

Transport Committee

Oral evidence: [Local roads funding and governance](#),
HC 1486

Monday 3 December 2018

Ordered by the House of Commons to be published on 3 December 2018.

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Members present: Lilian Greenwood (Chair); Jack Brereton; Ruth Cadbury; Huw Merriman; Grahame Morris; Daniel Zeichner.

Questions 77 - 210

Witnesses

I: Paula Claytonsmith, Managing Director, Gaist; Paul Fleetham, Managing Director Contracting, Tarmac; Richard Hayes, Chief Executive, Institute of Highway Engineers; Howard Robinson, Chief Executive, Road Surface Treatments Association; and Alex Wright, Group Manager, Transport Research Laboratory, and Member, Road Condition Management Group.

Written evidence from witnesses:

- [Tarmac](#)
- [Institute of Highway Engineers](#)
- [Road Surface Treatments Association](#)
- [Road Condition Management Group](#)

Examination of witnesses

Witnesses: Paula Claytonsmith, Paul Fleetham, Richard Hayes, Howard Robinson and Alex Wright.

Q77 **Chair:** Welcome and thank you very much for coming along today. Can you introduce yourselves for the record, please?

Paul Fleetham: I am Paul Fleetham. I am the managing director of Tarmac, the UK's largest roadbuilding and road maintenance organisation.

Alex Wright: I am Alex Wright. I am the chief technologist at the Transport Research Laboratory. I am representing the Road Condition Management Group.

Paula Claytonsmith: My name is Paula Claytonsmith. I am the managing director of Gaist, an SME around technology and highways data.

Richard Hayes: I am Richard Hayes, chief executive at the Institute of Highway Engineers, which represents 3,500 professional members across the UK.

Howard Robinson: I am Howard Robinson, chief executive of RSTA. We represent about 88 companies involved with road maintenance.

Q78 **Chair:** I want to start by asking a few questions around roads inspection and data collection methods, so these are primarily for Paula and Alex. We are particularly pleased to see you, Paula, because you are holding up the end of women in highways engineering. You seem to be in a minority, for sure.

I want to ask about the SCANNER survey technology, which I understand has been in place for some time to collect national data for the DFT road condition reports. From the evidence we have received, it seems the approach is not perfect and there is sometimes a bit of a mismatch between actual road conditions and what is revealed in the report. I do not know which of you is best placed to answer first, but can you explain how the SCANNER technology works and whether you think it is fit for purpose?

Paula Claytonsmith: We do not use SCANNER technology. We have a range of five high-definition cameras that capture an image every metre of the road. We then stitch that into video-like quality, which means you almost get Google Street View on steroids. From that, we analyse the many defects we pick up that are very different from those that you see in the SCANNER surveys.

Q79 **Chair:** Tell me what is different between what you do and what SCANNER would do. You can pass it over to Alex if you want to.



Paula Claytonsmith: We pick up about 35 different types of defects, including potholes, edge deterioration and a whole range of defects that are more likely to be spotted by a road user or a cyclist, or a general member of the public, from a user perspective.

Q80 **Chair:** How does that differ from what the SCANNER technology does?

Alex Wright: There are similarities and differences. The SCANNER survey was developed off the back of survey technology developed by the Highways Agency, at the time, when surveying the strategic road network. It was designed to use imaging and laser-based technologies to collect the condition of the surface shape and images of the road surface. At the time, it was using state-of-the-art technology. It is still pretty state of the art, but technology has moved on.

SCANNER has the objective of measuring a number of condition parameters that reflect what engineers think is the condition of the road. Its primary areas of measurement are ride quality, which is the shape along the road; transverse unevenness, which is rutting; and visual condition, which is cracking and texture that can be related to the high-speed skid resistance of a pavement. All those parameters are combined together into an index that engineers can use to decide on whether the road is in a certain condition.

The difference with Paula's work is that their technology has brought in new parameters that are not necessarily included in SCANNER. The Department for Transport supported a research programme in 2007 to try to address some of the gaps in the SCANNER technology. It introduced new parameters. It measures edge deterioration. It measures transverse evenness. It is more focused on minor roads like C roads and U roads. It introduced a lot of parameters. It now delivers something like 20 or 30 parameters.

The unfortunate thing for SCANNER is that the standards for the way the data is used for national and local assessment were never updated, so only about four of them actually get used. That is where it has suffered.

Q81 **Chair:** It is collecting lots of data but then not using it.

Alex Wright: It is collecting a lot of data, but it is not used as well as it could be.

Q82 **Chair:** What is your answer to the question about whether it is still fit for purpose?

Alex Wright: It is a good question. It is fit for purpose in that it has the capability to deliver the data you want, but there needs to be a step change in the way the data is used and the way local authorities are assisted in making use of the data. There are examples of a lot of local authorities making really good use of SCANNER data, but it is very disparate and spread out across the country. Some use it just for



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collecting a value to support the single list; others use it right down to engineering decisions. It is the variation that is the problem.

Q83 Chair: If it produces data that has the capability to be used for whatever local authorities need it for, why are some just using it for their reporting obligations?

Paula Claytonsmith: I suppose, because when we take our inventory and analytics from that, we actually take it from fence to fence, or hedge to hedge or wall to wall. That means not only that we pick up the carriageway but we pick up footpaths, which of course SCANNER does not collect. It also means we pick up assets, whether street lights or street furniture. From a local authority perspective, it gives a much more complete picture of that whole view of an asset.

In the world of asset management, where they are being encouraged to manage all their services, particularly their highway services, having something that gives you a much broader view allows you to take into context the whole environment, whether that is in a community or an area that is more of a social network for smaller communities. It becomes much more of a ground truth. Officers can speak to elected members and members of the public. There is a very clear starting image that is indisputable and irrefutable, and one that, whether you are an engineer or a member of the public, is very transparent.

Q84 Chair: I have two questions, Paula. First, why have the DFT not said, "This is far superior; we'll have that instead of what we're using at the moment"? Secondly, do local authorities that work with you have to have SCANNER sitting alongside in order to meet their reporting requirements? Do they have to duplicate, or does the data you are able to provide allow them to meet their reporting obligations as well?

Paula Claytonsmith: It is a bit of both. We have a number of authorities who have moved away from the SCANNER technology, which they recognise is something they have only produced for statistics, so they are using our data to give them a much more complete picture. We then have authorities who are using our data and the SCANNER data to provide a blended picture. As Alex says, the geometry you get from SCANNER is not something we would achieve from our technology, but there are other benefits that they are achieving from that.

Furthermore, because with SCANNER it is not possible to develop schemes of work, we and councils can develop schemes of work, investment programmes and discussions for members of the public. Again, it becomes something that is much more complete for them. It is image based and it can be referenced from previous years, whereas SCANNER tends to be rubber-banded between years, which means that defects can move. If you are looking at defects year on year and how they are deteriorating or being replaced, having individual metre-taken imagery becomes something that can easily be discussed.



Q85 **Chair:** How is the technology that lies behind the work you do different from the technology that lies behind SCANNER?

Paula Claytonsmith: We use very high-definition cameras. They are pointed at the carriageway, which differs from taking a video of the carriageway. Each of ours is an individual, high-definition image. From that, you are able to analyse a whole range of different defects. That makes it much more ubiquitous. It means that it can be used by officers not going out on site. It also means they can immediately reference things.

As you know, in many places Google Street View can be out of date. We find that contractors and councils are using it as a "know before you go" approach. That is really quite different and, to be fair to SCANNER, not how it was developed in 2003.

Q86 **Chair:** Does it reduce the need for a member of staff to go out and actually look at the situation on the ground? Can they do it using your data without having to attend to spray-paint around it or whatever?

Paula Claytonsmith: Realistically, it varies between local authorities. Some local authorities still prefer to have that element of information, but it helps them understand the context of where it is. What we are also finding is that a number of local authorities are starting to use it as part of their forward works programmes, so it becomes much easier for them to manage and speak about to politicians and fundholders and so on.

Q87 **Chair:** It sounds like, first, you get much more detailed information and, secondly, you have a broader picture. It is also covering footways, which could be really important, as well as other aspects of street furniture perhaps.

Paula Claytonsmith: Yes.

Q88 **Chair:** I am quite interested in how that is changing behaviour. From what you have seen, are there any examples of the way that has changed the choices or decisions of local authorities? Are there any examples of best practice you could share from among the clients you have worked with?

Paula Claytonsmith: Yes. We have a number of local authorities who are using it to help them understand the deterioration rates of their footways. For example, Lancashire is a large county council, and it has been using it to do builds and deterioration models of how it might seek to do funding around footway repair.

Places like Cumbria used it when they had to assess how much damage was done to their network. They were able to compare year on year, and for the public purse that gives them a very auditable trail from what they are ploughing money into to what it was like previously.

Blackpool has used it as part of their investment process to reduce trip and fall claims. That helps them to refute vexatious claims, which affect a



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number of local authorities and are increasing as the network is changing.

There are myriad different ways, so it would be remiss of me to say that some authorities are not using that data and the blended nature of SCANNER. There is a varying range of good practice examples.

Q89 **Chair:** Alex, are there other technologies that authorities are using alongside SCANNER?

Alex Wright: May I make a slight clarification of the previous point? The technology that Paula's company is using is very good, but the imagery, the shape data, the laser data and all the things we are talking about are provided by the SCANNER survey. The SCANNER survey contractors provide forward-facing imagery and downward-facing imagery outside the standard SCANNER dataset. Very good use is made by a number of local authorities of that high-resolution data. I just wanted to clarify that.

Q90 **Chair:** Can you give us any best practice examples?

Alex Wright: Cumbria are using the transverse profile data from SCANNER to identify potholes and are linking it with the downward-facing imagery that the SCANNER survey provides to improve. Cornwall are using texture data to improve their identification of treatment sites. Leicester overlay their SCANNER parameters with their engineering inspections to see whether they can have better understanding of planning maintenance.

I had examples from the SCANNER industry in preparation for coming here. They mentioned Bristol, Carmarthenshire, Cornwall, Essex and South Lanarkshire. All those local authorities are making additional use of SCANNER data on top of what the traditional idea might be, which is to just deliver an index or a national indicator. I think 15 local authorities in the south-west have formed a club—that might not be the right word for it—where they have joined up to look at ways of getting better treatment rules and what we call local weighting sets to identify a condition from SCANNER.

One of the things that has been weak with SCANNER is that when it was first created they identified that it was going to deliver the key parameters of condition—things we are familiar with, such as rutting and ride quality. There was an index created and they said, "Right, that is what we will use to identify lengths that are in need of maintenance." But nothing has changed since then. That index was set up, and since then we have had 10 years' experience with a high-spec survey, but no investment has been made in how we can improve the way it is done.

Q91 **Chair:** Are you making the suggestion that the index needs to be reviewed?

Alex Wright: Yes, it does. The local authorities are looking at the index for condition and saying, "Is this telling us the places we really need to



maintain?" The core one, which is the one we use for national reporting, where we get our red condition index from, is not really the best way for local authorities to identify the condition of their network. A number of them will get together and say, "What is the local weighting set?" This is something the Scots, under the Scottish road maintenance condition survey, have been very proactive about. They have developed a lot of local weighting sets in order to determine treatments. They have focused their use of the data on how we might identify the type of treatments. They have said, "If we have a treatment regime where we are going to do reconstruction or surface treatments, how can SCANNER identify where we might do surface treatments or reconstruction?" They can target their finances in the best way.

Q92 Chair: It sounds as if the DFT set of information, if it is only based on that index, is partial compared with what would be available. What changes would need to be made to the index, and how can it be funded? What benefits will it bring? Other members of the panel might want to express a view.

Alex Wright: I can start off and the others can fill in. If you want to look at surface treatments, SCANNER tells you about texture; it uses a laser to tell you the shape of the chippings—its resolution is that high. By seeing how that is wearing, you get more understanding of whether you need to just do a surface treatment or, if you compare it with cracking data and rutting data, whether there needs to be structural treatment.

Depending on the hierarchy of the road, you might prioritise different defects in a different way. The current system is that all roads are treated in the same way. It is the same index whether it is for an A road, a B road or a C road. In fact, I think the SCANNER is now used by—

Q93 Chair: Would you have a different index for different types of road?

Alex Wright: Yes, I would. I would probably do it by hierarchy and not by classification, which is another problem that the DFT has had trouble moving from. We have a tradition of assessing roads by classification. There are some issues where originally when a road was built it looked like an A road but, due to changes in traffic and the local environment, it might not be that sort of road any more, and one that was a C road is now more important.

Q94 Chair: Do other members of the panel agree with Alex's assessment of the way the index could be changed?

Richard Hayes: Generally, the fact that the DFT is specifying or requesting an authorised user to use a UKPMS compliant system almost builds SCANNER into that particular process. As we have seen, there are more innovative activities that could be used. We just need a little bit of relaxation of the level of advice or guidance they are giving to allow a bit more breadth in the way people can look at the process.

Q95 Chair: Does anyone want to add anything?



Paul Fleetham: We have worked closely with Gaist. It is about what you actually do with the information. There is a tremendous amount of information being gathered, but is anyone actually using that information to determine proper asset management and when to invest early to prevent long-term damage to the road that proves costlier?

When we have worked with Gaist, we have undertaken deterioration modelling so that we get real value out of the data. It is rich data that gives us real value to be able to properly manage the asset. That is the angle we would be coming from.

Q96 **Chair:** Going back to the index, Alex suggested we needed a different index for different types of roads, based on a road hierarchy rather than classification. Can you just explain what that means?

Alex Wright: The road network is defined at the national level in terms of principal A roads, B roads, C roads and U roads. They are then broken down within local authorities on the hierarchy they assign to each type of road. They have a hierarchical system, which I think is one to five. The hierarchy will span across classifications.

Q97 **Chair:** Unpack that a bit for me. What is one and what is five?

Richard Hayes: If you think about, for example, the way that winter service routes are looked at, you would look at what are called category one routes.

Q98 **Chair:** Are they the top layer?

Richard Hayes: The top layer of routes. They would be the main roads, the principal roads, but they would also quite often be arterial routes, distributor routes and routes that carry strategic issues. They would not necessarily all be classified as A or B. They could be very much at the low end of the particular hierarchy. There may well be A routes that are probably quite low in terms of priority, simply because of the traffic flow, location or whatever they are carrying.

Q99 **Chair:** Would changing the index have funding implications? Who should pick up the cost of that, and what are the benefits you would get for your spend?

Richard Hayes: This particular hierarchical index is used for many other parts of highway assessment, so it seems to be consistent to take it into this process as well, in the new risk-based approach we have to consider. We are creating hierarchical structures that are of a similar nature to that, therefore why not just have it as a standard across the industry, rather than classifications being the issue that you pick up?

Paul Fleetham: We have also looked at the socioeconomic impact of roads. It may not be an A road, but if it is servicing local communities, local businesses and local trades and schools, that needs to lift it up the hierarchy. If it is seen as a strategically important part of the network,



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whether it is A, B, C or unclassified, it is bringing economic benefit through business, schools or hospitals.

Q100 **Chair:** The benefit is that local people and businesses feel that the road maintenance plan better meets their needs, rather than being something based on a strict classification.

Paula Claytonsmith: Yes, and that is something we have welcomed by working with contractors such as Tarmac. It is that sort of approach, not just thinking, "This is the main route and that's where it is." They have been very sympathetic in working with the local authority, ourselves and others to understand the parts of communities where roads are incredibly important for getting to school, getting your meals on wheels on service out quickly, and so forth. That is something to be welcomed.

Richard Hayes: In the advice we have set out for the new evidence or risk-based approach that comes out, we talk about consultation with a significant number of stakeholders. You would agree a particular hierarchy and then there would be an understanding of where things sat in the location. It would allow each location to have its own peculiar or individual standards rather than simply a one size fits all.

Chair: That is really helpful.

Q101 **Ruth Cadbury:** We had Cycling UK at our last session. If, for instance, a route has a lot of cyclists, and the subsurface is fine so you do not need reconstruction, but it has a lot of sharp potholes, are you saying that, if there was more flexibility in the system, a local decision could be made to give it a different priority?

Richard Hayes: Based on the likelihood and impact of the situation that could occur should there be an incident on that particular type of network.

Q102 **Ruth Cadbury:** I am thinking of a route where there may not be many voters driving down it, but it has a lot of heavy HGVs. You have to think about the long-term subsurface impact of HGVs, which will be greater than if it was a car-borne route.

Richard Hayes: We are advocating this risk-assessment process and it all seems very scientific and structural, but the consequence of any activity and the likelihood have to be examined. There is also what is described as the social effect—what I call affordability. It is not simply cost, but affordability from the social point of view of something happening. You can bring all those three characteristics together and create something that balances needs more than the straightforward old highway techniques.

Q103 **Ruth Cadbury:** We have been talking about SCANNER and other technologies. Am I right that SCANNER only applies to the carriageway and not footways, and does your technology, Paula, apply to footways, carriageways and segregated cycle routes as well?



Paula Claytonsmith: Absolutely, and off-cycle routes.

Q104 **Ruth Cadbury:** But SCANNER only applies to the vehicle carriageway.

Alex Wright: The SCANNER survey provides you with a video record that would encompass anything that is forward viewable from the car or van that does the survey. Its profiling measurement—the shape it measures—does not cover the footway.

Q105 **Ruth Cadbury:** Or, if there was one, a segregated cycle lane.

Alex Wright: That is correct, yes. It would be unlikely to cover it.

Q106 **Ruth Cadbury:** Going back to the wider question, Ms Claytonsmith, would it be more efficient for a company like yours to conduct an annual conditions survey across the whole of England rather than delegate it to individual local highway authorities? Would that be more cost-effective?

Paula Claytonsmith: At the cost of sounding like I don't think that's a great idea, I think it goes back to what you are seeking to achieve from an assessment in the first place, because there may be a range of indicators that do not necessarily require an examination of the entire network. That might seem unusual for me to say, but I am not one for spending money on a whole network. There are a number of different sorts of indicators and data information from various sources that could be combined to give a much more realistic understanding of what the public sees versus the current indicator.

Richard Hayes: The highway inspectors who are carrying out that function on a fairly regular basis would like to see their information being actually used to assist this rather than being used for—

Q107 **Ruth Cadbury:** Another way of putting it is, would different highway authorities have different priorities? When they contract with you, is each one a separate contract with slightly different criteria?

Paula Claytonsmith: For most of the authorities we work with, it is around condition, but for some it is about understanding how their other assets are doing. That is where, more recently, we have started working with Cumbria and other authorities looking at how we can bring other technology to examine bridge scour and all sorts of different technology. We are using tried and tested technology from different industries. That reduces any burden on the public purse because we know it is stable and relevant. A lot of the technology we are using has already been well utilised in the rail industry to great success. From a local authority perspective, that means you can seek to achieve a condition assessment that works for you and your authority.

Q108 **Ruth Cadbury:** Mr Fleetham and Mr Wright, in our first session we heard that more needs to be done to understand the state of our unclassified road network. I mentioned cycle walkways and footways, but there are other assets like signs and markings. Do you agree that more should be done to assess those? How easy would it be to collect such data? What is



the cost of it?

Alex Wright: Markings are a very under-measured asset. In fact, if you look at the national standards for trunk roads, there is a requirement for the measurement of road markings in the design manual for roads and bridges. In fact, Highways England has this year implemented a national road marking conditions survey on its national survey. SCANNER is the local authorities' version of the Highways England survey, which is called TRACS. TRACS now has road marking assessment built into it of all longitudinal lines on the network.

Q109 **Ruth Cadbury:** But only longitudinal.

Alex Wright: Yes. The survey currently measures all the types of lines, but their current standards for that data match longitudinal markings. There is research going on to do the remaining markings—the transverse markings and the pictures that you see in the middle of the road.

One of the problems with markings, of course, is that they have quite a short lifetime. I am not responsible for maintaining markings for local authorities, but I have a feeling that they are probably quite difficult to maintain, because the technologies to measure the condition of markings are only just becoming robust. That is why Highways England has just rolled out the latest tech to do that. Road markings do not tend to last very long, and it might be doing a lot of work trying to replace markings when actually it cannot really keep up the road surface condition itself. You would have to focus marking treatments in terms of safety and need, as opposed to having a national standard for all of them, because you just do not have the resource to maintain all of them.

Richard Hayes: Asset management, which is what we are advocating as core activity for all local highway authorities, requires evidence of the state of the network, and every single part of the network should be considered, but I do not know how you can consider a surface standard for any part of the network infrastructure without knowing what its condition is. Whether it is drainage, signs, markings or whatever, they all need to be considered, because at some point there has to be a balanced response to the condition of the network and how you can either minimise the deterioration that is occurring or try to improve the conditions. You need that information.

Alex Wright: Can I follow up on the national condition? You asked a question earlier about whether national surveys should be done centrally as opposed to locally. It is worth remembering where we came from with surveys like SCANNER. Back in the early 2000s, the situation on the network was that there was no clarity about the relative condition of roads from local authority to local authority. There were a lot of surveys being done that were not standardised. As a result, we really had no idea whether the roads in Cumbria were worse than the roads in Cornwall, even though they were nominally done by the same survey. That is why automated surveys were brought in: to do standardisation.



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It has been a little bit confused with the fact that they support national reporting, which is really useful for Government nationally, and DfT, to understand how local authorities compare, but the survey itself is paid for and undertaken by the local authority, which really, because it is investing its money, has to decide how it gets the best value from it. It will be looking at companies like Paula's and asking, "Am I getting best value for my SCANNER survey or should I look elsewhere?"

It is really important to remember that the standardisation is what enables us to understand how local authorities differ. One of the big benefits that SCANNER brought was that it standardised and accredited. You knew that all the companies that provided SCANNER surveys had comparable data. There are benefits from national standards.

Paula Claytonsmith: However, unfortunately, that means the situation for SCANNER is that there is virtually only one supplier who can now supply that survey for local authorities. If you are a new entrant in that market, or people like ourselves with new technologies, and others, it is not an area you would be moving into. I think one supplier has about 85% or 90% of the market.

Alex Wright: It is about 70%.

Paula Claytonsmith: If there are only two, it is quite a difficult situation.

Q110 **Ruth Cadbury:** I am told that there are people who believe that data collection and roads inspection should not be a high priority during such a period of constrained spending. What do you think about that?

Richard Hayes: I think we have answered that point. Without evidence, how on earth can you actually make decisions?

Q111 **Chair:** It is necessary.

Richard Hayes: Absolutely.

Howard Robinson: The important thing is to know the condition you are starting with, to work out how to treat it. Without good data, how do you know what to use to treat it?

Q112 **Chair:** Does anyone disagree?

Paul Fleetham: I certainly do not. You get the data and the data tells you that you have to put in a maintenance regime and invest in the structure of your roads, but you do not have the money to do it. I can understand people saying, "Why have all this great data if there is nothing I can do with it?" We see that across the country; 20% of maintenance on our roads is reactive maintenance, which is 20 times more expensive than planned maintenance.

We see a lot of money being wasted, and I can imagine local authorities saying, "We can get all this survey information and it is absolutely key"—



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I agree with my colleagues on the panel—"but we've got to have the funds to be able to turn it into a planned maintenance regime and asset management to move it on; otherwise what use is the data?"

Richard Hayes: This is very much anecdotal. If you looked at vehicle restraint systems—safety barrier systems across the whole of the local network—you would not want to know how bad they were. That is the problem. I think they would probably all fall below current standards. That may be why we do not want to go into those areas. I am saying that very much anecdotally.

Ruth Cadbury: I do not know who said it.

Q113 **Chair:** Do you mean in the sense that, if you knew what state your road was in, you could be held responsible for not having repaired it?

Richard Hayes: If you had the knowledge and there was an incident—if you had a scheme for identification of defects and a defect was allowed to remain in place, and there was an incident following that process—obviously the authority, having been aware, would become liable for any consequential action that took place.

Q114 **Chair:** That is quite shocking—the idea that somehow local authorities would not want to know the state of their roads because then they could be held to account for things that might happen.

Richard Hayes: I am being very careful in how I put that across, but I think you can understand the point I am making.

Chair: We want to continue with more questions about data collection and the role of technology.

Q115 **Daniel Zeichner:** Some of these questions have been touched on already. We are told that the Road Condition Management Group is proposing a new approach to the collection and management of the data. Is that correct?

Alex Wright: Yes, it is.

Q116 **Daniel Zeichner:** Could you tell us a bit about how it will be different from what we have been discussing so far?

Alex Wright: It picks up on one of Paula's points, about the wrapping up of the market by a small number of contractors and the recognition that the SCANNER survey specification, which was written back in the mid-2000s, could be considered ready to move on.

We have ended up in the market with quite a robust but stringent specification under which contractors have to make a significant amount of investment in equipment in order to have a van that can go out and survey the network to deliver specific measures. TRL is currently the accreditation body for these surveys, so the equipment comes to TRL and is tested against the standard. If it passes the standard, it can deliver



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SCANNER data. That SCANNER data can then be used for national data collection and national reporting.

The problem is that how the data is collected is quite constrained. It is quite constrained in how it is processed and delivered. We are proposing that we loosen up those requirements so that more sophisticated and modern technologies can come in. We also recognise that there is a need for national reporting and national standards, so if you want to deliver data that is going towards national reporting there will be a certain level of performance that it must meet in order to be used for national reporting, but the way the data is collected is not quite as stringently defined.

That might be a bit technically complex, but what it really means is that if you want to measure rutting, for example, you are not going to define a specific way to measure the shape of the road or a specific frequency of how you actually do it; you basically say, "I want to measure rutting and it has to be this good." If your system can do that, you can be an offerer of that data and it can be used by DFT for national reporting. But if your equipment is also able to do A, B, C, D and E, go ahead and do it, and offer that service to local authorities.

The idea was that local authorities would be able to get more flexible surveys and yet still meet their national reporting needs. It also means that local authorities might be able to open up their procurement processes to more modern methods. Instead of having to contract out to one of the few accredited SCANNER contractors, they might even be able to go to a bureau service for their rutting data. If there was a company that could do rutting measurements, maybe you could just have that and say to Cumbria local authority, "I've got this rutting data and it meets the national requirement for quality; you could use it as part of your national reporting."

It is the more modern way of getting data, as opposed to a local authority having to do a supply chain, tender assessments and find a fixed SCANNER contract to go out and do surveys in a very traditional complex route. It is to make it more flexible and modern in a way, but still open to technological change.

Q117 Daniel Zeichner: I am trying to pretend that I understand what you have just told me. I think there is a balance between getting the national data that is required against what might be locally sought.

Alex Wright: That is correct, yes.

Q118 Daniel Zeichner: What are the key things that need to be established nationally, and why do they need to be in those national standards?

Alex Wright: It is a good question. Going back to my comment earlier about data parameters and the weighting sets, the local authorities we have dealt with find that some of the key parameters currently recorded—rutting, texture and cracking—are reasonably good to give



them an idea of the general condition of their road. They use them to identify lengths that are in need of maintenance, and they use them to do the targeting of finite investment and for prioritising treatments. That key dataset would be quite good for getting an understanding of the general condition of the local authority's road network.

There are other parameters that might be more specialised, such as edge deterioration, edge roughness, fatting up—things that happen to road surfaces, and you could add them as extra things that all local authorities would not necessarily want.

Q119 Daniel Zeichner: Whose data is this? Is the data owned by the companies or by the local authority? Is it then made publicly available to others who are interested?

Alex Wright: The data is paid for and owned by the local authority.

Q120 Daniel Zeichner: Is it a judgment for them as to whether the data is made available to others who might be interested?

Alex Wright: The DFT, under the single list, has the indicators 130-01 and 130-02, which are the values that have to be reported by local authorities on the condition of their principal A roads and their other classified roads, which are B and C. The national requirement is that something like 75% of the A roads have to be done in both directions and 50% of the B and C roads. They have to do that already.

Q121 Daniel Zeichner: That is reporting to the DFT, rather than data that could possibly be used by others or a whole range of people.

Alex Wright: Exactly, yes.

Q122 Daniel Zeichner: But at the moment the DFT does not necessarily make that data available.

Alex Wright: No, it does not because the local authority pays for it. It may be back to the point about national collection.

Paul Fleetham: On certain of our long-term contracts where we are working with local authorities, we employ someone like Gaist to do a survey, paid for by ourselves, so that we understand the condition of the network we are trying to maintain for the next five or 10 years. Then we allow the local authorities to use that data for part of their planning and programming of works. It is something we do just so that we can understand exactly what we are dealing with.

Q123 Daniel Zeichner: What I am trying to drive at is that ultimately someone has to prioritise. Presumably, in the future it could be some kind of algorithm, but the algorithm will only make its decisions on the basis of the choices that are put in at the beginning. I am not putting this very well, but I think you know what I am driving at. In my part of the world, there are some excellent campaigning organisations that might say that some of the cycling points that Ruth raised should be the top



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priority. Somebody else might say something else. Who determines prioritisation within the system?

Paula Claytonsmith: For me, that is the challenge about the way things are looked at. It is looked at from an engineering view of the world, not necessarily a societal view, whether that is cycling, communities, local routes, and so on. To be fair, at the moment the indicator is very engineering led, which is very different from how we operate when we look at things.

In terms of data, you are right about algorithms. We are using a lot of our 2.1 billion images of a lot of the roads in England to build up a level of data and information so that we can provide algorithms. We are doing machine learning for our computers so that they start to identify the cracks and defects. Those parameters can then be set by the different weightings; there might be a more rural area that has a very high level of cyclists. It becomes much more sophisticated in the use of data and big data.

Q124 **Daniel Zeichner:** It is a new vision for how the whole process might work in the future, but it is not just a machine-driven decision, is it? There will have to be some choices made. How does that fit?

Paula Claytonsmith: Indeed. I think that is where it is welcome that DFT is looking to review the indicators as they currently stand. That is a decision that has to be a conversation with more than just engineers in the room. Cycling groups, the RAC and AA, church groups and a whole range of different sorts of organisations can help to come up with something that makes sense as a national indicator, not an engineer or a machine or whatever.

Richard Hayes: But the new code of practice suggests that methodology. It clearly says that the evidence, which we are talking about being provided from the data, is used by the local community to decide its own priorities. You may well have a cycling fraternity. You may well get a non-cycling fraternity. That is for the local community to decide, which is why the local network should be the ownership of the local people in that particular network.

Q125 **Daniel Zeichner:** That is why I go back to my point about whose data it is to allow us to interrogate it. There is presumably the point that you made earlier, Richard, that, given that there are legal requirements, not knowing may not be an excuse in future.

Richard Hayes: Yes.

Q126 **Daniel Zeichner:** Which may lead to some other points.

Paul, it is said that there has not been great investment from the Government in inspection and data methods since the SCANNER process was devised. Do you think there is any particular reason why the Government have been reluctant to invest in the new technologies?



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Paul Fleetham: I think the SCANNER technology fitted the bill and they looked at it and thought, "Yes, that is low down on the list of priorities." There is better technology out there and better information and data we can get from the network, but the reality is that, if there is a road covered in potholes, the local authority will go and patch those potholes. The SCANNER data and the Gaist data may tell you that the road is failing and needs reconstructing, but if you only have money to repair potholes you will just patch repair the potholes. We are repairing potholes and the fabric of the road is deteriorating.

It is a huge bill for the future. If you do not intervene early and you allow water to get into a pavement, you start racking up significant costs. With all the data that is generated, that road will still be patch repaired, unfortunately, because there is not the money to reconstruct it. This is where the £9 billion that has been identified as the maintenance backlog comes in.

There is some great technology, and it is technology we should be using. We should be doing proper asset management and deterioration modelling. We should be intervening early and doing structural repairs, not building up this reactive problem for the future.

Q127 **Daniel Zeichner:** With the better data that is potentially available, would it be possible to build a case to show that investing more sooner would prove more cost-effective over a longer timeframe?

Paul Fleetham: Absolutely. We had an initiative with Gaist and with Blackpool. By spending £20 million in prudential borrowing, the saving over 10 years was £100 million. We intervened early. We did the surveys. Paula probably knows more about it than I do. We came up with a deterioration modelling regime. There was early intervention and it saved a lot of money. It proved to Blackpool that by investing early, getting prudential borrowing and intervening, and not allowing the roads to deteriorate further, there was a real cost-saving opportunity.

Richard Hayes: There was a benefit as well in terms of the third-party claims that resulted in the period. You were talking about potholes. Obviously, the issue about potholes is that people are making claims for damage to either themselves or their vehicles. Even the process of doing it in that way reduces the effect of that exponentially over a period of time, but even in the very early days it makes an improvement in the type of claims and the amount of money that is being paid out directly from those claims.

Howard Robinson: Building on that, one of the key things we should be thinking more about is preventive maintenance. Based on DFT statistics, we are spending half as much money now on preventive maintenance as we were 30 years ago. It is not surprising that the network is in the state it is in.

Q128 **Daniel Zeichner:** Responsibility is shared between the DFT and local



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authorities. Does it need a stronger lead from the Department for Transport?

Howard Robinson: Probably. Preventive maintenance largely comes out of revenue funding, which local authorities capture. It is not protected. That is the key thing. If anything comes out of this discussion, let's protect maintenance funding for the local road network.

Richard Hayes: But it is not simply doing the physical repair. It is cycling maintenance; cleaning out gullies; sweeping road channels; cleaning traffic signs and moving detritus on the network. They are very easy options for local politicians to say, "We won't do that." Of course, that just adds more and more deterioration to the network at an accelerating rate.

Q129 **Chair:** Do those things get picked up in the data collection? For example, if you are going down the road and all the gullies are blocked with leaves and it is leading to surface water, is that picked up? Obviously, it is not to do with rutting or the road surface, but it is precisely about people's experience of using the road. Would that be captured in the data?

Paula Clayton-Smith: Yes, and we have done that in a number of different ways. We were the company behind providing some of the technology for Pothole Spotter. Technology in different locations, whether York, Wiltshire or Thurrock, is looking at it from the maintenance of drainage points and picking up if bins were missed.

Q130 **Chair:** But is that captured by the DFT's data collection method—the SCANNER stuff?

Alex Wright: No.

Paul Fleetham: On the collection of data on, say, gullies filling up with water where there are a lot of leaves, or at the bottom of a hill that takes a lot of water feed, it is normally the local maintenance contractor—a company like ourselves—who empty all the gullies in a local authority area. We record how much water is in each gully, whether it has overflowed and its GPS position. We know that we have to go to those gullies once every month. We can go to those gullies once every year to empty them. A lot of the data is captured by companies like ours on a day-to-day basis.

Alex Wright: It is probably worth noting that SCANNER is an annual survey. The type of defects it is looking for are not really ones that develop over a short period of time—potholes that are not there in January but are there in March. SCANNER is not surveying them, so you need a different sort of technology to be able to see early, quick developing defects. It is the same thing with blocked drains and the accumulation of water. It is an asset management tool, not a routine management tool.

Q131 **Chair:** I want to follow up with a question from what Daniel was asking.



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Paula, I was really struck that you said the indicator was engineering led. Does that indicator, which is engineering led rather than focused on road users, drive the behaviour of local authorities?

Paula Claytonsmith: I think you may have answered that yourself. At the risk of being the non-engineer among engineers, I think we all know that indicators drive a particular type of behaviour. You report on what you are required to report on.

Q132 **Chair:** That is a yes then. Other members are nodding as well.

Alex Wright: There is a slight technical issue. The surveys can report defects that are actually associated with users' perception of ride quality, which are not clear defects that engineers see as visible defects. There is a bit of a mismatch between the way these surveys can report condition and the way engineers see condition.

Q133 **Chair:** In the decisions that the local authorities choose to make, what are they trying to achieve? We all talk about target-driven behaviour. If the indicator is the target, that is the one we have to try to get from red to green, or whatever it is. Am I understanding it correctly; is that right?

Alex Wright: It might be controversial, but when SCANNER was first launched I attended a number of seminars where there were presentations about optimising the indicator, yes. That is not necessarily the best asset management approach.

Q134 **Chair:** But that is what some local authorities are trying to do.

Alex Wright: It can drive that behaviour, yes.

Richard Hayes: I should point out that you have red, amber and green as your indicators. Is the temptation to remove the red or stop the green going amber, or the amber going red? You can get different results for different strategies, but what will you focus on? You will focus on the red because that is what stands out to you in that process.

Q135 **Chair:** My second question—I apologise if I have not picked this up—is whether the state of the indicators drives funding allocation. If you have lots of red, do you do better or worse, or is it neither here nor there? Or is it just, "You've got your amount of money and you are not using it very well"?

Paula Claytonsmith: They are not currently linked with how you achieve your funding.

Q136 **Chair:** It is completely separate.

Richard Hayes: The challenge funding had some questions on those issues, but one would question the validity of some of the challenge funding analysis.

Q137 **Chair:** What determines the allocation of funding to a local authority? If it is not the current state of their roads, albeit measured using something



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that might only be capturing part of it, what determines the funding? Is it just the length of roads?

Richard Hayes: The size of the network and the excellence of the bids for some of the networks to be improved.

Q138 **Chair:** Let's focus on the first bit. In terms of the size of the network, is the cost of maintaining a rural road the same as maintaining a heavily used urban road? If they were in the same state, would it cost exactly the same to do each?

Richard Hayes: In theory, prior to the change in the code of practice, every road had the same status; therefore the level of maintenance should be similar. We are now allowed to make various judgments in that process. Many years ago, I was always told, "Never reduce your network because that will reduce the funding you get." I cannot say it simpler than that. There were certain parts of the network that you wanted to take out of the network because they had no value, but it was, "Retain the network to keep value coming into the organisation." It is not quite the case these days.

Q139 **Jack Brereton:** You have led me to something I was going to ask later, and which the urban area I represent has struggled with. Obviously urban areas are disincentivised in funding because we have very heavily used roads. A very busy road would compare similarly with a very rural and less used road in the funding allocated to each highway authority.

We have now moved more towards an asset managed approach, with the development of highway asset management plans. It is being incentivised by the Department for Transport so that local authorities have highway asset management plans where a proportion of their funding is linked to developing those plans. Do you think that has changed the behaviour of local authorities towards more of a managed approach, or do you think we are still facing some of the challenges we faced before?

Richard Hayes: Having worked in a very rural authority, I can see a large number of rural members being absolutely irate that you would take that view. But, as an engineer, pragmatically that is what you would consider doing, because if you are prioritising the use of a network and comparing urban with rural, the number of vehicles using that network is quite small compared with the urban situation. You should prioritise your funding to where use is at its greatest, or perhaps the deterioration is at its greatest.

Q140 **Jack Brereton:** Do you think, as I said, that the development of an approach linked more to the competence of highway authorities to develop highways asset management plans, as we have seen in recent years, has helped, or do you think we are still not seeing our roads receive appropriate funding? Do you think authorities are resistant to developing those plans? Not all authorities have developed those plans so far.



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Richard Hayes: Without those plans I do not know how they can achieve what we set out to talk about at the very beginning. My concern from a professional institution point of view is that the skillset and the competence to make those decisions and carry those processes through is not there. There are not sufficient skills among the 150 local authorities to be able to do that for each authority.

Howard Robinson: The feedback I have had is that about a third of authorities are complying with the code of practice; about a third are looking over the garden fence wondering what to do; and a third have their head in the sand. That is the feedback I have received from local authorities about the code of practice.

Richard made a key point—it is one I have been making myself for a while—that we have HMEP, the code of practice and all these tools to improve asset management, but it has all happened at a time when authorities do not have the people, the skillset and the expertise to embrace and use all of that information.

Chair: We want to ask some questions about the highways infrastructure code of practice. You have led us nicely to our next set of questions.

Q141 **Grahame Morris:** Richard, are you on secondment to the institute or is it a full-time job?

Richard Hayes: I am a chief executive, Grahame.

Q142 **Grahame Morris:** Are you full-time?

Richard Hayes: Yes.

Q143 **Grahame Morris:** You are not attached to one of the highway authorities.

Richard Hayes: No. Any jobs going?

Grahame Morris: I recognised your accent and I wondered which authority it was.

Richard Hayes: We can perhaps have a chat outside about accents.

Q144 **Grahame Morris:** We have touched on some of the questions I wanted to ask, but it would be useful to get some clarification. One is in relation to what we have just been talking about; the well managed highways infrastructure code of practice.

First, is the code of practice comprehensive enough? If it is not, how could it be strengthened? Richard, you were saying something about a traffic light indicator scheme. Is that one element?

Richard Hayes: The code of practice took a long time to get to where we are currently. It took two years simply sitting as "Coming in 2018." I was one of the sceptics who said it was not going to be the right approach. It was very much about the risk-based approach, which seemed to me to suggest that you would start to put funding into the process. That was



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one of the considerations you would make about whether you spend money or not.

I am more assured now that that is not the case. It is as much about social affordability as about the direct costs. The consequence of taking a small piece of service away is not just the loss of that particular small amount of revenue; it is the consequential effect. The winter service is a good example. If you stop gritting a footpath, you may save £50,000. If one elderly person has an injury, it costs society several hundred thousand pounds. That affordability should be taken into account when revenue decisions are being made.

Whether people can grasp that as what they have to do, I am not entirely sure. The number of claims is increasing. People are more aware of the fact that they can claim against the authority. The authority still has its legal duty to maintain. That does not disappear with the new code of practice. It is there and the courts will potentially take a view in the future as to whether that new code of practice will allow some level of affordability to be considered.

We have had standard tripping definitions. We have had standard pothole definitions. In theory, those disappear with the new code of practice and people will devise their own intervention levels. At the end of the day, until the High Court, or whatever, makes a decision on the process, we really do not know whether it will be accepted as adequate by the legal profession.

That is my concern with the whole process. Many of the improvements are helping. I do not want to criticise it too much, but we had to produce a lot of supplementary advice for that code of practice. They did not give any advice on a risk-based approach to service delivery, which we had to do ourselves.

Q145 Grahame Morris: In an earlier answer, Howard, you said you thought that it was about a third, a third and a third in terms of the number of highway authorities on track with the code of practice. Originally, there was a target date when it was adopted in 2016.

Howard Robinson: Last month.

Q146 Grahame Morris: Is that a reasonably accurate assessment? Does everyone agree with that?

Alex Wright: Yes.

Howard Robinson: Yes.

Q147 Grahame Morris: Are there ways that local authorities could be incentivised to meet the targets? You touched on funding. Is it a case of looking at third-party claims as well?

Richard Hayes: It may well be that the first significant court case changes the culture that currently exists in that process.



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Howard Robinson: At some point, the DFT is going to be auditing authorities to comply against the code. That will be interesting.

Q148 **Grahame Morris:** Following the same theme, we have had written evidence that even with the best guidance local highways authorities cannot implement effective asset management because of the funding shortfall. Howard, I think you said that we are looking at 50% less on preventive maintenance compared with 30 years ago. Do you think that we really cannot expect them to have an effective asset management strategy against that financial background?

Howard Robinson: I have spoken to lots of authorities prior to today, and the basic message is that, no matter how good they are at asset management, with inadequate funding in place they are just going to fail. We mentioned preventive maintenance. There is a technique used across the whole of the UK called surface dressing. That has fallen by 50% over the past 30 years, and it has fallen 20% in the last two years. If authorities cannot afford to do surface dressing, what are they doing apart from filling potholes? Filling potholes is not effective asset management, as Paul said earlier. It is the last thing you should be doing.

Q149 **Grahame Morris:** That was a very interesting stat that you quoted, Paul. Originally, I thought you said it was 20% more, but you said it was 20 times more.

Paul Fleetham: A factor of 20, yes.

Q150 **Grahame Morris:** It is an incredible difference. If it is right that the evidence suggests that the highways authorities have made substantial savings since 2010, is it reasonable to expect that there are any more efficiencies in the current funding system? Is that a realistic scenario?

Howard Robinson: It depends how you define efficiency. You have described cost cutting.

Q151 **Grahame Morris:** Using the data more effectively. Is that a realistic option to squeeze more out of the system?

Paul Fleetham: I do not think so. The data is there, and the data will tell you to do a certain course of treatment. But if they have not got the money to do it, they will do the course of treatment they can afford, and that course of treatment is generally building up a problem for the future. It is not just patching. In a lot of cases, the fabric of the road is worn out and needs replacing, but, if the money is not there to replace it, it does not get replaced.

Richard Hayes: The capital funding is guaranteed until 2021. It has been very useful. Certainly since 2010, when it became capital grant, it has made it a lot easier for local authorities to deal with the process. A huge amount of creative accounting has gone on to allow local authorities to put some of their revenue into capital activities. I think they have



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exhausted what CIPFA would allow them to do, and they have reached the point where they cannot really go much further.

Q152 **Grahame Morris:** It is like the capitalised repairs we used to do in housing.

Richard Hayes: Yes.

Q153 **Chair:** I want to go back to what you said, Howard, about a third, a third and a third—that only a third of local authorities are actually implementing the code of practice. Do you think the DFT knows that that is the current state of affairs?

Howard Robinson: Do I know that? I am not sure really. I know that the DFT is working with various strategic alliances trying to ensure that all the members of that alliance achieve band three, but it depends on what that looks like. Is it a paper trail? Are you trying to force fit what you have always done into that new framework, or are you really making changes? What I see on the ground is little change in the way authorities behave, the techniques they use and how much they spend.

Q154 **Chair:** At this point the DFT might not know that only a third of local authorities are actually doing it.

Howard Robinson: Until they start auditing, possibly not.

Q155 **Chair:** So it is really unlikely that the public would know whether their local authority was complying with the code of practice.

Richard Hayes: We have seen in recent weeks a number of authorities taking their asset management policies to council for approval. One would assume that is the point at which it becomes a public document and people can expect that standard. That may be a reaction to the 26 October deadline that kicked in a few weeks ago.

Q156 **Chair:** They might be taking the policy to council, but does it necessarily comply with the code of practice in the way you would want? What is your assessment?

Richard Hayes: It might in certain areas.

Q157 **Chair:** The third question is, are there consequences for the local authority for failing to properly implement the code of practice? If so, what are they?

Howard Robinson: It affects your funding. If you are in band three, your funding goes down quite dramatically. If you are in band one, it is a 90% drop in funding.

Q158 **Chair:** When it comes to the next lot of funding allocation, you need to be able to show that you are complying with the code of practice.

Howard Robinson: You have to be in band three.

Q159 **Chair:** When is that going to have an impact?



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Richard Hayes: There are large numbers of people who are already band three—in the high 80%—so they are talking about creating a band four to put another degree of requirement for compliance into the process.

Q160 **Chair:** If the DFT is basing funding on it, it obviously needs to know whether a local authority is complying with its code of practice. When is that going to start having an impact on funding allocations?

Richard Hayes: You would have to ask the DFT. I do not think we can answer that question.

Howard Robinson: I am not sure.

Q161 **Chair:** What is the impact on cases in court? If someone brings a claim against a local authority, they can offer a defence, can't they?

Richard Hayes: The section 58 defence is the normal statutory defence that they have a reasonable system of repair and inspection in place. Most local authorities are now self-funding lots of the personal injury claims that are coming in. It is literally coming out of the revenue budget. The estimates vary as to what that is because it is quite a difficult figure to extract from a local authority's accounts.

Colleagues I have in the risk industry talk about £30 million a year being paid out in that particular process. The risk industry will pick up the catastrophic higher level claims through that process. Their concern at present is that the systems to provide the section 58 defence are no longer as robust as they should be, and therefore if they underwrite their claims they will be looking for a much larger excess. The potential would be that more money would be paid out through the third-party claim process.

Q162 **Chair:** If you are failing to comply with the code of practice, does that stop you from offering a section 58 defence?

Richard Hayes: No. A good section 58 defence does not necessarily guarantee a good network. It should, but it does not always guarantee a good network.

Q163 **Chair:** Why is that?

Richard Hayes: Because the systems of inspection and maintenance could well be written in a particular way that is robust enough to defend a claim but not necessarily to have an effective and strong network.

Q164 **Chair:** Do most claims not go to court? Do they end up getting settled?

Richard Hayes: Yes.

Q165 **Chair:** If we were not seeing cases, it would not mean there were no problems; it would just mean that was how they were being dealt with.



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Richard Hayes: But where on the balance sheet that number appears is quite difficult to pick out.

Q166 **Chair:** I want to ask a question around the options to improve road maintenance and then Huw is going to pick it up. In the Budget, the Chancellor committed more than £25 billion over the coming five years to the strategic road network, which I am sure pleased lots of people. How did the industry react to the Chancellor's announcement of £420 million for potholes?

Richard Hayes: Disappointedly.

Chair: Richard covered his eyes, for those who are listening.

Paul Fleetham: It was very welcome, but it goes back to planned asset management. You are told, just as you are coming into winter, that you have £420 million to spend and you have to spend it before the end of March. A lot of local authorities are saying to us, "We just can't spend it. We haven't got the supervisory resources and the management to close roads and do all you have to do to spend that amount of money." It is a rush and it all has to be done by the end of the financial year. It is not planned or considered.

It is not saying to a local authority, "Here is £15 million. You can spend that next summer when the weather is good, pick out your priorities, make a good job of it and do what you want to do for the socioeconomic and all the other good reasons why we know what we should be doing." They do not do that. It is in the middle of winter. It is not going to be the best job in the world with the weather. It is rushed. It is, "What schemes can we pull off the shelf?" As welcome as it is, and it is great getting the money, it goes back to lack of planning and lack of preparation. If we had a five or 10-year committed financial resource to understand, plan and maintain our assets against, we would not have this knee-jerk, "Here's 420 million quid. Can you go and spend it for us?"

Q167 **Chair:** You have been very clear, Paul. Richard, you covered your face with your hands. Do you have anything to add to what Paul said?

Richard Hayes: At a previous seminar that Howard's organisation organised, we had a long session on asset management. I think we managed to convince the room that it was the right approach. The Minister turned up to make an announcement that he was going to fill 50,000 potholes that particular afternoon. We felt that we had just wasted our endeavours because potholes are the symptom; they are not the issue.

Q168 **Chair:** Does it feel like Ministers and the Department are just not listening to the industry or to local authorities?

Howard Robinson: They do not understand the scale of the problem, basically. The figures have been published. The replacement cost of the local road network is about £300 billion a year. The combined spend



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within authorities is about £3 billion a year. Half of that is not on roads; it is on bridges, street lighting and so on. We are spending about 1% a year on the asset replacement cost, and it is an old asset.

Q169 **Chair:** When the Government are allocating £25 billion for the strategic road network over the coming five years—I know it accounts for about 3% of roads, albeit a lot more than that for traffic—have they adequately justified that disproportionate spending on the strategic roads network? Is that so much more valuable than spending on local roads? What is your assessment?

Paul Fleetham: There has to be a balance. Every journey starts and finishes on a local road, generally. To have a fantastic strategic network and third-world unclassified, B, C and A roads does not feel right. The motorways need that investment; the strategic network is full of traffic year on year and it needs that level of maintenance, but local roads should not be forgotten in the equation.

Richard Hayes: When you talk about customers using the network, and we accept that is the area we are in, it is start and finish from a particular location to a location. Whether it is a rail journey, an aircraft journey or whatever, your experience is the whole journey and not just the very nice bit in the middle where you are able to drive at 70 mph in comfort. You look at the whole aspect. That principle is not being considered.

Q170 **Chair:** I do not know that any of you would have this figure, but have you any idea what proportion of people never go on a strategic road?

Richard Hayes: I can give you one; my wife will not drive on the motorway.

Q171 **Chair:** There must be loads of people—non-drivers, for instance. There must be quite a lot of people who never go on a strategic road and who just make little journeys.

Ruth Cadbury: A high proportion of car journeys are less than three or five miles, so by definition most of them will be on local roads.

Chair: If you rebalanced it, if you had £25 billion over five years for the local roads network, would that be more than you need, about right, nowhere near or ridiculously too much?

Howard Robinson: There is a £9 billion maintenance backlog, so it would help to alleviate that and achieve a steady state condition across the network.

Richard Hayes: But it would be what you were doing in year six that would be my concern.

Q172 **Chair:** If you got to a steady state—if you filled that £9 billion backlog—how much do you think you would need each year to keep it sustainable? If it is 1% at the moment and you are saying, Howard, that that is insufficient, what would be sufficient?



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Howard Robinson: Most roads are asphalt roads, so thinking about the life of a typical asphalt road, if you get 20 years out of it you are doing fairly well. You need to be replacing 5%.

Q173 **Chair:** That is helpful. Five times as much; about £5 billion a year.

Howard Robinson: Yes please.

Q174 **Chair:** Sadly, knowing that the funding picture is unlikely to change significantly in the short term, is there anything else in terms of the uptake of asset management and risk-based approaches that can drive it forward? Is there anything else that can help?

Paul Fleetham: One complexity is the number of local authorities and the critical mass. We have 180 or whatever. It is getting local authorities to work together, I believe. In larger organisations, you can leverage scale and get more consistency. You can drive from one county to another county and there is a marked difference in the quality of the local road network. It is a case of bringing up the standard. There are some that are good, but a lot are not very good at all. I would address the number of local authorities and look to some sort of collaborative working between local authorities and central funding and suchlike.

Alex Wright: Training and education has been raised in the data market. The RCMG did a survey last year of how local authorities used data. More than 50% of the local authorities responding said that they would like to receive more education and training in how to do the asset management of the data and on the use of UKPMS and SCANNER. There is a big call. I think that probably some of it stems from the high turnover of staff and loss of experience in local authority road management. That again would be a centrally funded thing. It would not be too expensive, but it could give good value.

Q175 **Chair:** It is not just about not having the funding; it is also about not having the people to make good use of the funding you have.

Howard Robinson: Yes. We spend a lot of time working with the strategic alliances trying to raise awareness of the different ways of going about maintaining the asset. It is not just about money; it is about knowledge and knowing what technique to use where and when.

Q176 **Huw Merriman:** Before I talk about the collaboration across authorities, do any of you work with Highways England when it comes to the maintenance of their local roads? We focused on their strategic network. For those who do, can I ask if you think they are doing a good job or could they do better? Do you feel they have been impacted by the reduction of £1 billion in their budget, which is going to the bypass fund?

Paul Fleetham: They are doing a good job. It is a big ask for Highways England. They have a significant programme that they need to deliver. People are still an issue in the construction sector, but I believe Highways England are doing a good job with the spend. The smart motorway



network procurement is a little bit slower than we would have expected. We are behind the game, but, in general, yes, they are doing a good job.

Q177 Huw Merriman: It is not so much in general or the smart motorways part, but in terms of the local roads they manage. Where I am in East Sussex they actually control a lot of roads that you think are county roads as you drive along. In fact, by a quirk, it is Highways England and the question is whether they ignore their local roads to focus on their strategic assets instead.

Paul Fleetham: We don't see that. The local roads, the A roads, the trunks, take equal precedence to the major motorways and the like. They have term contractors' frameworks in place that maintain those roads, and they are generally of a good quality and a good standard.

Q178 Huw Merriman: It seems to me that all of you are describing a picture where funding is reduced but more money is being wasted because it is all short term. It is filling the hole rather than focusing on the longer term, where perhaps you would be able to do more for less. Have you seen any examples where local authorities are able to look at their borrowings to do exactly that, and therefore save money over the long run and get a better engineering solution in the long run as well? Have any authorities taken the plunge and decided, "I am going to borrow against this and I am going to do it properly rather than bodge the job year after year"?

Richard Hayes: There are some authorities—I cannot rate them exactly—that have taken a 10-year view as opposed to a five-year view, which makes a significant difference. Others have gone completely along the PFI route and the 25-year option. That has significant benefits on day one, but obviously after day one everything deteriorates until the 24th or 25th year of the process. It is a balance. More than five years—something between five and 15—would be the timescale we should be looking at for investment.

Howard Robinson: There are some examples. Cornwall and Herefordshire put in money up front to demonstrate whole life long-term cost savings. There are clear examples that putting money in early can save a huge amount of money over a 10 or 15-year period.

Q179 Huw Merriman: Is that type of approach being supported in sharing best practice? From a Department for Transport perspective, is there enough guidance for local authorities to do as you have just described?

Howard Robinson: Those authorities belong to strategic alliances, so they are sharing that.

Q180 Huw Merriman: One will belong to the South West Highways Alliance.

Howard Robinson: There are alliance and service improvement groups. That is the forum where they share knowledge and know-how. The DfT must be aware of that.



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Q181 Huw Merriman: It is pretty radical, but looking at those alliances, such as the Midlands and South West, to a certain extent would it make sense if they all collaborated and the Department for Transport just took over completely? Then you would have a much bigger bang for your buck. I realise that is against local democracy, but is it where we are trending?

Howard Robinson: That has always been the problem with having 150-odd local authorities. If someone has a new product, there are 150-odd trials. There has never been any forum where they can all share information and say, "Yes, it works."

One of the issues with Highways England is that, when they assess innovation, they are assessing it against the needs of their network, which is the highest standard. Sometimes local authorities look to Highways England for leadership, but they could probably use products and techniques on the local road network that Highways England might not use, if that makes sense.

Alex Wright: That may change because Highways England is rewriting the design manual for roads and bridges. It used to have local authority annexes, and those will not exist any longer. There is a space for the DFT to think about how it fills that gap. With Highways England now being a company, their priorities are changing. There is a risk.

Richard Hayes: The Highways England role of education, training and leadership was very much a part of the Highways Agency. It was guaranteed that they would bring it forward into the new process, but I think it is probably not one of their top priorities. Authorities are looking for some sort of leadership and some sort of best practice process, but, unfortunately, we had HMEP that gave us that and it was not funded by DFT. After a period of time it was allowed to go fallow. We certainly wish to see stronger leadership, with best practice case studies and innovative activities prepared and led by one organisation.

Q182 Huw Merriman: The Highways Act has been in existence for almost 40 years. On that basis, is it still fit for purpose? Does it do enough to talk to the culture that you, as a panel, have described so well, or does it need a radical overhaul to give that better direction? Paula, you were smiling.

Richard Hayes: Have you read it recently?

Paula Claytonsmith: It was one of the first tasks I had when I came into the industry. As with a lot of legislation, things change over time. I think it could do with updating in a range of different places. More specifically, it attunes to an environment back in the '80s when funding, structures, skills and capacity were very different. It does not, perhaps, look at innovation and how, externally, there is greater access to information from members of the public around data, so those sorts of areas are quite different. I am sure Alex will note that things have changed rapidly in his area of work as well.



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Richard Hayes: But it is a piece of legislation that has been there for three, four or five hundred years, and has developed over time. From '59 to '80 there were changes. You may be right that from '80 to the current time may be the time to look at it again, but the core principles will still remain—the duty to maintain and so on.

Q183 **Huw Merriman:** Does anyone else want to follow up that last point?

Howard Robinson: It was published at a time when an assessment of what is a defect was different from what it is today. The code of practice now allows an authority to ignore what could be serious defects.

Chair: Finally, we turn to the role of technology, and new materials and repair methods.

Q184 **Jack Brereton:** As we have heard from some of the evidence we have taken already, quite a few innovations in industry and new technologies and methods for how we maintain our roads have been introduced over the past few years. First, do you think there is further scope for a step change in some of the technology we could invest in our highways structure?

Howard Robinson: One of the things we have been trying to do within our community is to ensure that all the available techniques have a standard or a specification against them, which makes life easy for local authorities to use them. There is a wide range of techniques that are essentially proprietary; they do not have a standard or a CE mark. There is not a robust specification for them, so that makes life difficult for authorities using them, even though there is a lot of evidence that those techniques can work and add value. For me, it is not about having more techniques; it is about making sure that those that are there are used and regulated properly.

Paul Fleetham: There are difficult routes to get new products and innovation to local authorities. You are dealing with 153 or however many local authorities. You have to sell the concept and the idea. Local authorities tend to be pretty risk averse. They do not have much money. If they are going to spend money, generally they want to go for a proven product. Developing innovation is difficult to get on to the ground and takes a long time.

Q185 **Jack Brereton:** Do you think there needs to be much better standardisation of some of those approaches to technology? We have talked about some of the collaboration going on, or lack of it in some cases. Do you think there needs to be more standardisation of some of the approaches and methods that are used when it comes to technology?

Paul Fleetham: More standardisation. To go back to the 153 local authorities, moving it down to super-alliances or whatever, so that you could sell a concept to a smaller client base, would work better for us.

Q186 **Jack Brereton:** Do you think there is awareness within those local



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authorities of what the products will deliver for them if they invest in technology?

Howard Robinson: No. To build on that, over the past 10 years we have been training about 400 engineers a year. This year, we decided to change the way we did things and make a lot of the CPD courses free to attend. We doubled the number. There is huge demand out there from people who want to know what is available and currently do not know what is available.

Another key thing is, who owns the risk? When an authority specifies a standard product, the contractor takes the risk, but when an authority specifies a proprietary product, who takes the risk in the event of a failure?

Q187 **Jack Brereton:** I agree with what you said. I went to the local highways maintenance depot in my patch, in Stoke-on-Trent, and we had a demonstration there of some of the normal road repair technology. I would agree that there was scepticism about some of the technology coming forward. Do you think that technology offers an opportunity to reduce costs in the future and make the investment that goes in go further, or does it not really have an advantage?

Richard Hayes: There will be greater pressure on maintenance engineers to improve the condition of the network due to the new technology coming in, in traffic and CAVs, autonomous activities and the like, where you will have to rely on good infrastructure for those vehicles to interact with the network. Whether it is road markings or that sort of issue, they will have to have those things in place. You cannot have that without a good network to run on.

Q188 **Chair:** Wouldn't that be a barrier to the implementation of connected autonomous vehicles?

Richard Hayes: It could well be. Whether you want that is another issue, but they are relying on that process.

Alex Wright: From 2021, ADAS becomes compulsory on all production vehicles. They are all going to have things like lane assist and will rely on good road markings to do that. Probably only the trunk roads will have a good standard of road markings. Yet, as you have already said, there are a lot of major non-strategic roads that people will expect to meet the standards that they require.

The other thing about the introduction of autonomous vehicles is that we go from level one to level five autonomy, which will probably take 30 years. We are going to have to transform the way we design our network and the way we communicate with vehicles. We are at a step change in the level of use we can make of technology. We can offer a network that optimises the use of autonomous vehicles, but, in theory, we could use them to help us to manage our network, because the communication



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goes both ways. Why don't the vehicles tell us where the potholes are? Why do we go and look for them?

If we are thinking about the future, we could be thinking about great changes in the technology and making our network intelligent. It is especially important because the UK wants to be a leader in the CAV field.

Richard Hayes: At the present time, we are talking about sweating the asset. We are trying to maximise the capacity of the network. We are putting in smart motorways. We are creating space on hard shoulders and the like. When do you maintain the road? At some point, you have to get in and do some sort of repair or regular activity, and there is not sufficient tolerance in the network to allow that to occur. Do you want a Christmas closedown of the road network?

Q189 **Chair:** We know about that from trying to do it on the congested railways.

Richard Hayes: You would have to close the M1 over Christmas while you did repairs. The amount of available time to make that interjection, particularly on overnight closures, is three or four hours maximum. That does not get an effective repair and does not get the repair done as well as it should be.

Q190 **Jack Brereton:** Do you think that is where technology potentially has a bigger role to play, to do things quicker rather than necessarily saving huge amounts of money?

Richard Hayes: Yes.

Alex Wright: We ran a project with Highways England called DRUM, and the idea of the project was that, instead of having fixed closure times, you would actively monitor what was happening with the traffic. You might be able to get an extra half-hour out of your closure, which might be enough to make the difference between finishing the job and having to go back another night. It saves you money and gives you better quality using the technology you have about traffic monitoring management and algorithms to understand what the traffic is doing. There are already improvements you could make.

Paula Clayton-Smith: Speaking for Paul, Tarmac have been doing some work around understanding technology and the use of that when they lay the lanes and so forth, to improve the learning from that so that it can be utilised for better training for staff, better material length for longevity and so on.

Richard Hayes: Maintenance is still a dangerous function. The number of road workers who are injured is still significant, and Paul would support that in some ways.



Paul Fleetham: Our teams are out on the strategic network every night. They get possession of the road at 11 o'clock and they have to give it back at 5 o'clock. That is from the first cone going on to the last cone coming off. It is a very compressed working window. In winter, the weather is not conducive to working in that environment.

Q191 **Jack Brereton:** Some of the modern technologies have moved forward in comparison with some of the more traditional approaches used previously, but do you think there are limitations to some of the more modern techniques that are now being used?

Howard Robinson: It is what to use where. Most of them are really aimed at extending the existing life of the asset. That is principally what they are about. At some point, an asphalt road will need to be replaced, but there are lots of things you can do in the interim to try to extend its life and try to get better value out of it.

Q192 **Jack Brereton:** Some of the evidence we have received suggested that stone mastic asphalt is subject to potentially earlier failure, with only a lifespan of eight years compared with 30 years for traditional hot rolled asphalt. Do you think that is an issue that is being seen up and down the country?

Paul Fleetham: Some stone mastic asphalt is a very good product. It is very durable. It has good skidding resistance, but if it is laid in the wrong conditions through the winter months and at night, in short lengths so that you do not get a strong production run, it will have problems.

Hot rolled asphalt lost its position as the premium surfacing material in the UK because it was rutting. It is a very rich material, so it was rutting under heavier traffic. The hotter summers were causing problems. It is very remedial susceptible because it has pre-coated chippings rolled in, so in areas of stress it can start to lose chippings. It attracted more remedials than any of the other products. Because of current legislation on working areas next to traffic, you have to close roads when you do hot rolled asphalt, whereas when you do stone mastic asphalt you can just close a lane. You have to close a whole local authority road if you use hot rolled asphalt. There are a lot of things against hot rolled asphalt.

Alex Wright: Noise.

Paul Fleetham: Thank you; noise is another issue. There is nothing wrong with stone mastic asphalt; it is a very competent product, but if it is laid wrongly it will cause problems.

Richard Hayes: The conservative nature of the industry suggests that we will hang on to that particular anecdote that something has failed as an excuse not to use it again, simply because we think we know that the 30-year-old solution will be effective, so we stick to that. But, in fact, what Paul says is absolutely correct. It is all about the procedure. How the material is laid is the key issue. If it is done incorrectly, everything will fail no matter what material it is. It is a great hook: "I'm not going to



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change my mind. I've always used this, so I'll continue to use this process."

Q193 **Jack Brereton:** We have already mentioned more advice at a central level on some of that technology. Do you think it would be helpful to have that available either within the industry or through central Government?

Howard Robinson: It is already there. Stone mastic asphalt is a CE mark product. There is a specification for it.

Alex Wright: In general terms, I would agree that the sharing of best practice, helping all local authorities understand what the best technology does and each one not having to learn itself, would be a really good idea. It would mean that they could spend their money more wisely on picking the right technology first.

Richard Hayes: It is knowing what to use where and when, and what is possible. I think Howard would support the issue that the materials knowledge in the industry is probably at one of the lowest levels it has ever been. We talk about skill shortages, but materials knowledge is a significant problem that we have.

Q194 **Chair:** In local authorities.

Richard Hayes: Local authorities used to have county laboratories where they would carry out testing and give advice. They have dwindled to numbers on the fingers of one hand. Therefore, there is no one to go to any more for supporting knowledge of how something can be used. Whether you look at that in structures or in any other activities, it is exactly the same process, but it is greater in the materials side of things than in any other part of the highways industry.

Q195 **Jack Brereton:** Who do you think should be providing that sort of advice about better practice approaches to local authorities?

Richard Hayes: TRL.

Alex Wright: It would be good if the DFT had a programme to do that and made some investment in the sharing of knowledge and helping local authorities to do it, because in the whole life cost it would be a much more efficient process than expecting them to do it themselves. There has been quite a loss of this over the last 10 years. We have seen it in the asset management side. The UKPMS used to have a forum; there would be conferences and sharing of best practice. Those things have died since 2005.

Paul Fleetham: Our industry has a lot to offer with public and private collaboration. When we have 10-year contracts with a local authority, we can understand the representative of that local authority. We can bring in innovation. They can get confident with what we are able to do. We can do network surveys. We can help them with the design of pavements. There is a lot we can do as an industry, but we need long-term contracts



of five, 10 or 15 years—10 years, preferably—so that we can invest in the contract with capital. We also need some sort of certainty on funding so that we know we have a 10 or 15-year contract with a likely funding of this, and therefore we can invest in that contract and that client. I think the industry can do a lot in educating their clients as well.

Richard Hayes: I hate to support the private sector process, having an extensive local authority background, but the private sector needs to get some return from being involved in maintenance activities. I do not think there is a significant return at the moment. That is one of the problems you face. We have to understand that they are going to give us a commitment of additional resource, but they need to get a payback on that process. That is not always seen as an advantage to a contract.

Q196 **Jack Brereton:** Do you think there is sufficient investment going into new and emerging innovative technologies?

Paula Claytonsmith: It varies. I suppose one of the biggest challenges is the change at TRL, which was very much held up as the industry leader in lots of the new ideas and technologies. Although I am talking about the more data-led type of technologies, technology is happening all around people now, but with materials and things like that, there was always the reputation of colleagues at TRL where the research laboratory did some very in-depth testing. The local authorities then did their own levels of testing and contractors used those, and still use those that are left, to test new materials.

It varies, but the level of technology and the investment in it has changed because it becomes quite risky to invest in something that may or may not work, and when you are dealing with public funds it is not easy for a local authority or the Government to consider putting funds into something that may or may not work. The reality is that technology, whether that be materials or anything else, will always have a level of failing, and you learn from that as much as you do from new stuff that works.

Howard Robinson: Research needs a payback and, at the minute, authorities cannot afford to buy commodity materials.

Q197 **Chair:** I have a couple of follow-up questions. There was an acknowledgement that local authorities have a lack of capacity or knowledge and have lost some expertise. Lack of knowledge about materials might stop them using new materials because they lack knowledge about their suitability or capability. Are there any examples of them starting to use new materials that they have failed properly to understand, and therefore that leads to poor-quality repair work?

Richard Hayes: SMA is a good example. SMA might have been used in the wrong situation. People do not understand the rationale that you have to have a firm and solid foundation to lay that material on. Without that, it does not work.



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Q198 **Chair:** Is the quality of repairs a widespread problem? Even when funding is available, does lack of understanding and knowledge lead to poor-quality repairs that are not long lasting?

Howard Robinson: When something fails, it is normally down to workmanship rather than the quality of the material.

Q199 **Chair:** Is there a problem with the quality of the workmanship or the skill levels of those in the sector?

Howard Robinson: There can be, but I do not think companies bring products to market without knowing they are going to work. There will always be occasions when things go wrong, but mainly they go right.

Q200 **Chair:** You might have a good and suitable material, but, if it is not applied properly, is there a problem in the industry with workers who do not have sufficient direction, skill levels or training? Is that an issue?

Howard Robinson: One example is that we do not have a standard for repairing potholes. One of the first outputs from HMEP was the potholes review—"Prevention and a Better Cure." Once it was published, I think somebody spotted that actually there was no standard for how to fix a pothole. We thought they had addressed that through something called sector schemes, based on a quality management system, to try to encourage contractors to operate to the same standard. Sector scheme 23 has been launched, and it is meant to deal with repairs to small paved areas, but it is not really working because authorities are not asking contractors for those qualifications.

Q201 **Chair:** How could you fix that problem? If local authorities are cash-strapped and then they spend money on fixing potholes but it is not even being done to a decent standard, what do you do?

Howard Robinson: One of the biggest issues we find is on the supply side. All the qualifications are in place and the workforce are trained, but when authorities put out tenders, they do not ask for those qualifications a lot of the time.

Q202 **Chair:** Because they are trying to get more for their money—it is quality and money.

Howard Robinson: It comes down to the tension between asset managers and procurement. Procurement like to use their approved vendors, regardless of their qualifications. Asset management might prefer to use different providers with innovative new techniques, but if they are not on the list they do not get in.

Paul Fleetham: Standards in the industry are good. A lot of reactive maintenance tends to be problematic. You are going out there not properly planned; 20% of all maintenance on the carriageways is reactive, not preventive. You have to remember that we are dealing with a perishable material; asphalt that goes into roads is hot. It has to be put into a road hot, compacted hot and finished, and that will make a good



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road. When you are given £420 million to spend in December, January and February, at night, the chances are that it will not be that hot, so it is about planning, programming and good asset management, and not being forced into doing something that is not good practice.

Potholes are remedial susceptible. We are talking about small quantities of material; you do 100 potholes and maybe five will fail, but those five will be the high-profile failures that you do not want. That is the way of it.

Q203 Chair: I hear what you say, Paul, but generally the responses from the panel do not fill me with confidence that the situation is set up for good repairs.

Paul Fleetham: When we first took a contract we have in Walsall, we had a failure rate of about 23% on their potholes. Within two years, by proper planning and programming and bringing in the right equipment, we got a zero failure rate on every pothole we do. It is a case of making sure that people do not just get called out to a pothole that is causing a problem and do a rapid reactive repair, but that there is a planned programme and the product is right for the patch.

Q204 Chair: My second question was to Paula. Does your data tell us anything about the quality of repairs and the effectiveness of new technologies?

Paula Claytonsmith: Yes, sadly. I think you will have seen from our submission that we found that in areas where there were poor reinstatement works, whether utilities or local authorities, it increases the deterioration rate as much as 30%. We have done that for a set period of time and analysed it very carefully. That is an incredible failure rate across the country of repairs not done properly or quickly.

From a local authority perspective, that understanding is quite high and the better utility companies are looking at their supply chains, but some of those supply chains can be incredibly long. If training, laying and everything else is not to a standard, it will increase the failure rates of our networks, regardless of the type of technology or the data you achieve from it.

Q205 Chair: If you are working with a local authority and providing them with data that enables them to look at the effectiveness of a pothole repair or a bit of road maintenance, they can take that into account in the contract procurement, presumably.

Paula Claytonsmith: Yes.

Q206 Chair: If a utility company is doing work on a local authority's roads and the local authority uses your data and sees that the utility company has done a bad job, does the local authority go back to the utility company? What is the method by which they make sure that doesn't happen?

Paula Claytonsmith: Pretty much what you have just said. More recently, we have started to see utility companies come to us to work



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with us to help them understand where some of their repairs are failing, because they are receiving much greater pressure from local authorities.

Q207 **Chair:** Can they be fined? What is their incentive to invest in getting that information?

Paula Claytonsmith: Yes, they can be fined, but I think there is a 10% limit on how much they can be fined. For local authorities that perhaps do not have the capacity to check every single piece of reinstatement, that becomes a real challenge. That challenge is only going to hasten when we look at "Fibre to the home," which is likely to arrive up every footpath in the country over the next year, and roads in certain places. There will be an interesting challenge ahead for both local authorities and utilities about where the risk lies. That could be a whole session.

Chair: Now there is something else to worry about.

Q208 **Jack Brereton:** You mentioned the powers that local authorities have. What proportion do you reckon are actually using them to their full effect?

Richard Hayes: We see a definite need for increased training and competence assessment for individuals carrying out inspections of utility apparatus and its reinstatement, but there is resistance from the utility industry to us creating a separate highways standard, as opposed to a utility standard.

Q209 **Jack Brereton:** Obviously, resources are an issue. Would this not generate sufficient resource for those positions to be self-financing?

Richard Hayes: The case could easily be made. I agree.

Paula Claytonsmith: Some local authorities have tried to make that case, for which they received quite a lot of backlash from organisations that are perhaps being more penalised. That is why some utility companies are working with people like ourselves and others to understand where the failure rates are; they may not necessarily see what their subcontractors are doing. The better local authorities are starting to improve those practices. In some local authority areas, where bad teams have done reinstatement, they have been moved out of the area because the local authority has become much more efficient at understanding poor repairs.

Richard Hayes: The local authority inspection process primarily looks at disruption, and minimising the effect of disruption of the activity, as opposed to the effect of the reinstatement on the structural network. That may be inevitable in the environment many of those people work in.

Q210 **Chair:** When Alex was answering a previous question, he said that potentially you could use connected and autonomous vehicles to collect data. Paula, how do you collect data? Do you use a specific set of vehicles? Do you fit them on to local authority vehicles?



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Paula Claytonsmith: We do both. We have our own vehicles, for which we have a range of things, such as high-definition cameras, LiDAR and accelerometers. We put them on other vehicles that are council assets. We can work with highways inspection vehicles, bin lorries, bikes or whatever. That blend gives quite a good understanding of the network, as Alex said.

We have had discussions with car manufacturers. The vehicles of one Swedish manufacturer communicate with other vehicles when there are patches of ice. That is the sort of thing they are starting to look at. We have worked with companies working with Jaguar Land Rover to look at how bump and sensor accelerators do things.

At the moment, those sorts of vehicles are in the minority, so they do not have the coverage of the network in the UK that might give us a fuller understanding. That will come over time, but it will take us some time to get there. It is the same with bikes. You can have an app loaded to your phone so that you can detect where problems are and, by and large, avoid them. That can provide a false positive about defects in those areas. In time, it will come, and more and more vehicles will communicate with each other and to the local authority. It is happening in some countries, but patchily.

Richard Hayes: Paula raises a particular issue about temperature and winter activities. The motorist will have more information about the state of the network than the local authority has, unless the local authority invests in the technology as well. You might not necessarily know the exact road temperature at every location, but someone travelling is gathering that information for you, so why not use it?

Alex Wright: There are solutions such as linked dashcams. A lot of people use dashcams nowadays. We have discussed with software companies using in-car dashcams to help populate sign inventories. While they go along, the cameras automatically look for signs; when they see a sign, they store it and then they can help the local authority populate its inventory. It would not be a big extension of that to tell you what the condition of the sign is.

Chair: Great. Thank you very much for giving evidence today.