new car park uses a bespoke asphalt which provides a tough, low maintenance surface.

☐ This year's **Sharing Best Practice** event, organised by the Asphalt Industry Alliance, is being held on Wednesday September 27 at the National Motorcycle Museum, Birmingham.

This free event for local authority highway engineers includes presentations and discussion about a range of topics and offers the opportunity to share challenges and successes within the industry.

To reserve a place call 020 7222 0136 or email: info@asphaltuk.org

Thurrock Council has introduced an innovative way of using technology to map its local roads and maintain them for users.

COLLECTING MORE THAN RUBBISH

Refuse vehicles have been enlisted to monitor the state of Thurrock's roads.

THURROCK RECEIVED FUNDS from the Department for Transport to trial the use of high definition cameras, attached to its refuse collection vehicles, to take photographs of roads and footpaths in the borough.

Thurrock was chosen to carry out the trial as the Government recognises that it is willing to test innovative new techniques in order to improve the efficiency of its local services. It is the first project of its kind in the country, using cutting edge technology to identify potholes and other road defects that will then be treated and lead to better road condition at less cost.

'Pothole-spotter' is an integrated navigation and intelligent software system which will build up an image library of the council's 576km of roads and help the highways team identify problems before they become potholes. Over time this will allow it to predict how and when potholes are created and will reduce the negative impact on road users while ensuring that council resources are used as effectively as possible.

Refuse collection vehicles are ideal for this type of project. They regularly traverse the local highway network, following the same route each time, making them perfect to monitor the condition of roads, footpaths and street furniture at no extra cost.

By frequently collecting images of the road surface, existing problems can be identified and fixed, a picture can be built up of the factors which lead to a pothole forming, and work can even be carried out to prevent their formation in the first place. This has the potential to reduce the cost and impact of potholes on the local road network and the vehicles that use it.

In addition, the data collected may also provide information on the condition of other road and footway surface aspects such as drain covers, painted lines, flooding locations and, importantly, the quality and deterioration rates of work carried out by utility companies.

To date the council has carried out four months of data capture and is in the process of interpreting the results before sharing them with colleagues in other local authorities this summer.

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 macadams 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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DIARY DATES

Some 2017 dates for your diary:

12-16 June	World Conference on Pavement and Asset Management (WCPAM) 2017, Milan, Italy www.wcpam2017.com
13 June	National Infrastructure Forum: 'Creating an Integrated and Efficient Transport System', ExCel, London www.infrastructure.co.uk
14-15 June	51st IAT National Conference: 'Driving Forward', The Johnstown Estate Hotel and Spa, Enfield, Co. Meath, Ireland www.iatconference.co.uk
28-29 June	New Civil Engineer (NCE) UK Transport 2017: 'Setting the vision for a smarter infrastructure network', Inmarsat, London http://bit.ly/2rgoP0X
3-8 Sept	44th Annual Residential Course in Asphalt Materials and Pavements, Newcastle http://bit.ly/1NGIZHm
7 Sept	Public Policy Exchange: Tackling Potholes and Improving Road Maintenance: Developing a Sustainable Strategy to Address Potholes on UK Roads, Central London http://bit.ly/2qnKUsG
19 Sept	Highways Management 2017: 'Smarter roads for the future', in partnership with Surveyor and Traffex, The Ricoh Arena, Coventry www.highway.surveyorevents.com
27 Sept	**AIA Sharing Best Practice event 2017, National Motorcycle Museum, Birmingham www.asphaltuk.org**
8-9 Nov	Highways UK: 'Roads for a Modern Britain', NEC, Birmingham www.highways-uk.com