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UK ROADS LIAISON GROUP

The Case for Investing in Highway Maintenance

UKRLG Asset Management Board

Final Version for Issue; Date 09/09/2021

Contents

Background and context

Introduction

- The local road network is fundamental to life in England – both today and for our future. It is the biggest physical asset the public sector owns, and it is valued at almost half a trillion pounds (estimated gross replacement cost of £400bn in 2012) [1].
- Other transport infrastructure such as the strategic road network, the rail network, or our airport systems all play key roles in national socio-economic activity, however, none of these are as indispensable at the local road network – virtually every journey begins and ends on a local road, and without it, the English economy (2019 GDP of approx. £1.3 trillion) would collapse to near zero [2].
- It is a huge and complex system that includes the inspection, maintenance and renewal of roads, footways, cycle routes, bridges, tunnels, retaining walls, lighting, drainage, traffic signals, trees, land and much more – filling potholes is just the tip of the iceberg.
- This pack describes the investment needed for the English local road network (excluding London), both now and in the future, along with the significant benefits that are aligned to all Government's core policy objectives.
- Funding for local road maintenance provides good to very good return on investment, with much lower risk than major projects to construct new infrastructure, and the ability to quickly gear up to spend money and generate benefits via "shovel ready" schemes [3].
- Longer term certainty of funding will also help maximise the proven benefits provided by good quality local roads.
- The local road sector has prepared a comprehensive response structured around the Public Value Framework (as developed by HMT). This includes an overview and outline of the approach, followed by a summary of each of the four Pillars, and is further supported by detail on each of the 13 Areas within the Public Value Framework [4][5].
- This is complemented by an extensive set of case studies in the Appendix – these are examples of good practice that reflect wider practice across the sector rather than isolated "one-offs".
- The DfT incentive fund self-assessment results provide evidence of widespread maturity within the sector and continuing improvement in the adoption of good practices for asset management, resilience, customer focus, benchmarking, efficiency and operational delivery [6].

Fact Sheet – Inventory*

Carriageways	Footways & Cycleways	Bridges	Lighting points	Junctions & Crossings
c. 280,000 km 10% A road 7% B Road 23% C Road 60% U Road	**c. 265,000km** 88% Bituminous 8% Flagged 4% Other	**c. 50,000 bridges** (incl. road, foot and aqueducts)	**c. 5,000,000** 54% LED Lamps 24% Sodium Lamps 9% Mercury Lamps 8% Cosmopolis Lamps 5% HID Lamps	**c. 45,000** 22% Pedestrian Crossings 78% Junction Signals
Service life A Road – c. 20 years B Roads – c. 25 years C Roads – c. 30 years U Roads – c. 50 years Drainage – c. 60 years	**Service life** Bituminous – c. 30 years Block pave – c. 40 years Concrete – c. 60 years Slabs – c. 40 years	**Service life (years)** Waterproofing – c. 20 Expansion joints – c. 20 Bearing renewal – c. 30 General repairs – c. 30 Parapet maintenance – c. 20 Drainage cleaning – c. 5	**Service life** Column life – c. 40 years LED Lamp – c. 20 years Other Lamps – c. 5 years	**Service life** Traffic signs – c. 25 years

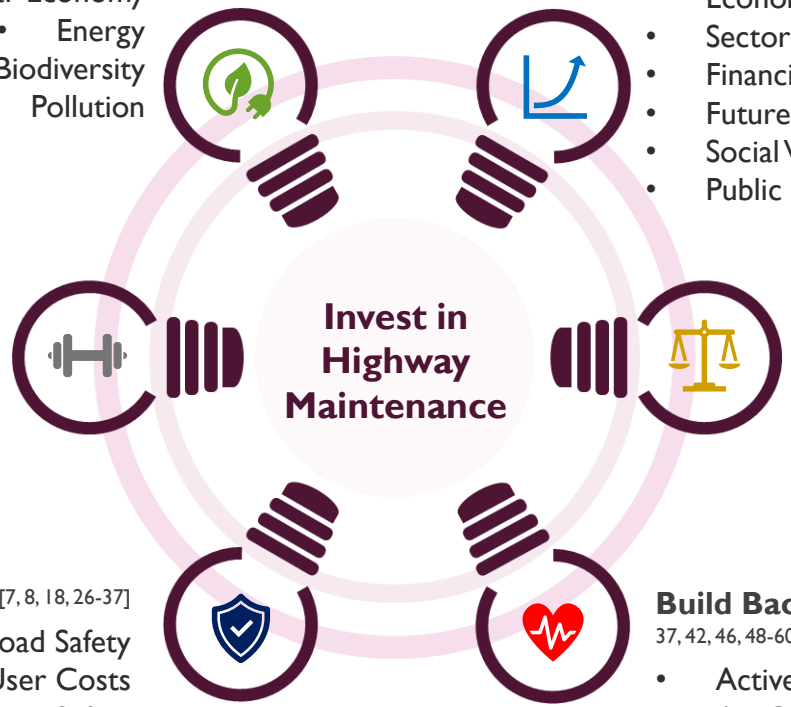
** Based on information provided by DfT and Highway Authorities*
*** Based on England figures in State of the Nation – 2020 Streetlighting Survey*

Linking Investment to Benefits

Build Back Greener [7-19]
- Net Zero
- Circular Economy
- Energy
- Biodiversity
- Pollution

Build Back Better [7-9, 12, 17, 18, 32, 38, 39]
- Local, Regional, National Economic Growth
- Sector Employment
- Financial Performance
- Future Funding Sources
- Social Value
- Public Satisfaction

Build Back Stronger [8, 18, 20-25]
- Climate Change Adaptation
- Network Resilience
- Global Britain Exports



Build Back Fairer [8, 13, 28, 40-47]
- Levelling Up
- Pride of Place
- Accessibility and Inclusion
- Regeneration

Build Back Safer [7, 8, 18, 26-37]
- Road Safety
- Reduced Road User Costs
- Personal Security & Safety
- Worker Safety

Build Back Healthier [9, 13, 15, 19, 28, 37, 42, 46, 48-60]
- Active Travel
- Air Quality
- Wellbeing
- NHS and Social Care

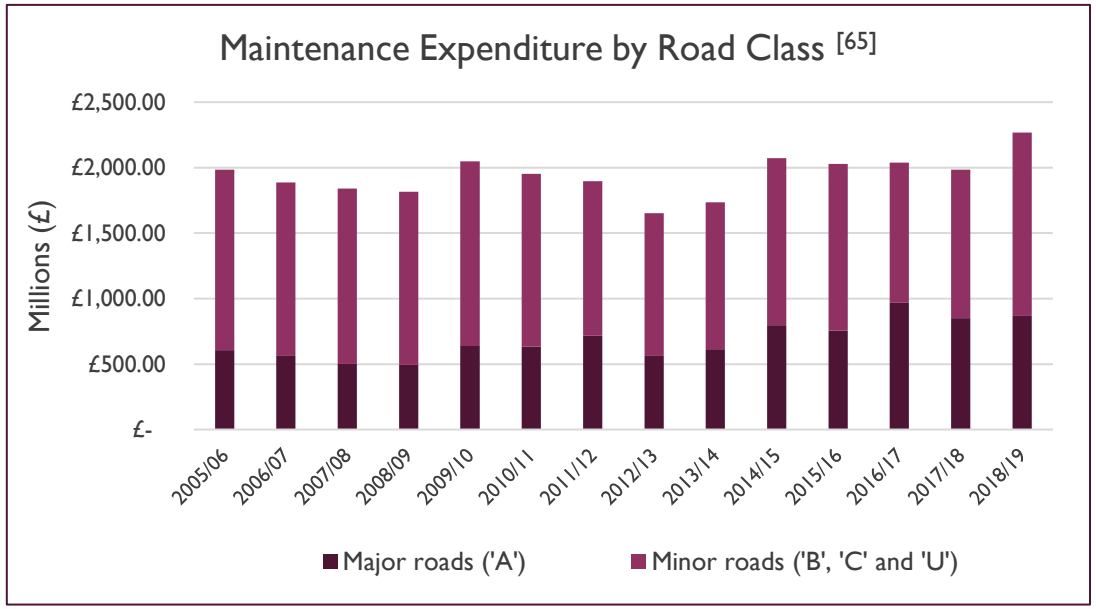
ECONOMIC RETURN [61-63]
- For every additional £1 invested, an absolute minimum return of £2.20, with analyses identifying typical returns of up to £9.10 at national level. Further socio-economic benefits are estimated to provide up to a further £5+, work underway by sector to quantify this more closely. BCRs for specific schemes such as critical structures / bridges may reach three figures

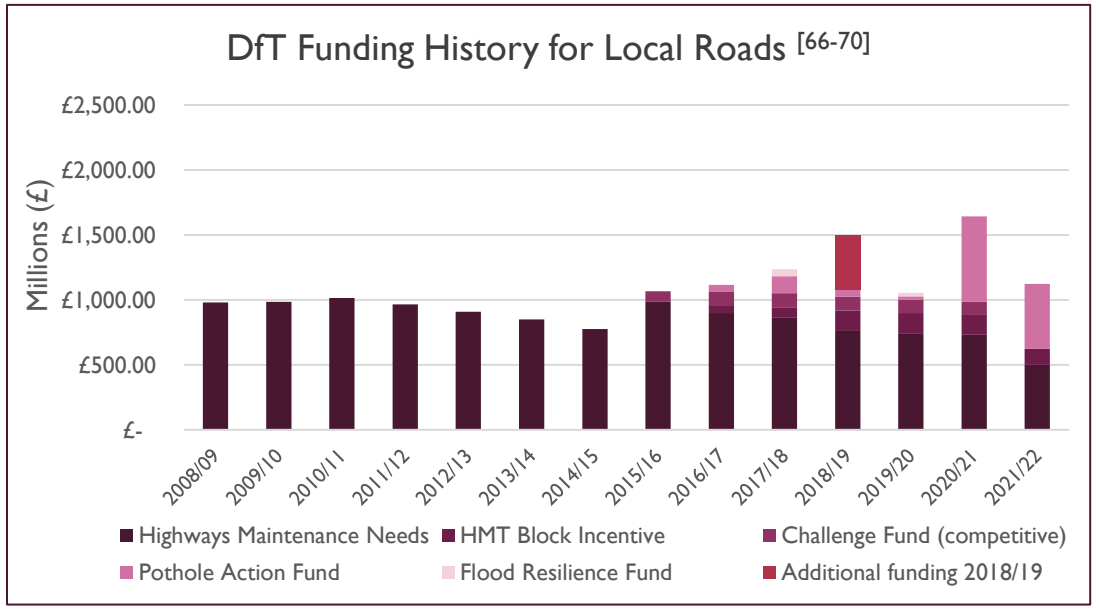
STRATEGIC RETURN
- Levelling up – benefits spread across all English local authorities
- Green recovery – improved management of built assets and green estate
- Global Britain – domestic growth of sector to open up access to trillion dollar global market
- Health & wellbeing – enabling healthy travel choices (walking, cycling, e-scooters and public transport)
- Climate change – keeping Britain moving by making the network resilient to severe weather

DELIVERABILITY
- Sector and schemes "ready to go", constraint is current investment
- Mature asset management processes to ensure value and efficiency
- Low risk than infrastructure megaprojects of similar value
- Creating and sustaining jobs & careers

Historical Expenditure and Funding

- Highway capital (renewal) works are currently funded through a combination of central government allocation through DfT and contributions from other sources such as local authority raised funds including borrowing, use of capital reserves and monies from parking fines and other fees (the latter is currently approx. 50% of the total capital spend on English local road renewals).[64]
- Maintenance expenditure in the past 10 years was c.£2bn per annum at present value
- DfT funding for local roads in the past 10 years was c. £1bn per annum at present value, combining need-based allocations with incentive funding, challenge funds and pothole funds

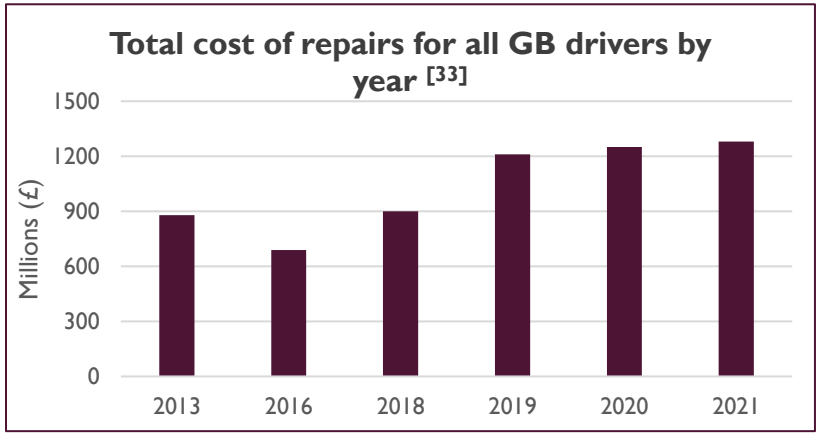


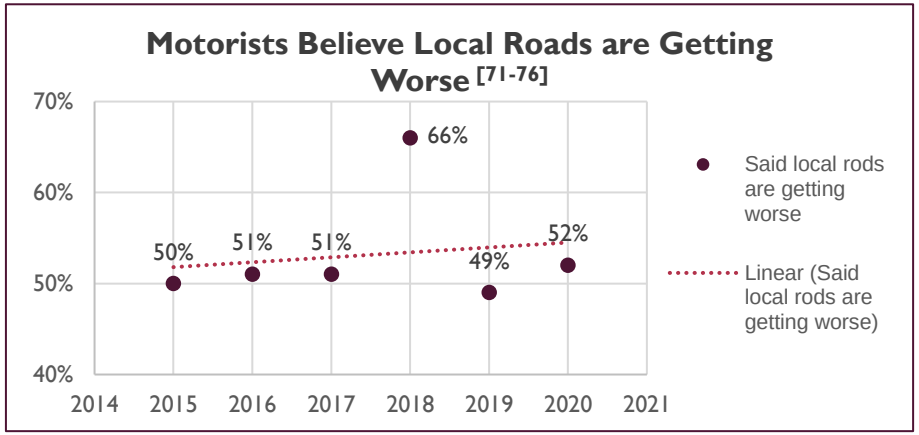


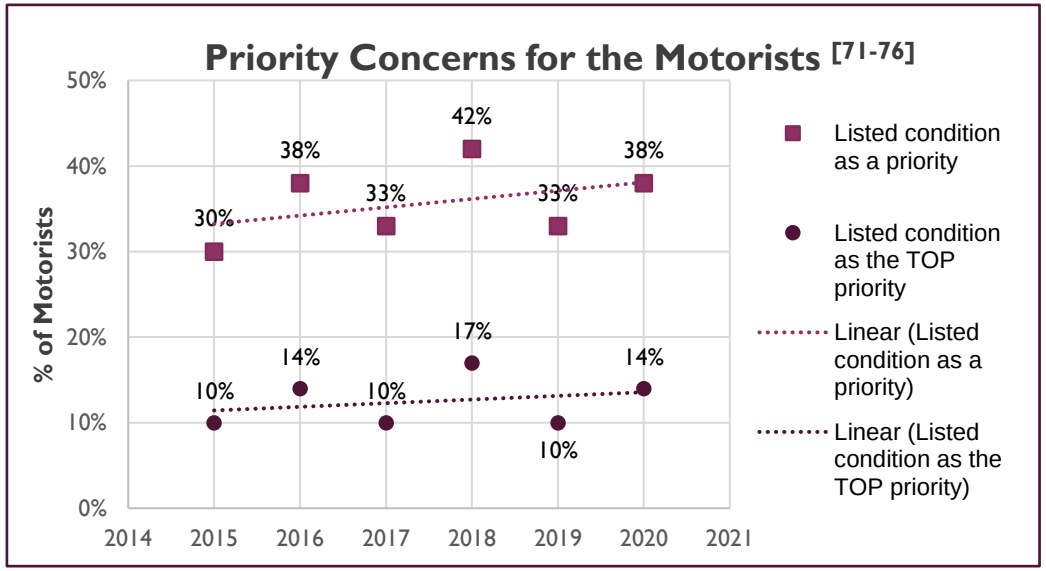
All prices are in 2020/21 value

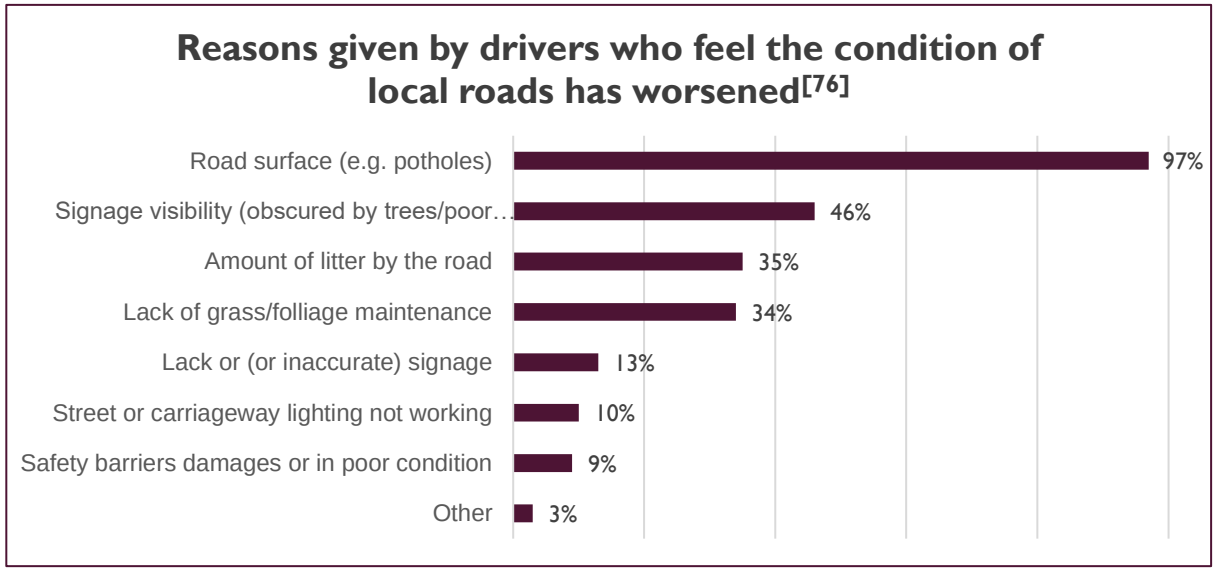
Impact of Historical Investment Levels – Motorists

- The condition of the roads are increasing motorist operating costs.
- Over 6 years, the RAC reports that motorists believe that the condition of local roads are getting worse.
- Drivers state the Road Surface Condition is a top priority/concern.

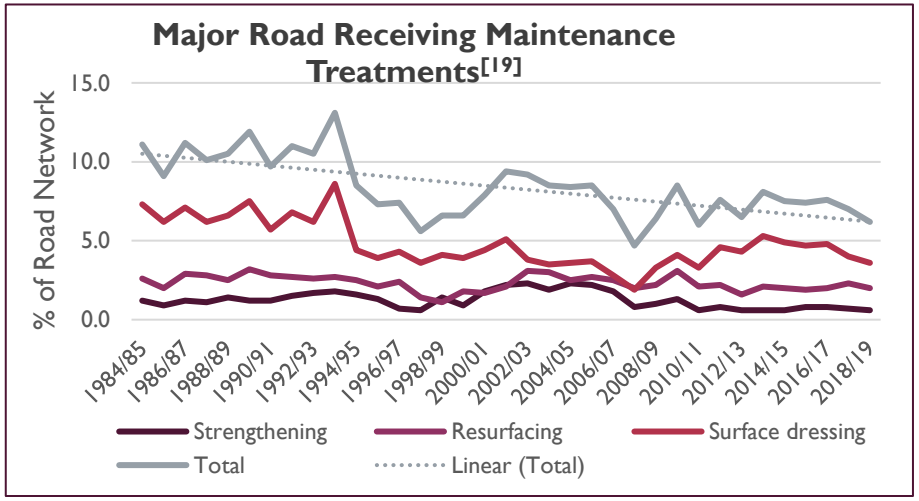


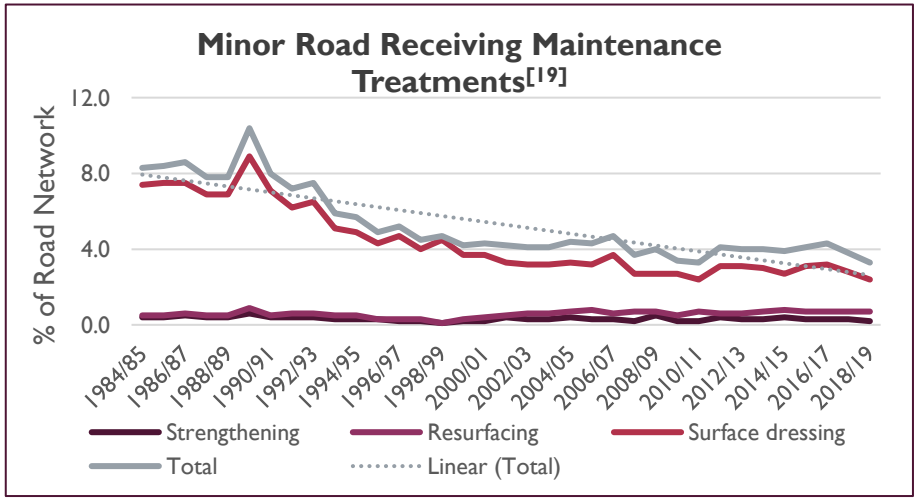




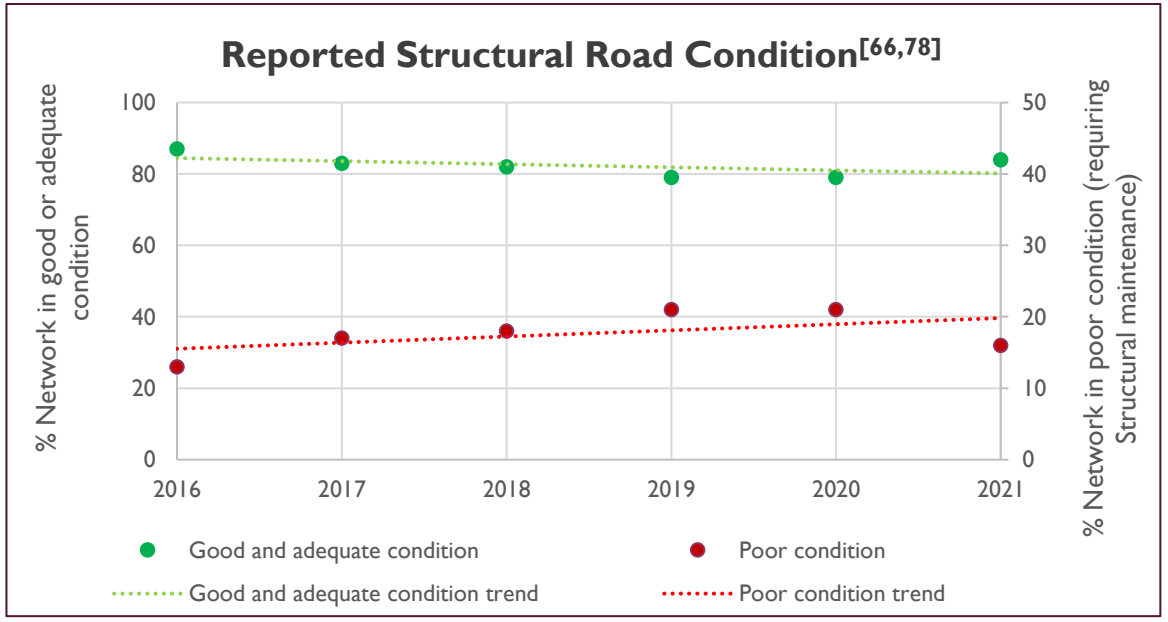


Impact of Historical Investment Levels – Road condition



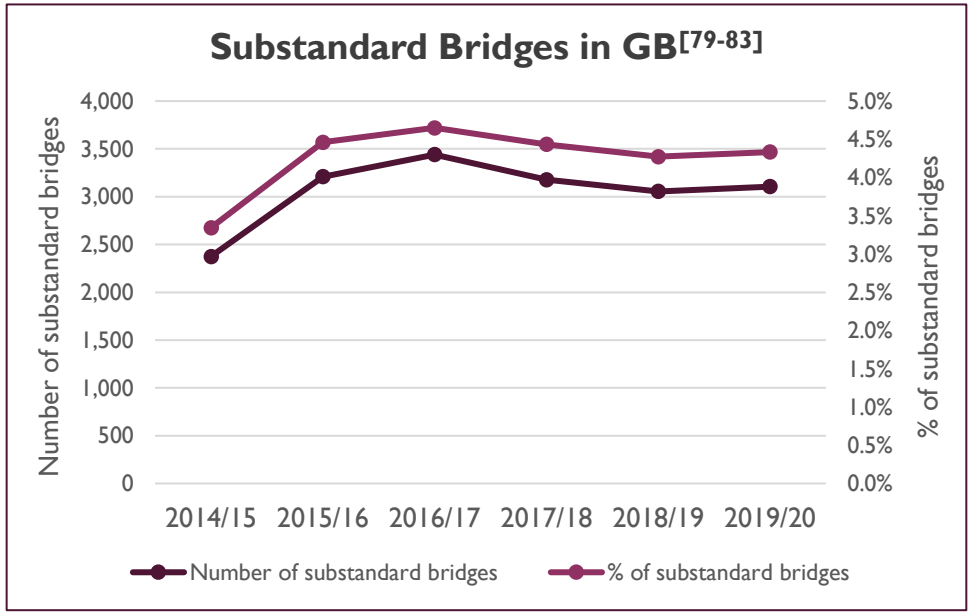


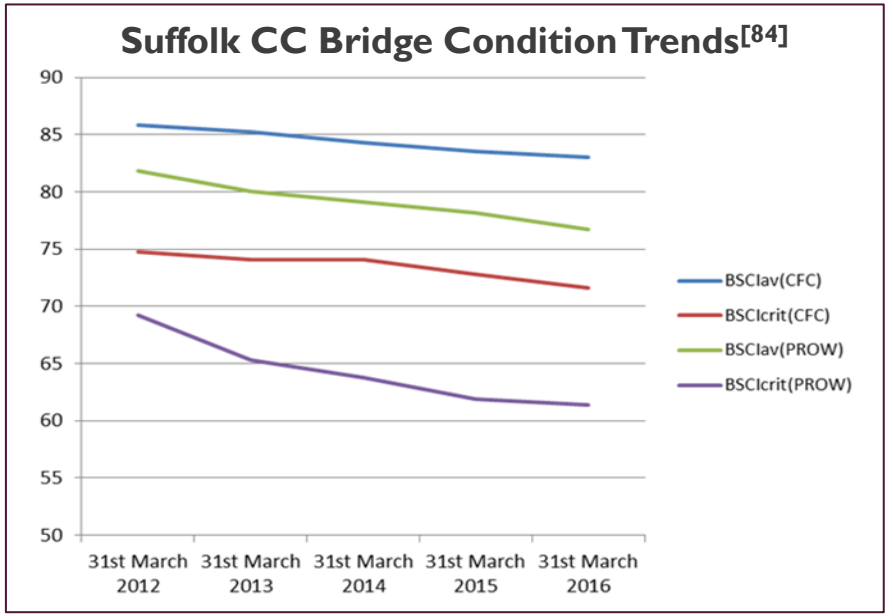
- DfT data indicates a decline in maintenance undertaken across the local road network, with the Minor Roads taking the biggest hit.
- DfT data highlights the reduction of Strengthening works, with local authorities adopting short-termer term fixes to spread their budget across the aging asset.
- Recent ALARM surveys indicates circa. 1% (2,800km) of the local road network degrades into poor condition per year



Impact of Historical Investment Levels – Structures condition

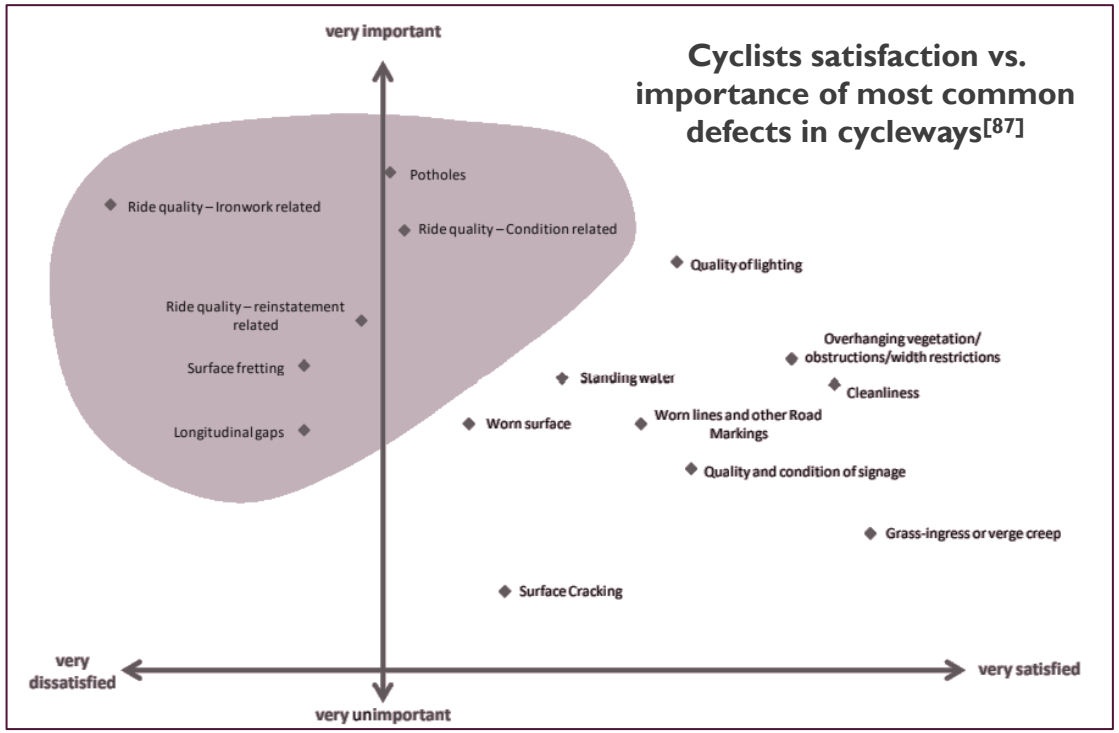
- Highway Structures cover a range of different sub-assets; the most visible are Bridges, but there are other structures such as tunnels, culverts, retaining walls, High Mast Lighting and Sign Gantries.
- Structures are vital for connecting communities across bodies of water, through or along the side of a mountain; failures in structures can be catastrophic in impacting local communities, such as the Northside bridge (Workington, Cumbria) collapse[85] or retaining wall failure such as A62 Huddersfield Road junction causing a 12-mile diversion for six months [86].
- National surveys such as RAC indicates a decline in the condition of the bridge stock, which is mirrored in the Suffolk CC Bridge Condition data.

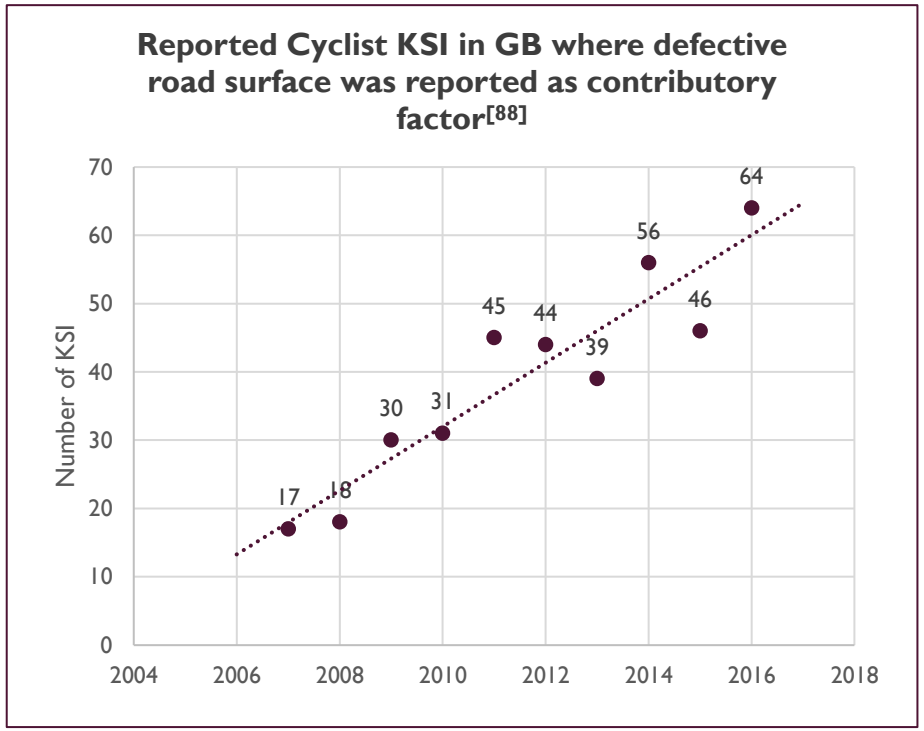




Impact of Historical Investment Levels – Cyclists

- Nearly one in three (31%) older adults (aged 65+) are prevented from walking more or at all on their local streets because of cracked and uneven pavements, equating to over 3.5million people in the UK. The new research found that half of older adults (48%) would walk more if their pavements were well-maintained [46].
- National statistics indicates a declining trend in motorist KSI's due to safety improvement in vehicles, the same trend has not been observed with cyclists due to the increase in cyclist traffic and the decline in road condition.





Impact of Climate Change and Network Resilience

Consequence to Local Roads

- Climate change impacts on the local network include pressure on drainage and risk of flooding, scour damage to bridges and risk of collapse, and damage to road surfaces and other asset types via extreme heat, cold and wet conditions [101].

- In 2009, the Cumbria floods resulted in £100s of millions of damage, including the loss of 20 road bridges and long-term disruption for local communities [102].
- On average, damage due to surface water flooding exceeds £300 million every year, and Defra estimates this could increase by approx. 40% by 2050 if current management approaches continue [103].
- Direct impacts to local road networks lead to cascading failures and long-lasting effects on society such as damage to other infrastructure such as energy and communications, economic impacts of delays and diversions, disruption to schools and isolation of communities [104].

- Retaining walls in Derbyshire required major interventions due to increased flow levels of rivers, causing closure of the A6/A38 junction, leading to 22km diversion costing the local economy c.£90,000 per day [105].
- In 2021, the Met Office issued an amber extreme heat warning as temperatures soared to 32.2C in some parts of England, with roads melting as the asphalt surface absorbed heat and reached 50°C [106].
- Drought conditions in Cambridgeshire and Peterborough impacted on soil conditions leading to carriageway damage, that without major maintenance will lead to network restrictions/ closures or incur unsustainable additional costs >£0.5 million per annum on short term repairs [110].

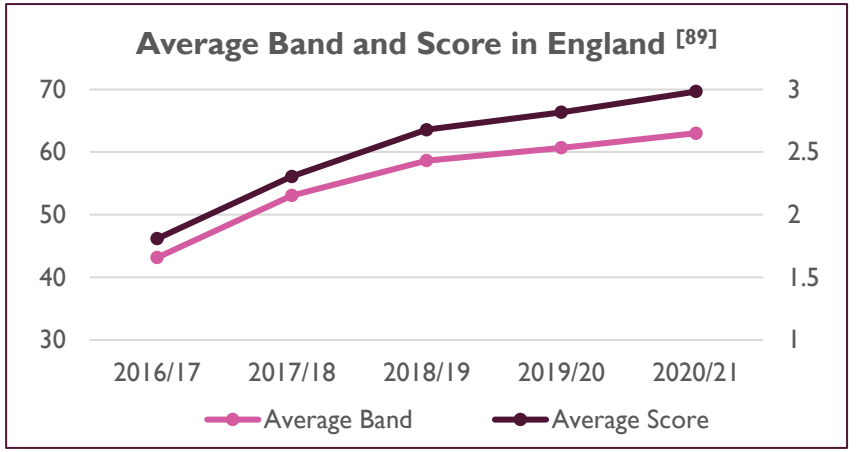
Impact of Climate Change and Network Resilience

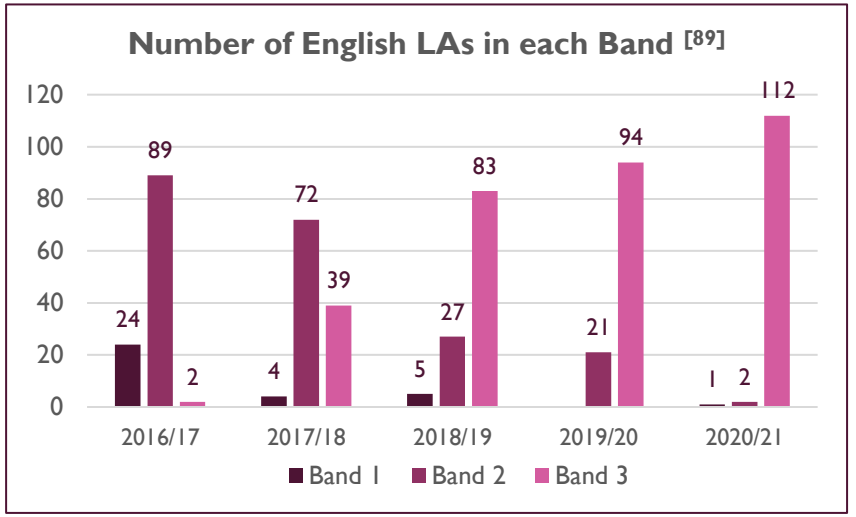
Proactive Mitigation

- The Transport Resilience Review recommended that Local Highway Authorities identify a 'resilient network' to which they will give priority, in order to maintain economic activity and access to key services during extreme weather, and that DfT, MHCLG, ORR and HMT should ensure that funding decisions are informed by asset management plans and do not unduly restrict maintenance [107].
- The HIRAM decision support tool (case study C9) enables local highways teams to identify locations most at risk from severe weather across the network and estimate the economic and social costs of disruption if no preventative action was taken (£m / £bn impacts if that risk was realised) [108].
- Preventative maintenance schemes have demonstrated very high returns and value for money, e.g., work in Norfolk to upgrade key drainage infrastructure to address long standing flooding issues across a wide residential and economic growth area provided a BCR of 6.6 [92].
- Industry groups such as the Midlands Highway Alliance have developed guidance for local authorities in adapting to climate change, which includes selection of materials, and maintenance of drainage assets, bridges / other structures, and green infrastructure /soft estate [109].

Incentive Fund and Self-assessment Scores

- Each local highway authority in England (excluding London) completes a self-assessment questionnaire, to establish the share of the Incentive fund they will be eligible for.
- Each authority will score themselves against 22 questions and place themselves into one of 3 Bands based on the available evidence. Assurance of the self-assessment process is provided by validation of returns by Section 151 officers.
- The incentive funding awarded to each local highway authority will be based on their score in this questionnaire and will be relative to the amount received through the needs-based funding formula.
- The self-assessment bands are based on the maturity of the authority in key areas, which are described in each question. The levels of maturity are described below:
  - **Band 1 –** Basic understanding of key areas and in the process of taking it forward.
  - **Band 2 –** Can demonstrate that outputs have been produced that support the implementation of key areas that will lead towards improvement.
  - **Band 3 –** Can demonstrate that outcomes have been achieved in key areas as part of a continuous improvement process.
- The results demonstrate **significant improvement in maturity across virtually all English Local Highway Authorities.** This provides confidence in the efficiency of their management of local roads within current financial constraints and reinforces that additional **investment will be allocated effectively to provide strong value for money.**



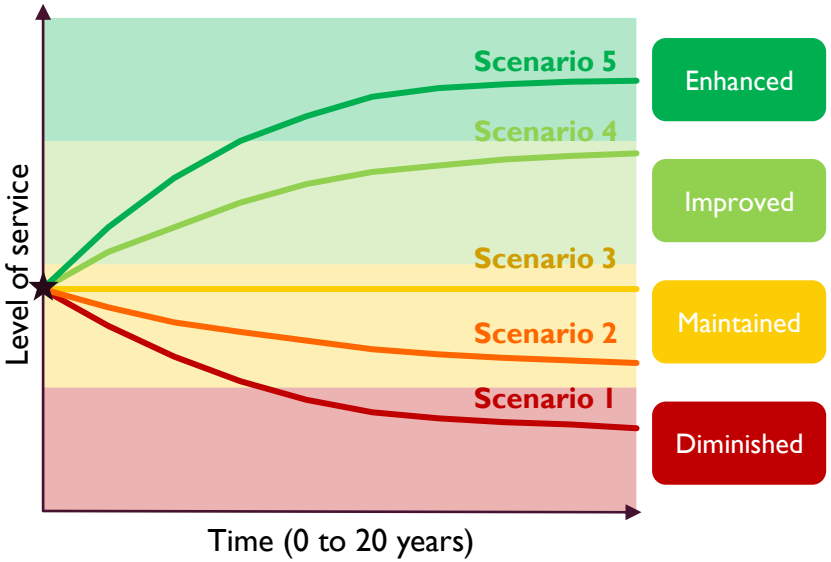


Investment Scenarios

Investment Scenarios
Summary of Impacts and Benefits

Investment Scenario	DfT funding required (pa)	Other funding* (pa)	Description
1. Decline: Investment levels remain at 2021/22 levels	£1.125 bn	£0.6 bn	▪ **Backlog** – unsustainable and growing by c.£375m per annum ▪ Network condition will decline, will be evident through bridge restrictions, flooding, more footway and carriageway defects; and a reactive management strategy
2. Managed decline: Investment below required level to maintain the current levels of service	£1.3 bn	£0.6 bn	▪ **Backlog** – unsustainable and growing by c.£200m per annum ▪ Network condition will slowly decline leading to a reactive management strategy
3. Maintain: Investment required to maintain a basic highway service	£1.5 bn	£0.6 bn	▪ **Backlog** – holding at current level and prevents increase ▪ Condition generally remains as is (B, C and Unclassified roads in poor condition), large backlog of bridge and structure works, and substandard drainage
4. Gradual improvement: Start to address backlog and gradually improve network	£1.7 bn	£0.6 bn	▪ **Backlog** – reduce by c.£200m per annum, backlog removed in 20yr ▪ Address risks and start to move to a planned/proactive management strategy
5. Accelerated improvement: Accelerate backlog reduction and condition improvement	£1.9 bn	£0.6 bn	▪ **Backlog** – reduce by c.£400m per annum, backlog removed in 10yr ▪ Evident improvement to all asset condition and network performance

** Assumption: this funding will be sustained under all scenarios*



English local roads backlog – in 2019, the backlog was estimated to be between £6bn and £9bn (UKRLG Asset Management Board 'State of the Nation' report). Since 2019, it is anticipated that the backlog has increased by c. £1 billion due to subsequent investment levels, inflation, deterioration and short-term funding strategies. Increase in backlog based on 'Annual Need' Calculations (see Appendix)

Current status – slow deterioration for now, however this will accelerate in future years if current levels of underinvestment are not addressed imminently.

Investment Scenarios
Summary of Impacts and Benefits

Contribution of the local road network towards national Government Policy objectives and socio-economic growth

Build Back	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Better	🟡	🟡	🟢	🟢	🟢
Healthier	🔴	🟡	🟢	🟢	🟢
Fairer	🔴	🟡	🟡	🟢	🟢
Safer	🟡	🟢	🟢	🟢	🟢
Stronger	🔴	🟡	🟢	🟢	🟢
Greener	🔴	🔴	🟡	🟢	🟢

- **Enhanced contribution** to UK Government's 'Build Back' Objectives
- A good/high-quality service that delivers parity across the regions
- High levels of safety, network service, sustainability and customer satisfaction
- Increased level of investment in people and equipment across the sector, supporting the development and adoption of innovations for future network usage, such as mass modal shifts to active travel, electric vehicles and Connected / Autonomous Vehicles

- **Improved contribution** to UK Government's 'Build Back' Objectives
- Adequate and acceptable service that is focused on safety, resilience and reliability, with risks being managed through mixture of planned and reactive works
- A broadly acceptable customer experience; reducing complaints and claims
- Increased level of investment in resources, to provide greater capability and capacity

- **Maintained contribution** to UK Government's 'Build Back' Objectives
- The service risks are managed through robust and defensible practices
- Reduced service resilience and reliability, with a focus on assets that support the economy such as carriageways and structures; less funding for assets such as footways, cycleways and street lighting
- Lower levels of customer satisfaction with limited focus on customer priorities

- **Diminished contribution** to UK Government's 'Build Back' Objectives
- Significant unplanned service impacts and low level of network resilience
- Low levels of safety and customer satisfaction, causing increased injuries and claims
- Building a large renewals debt/backlog that will take years (5, 10 or more) to address
- Loss of experienced people and increase in the skills gap across the industry

Outputs and outcomes per asset types

Indicative split for each +£200M increase

Asset	Indicative allocation[90]	Equivalent to additional outputs of:	
Carriageway and drainage	per +£75M	▪ Resurface c. 480km of roads; or, ▪ Replace c. 600km highway drains	
Footways / cycleways	per +£50M	▪ Resurface c. 1,200km of footway / cycleway; or, ▪ Reconstruct c. 1,000km flagged footway; or, ▪ Slurry seal c. 2,400km of footway / cycleway ▪ See image	

Outputs and outcomes per asset types (continued)

Indicative split for each +£200M increase

Asset	Indicative allocation[90]	Equivalent to additional outputs of:	
Structures	per +£50M	▪ Build c. 160 new single span vehicle bridges; or, ▪ Replace c. 270km of 2m high retaining wall.	 A7 Longtown, Cumbria – collapsed Retaining Wall
Lighting/ ITS	per +£25M	▪ Replace and LED c. 10,600 units; or, ▪ Convert c. 500 Pedestrian crossings into Toucan crossings; or, ▪ Replace c. 250 traffic signal junctions	

Outputs and outcomes per asset types (continued)

Indicative split for each +£200M increase

Asset	Indicative allocation[90]	What do we get (output)		Example
Carriageway and drainage	per +£75M	▪ Reduction in Potholes ▪ Reduction in Injuries/Claims ▪ Reduction in CO2 ▪ Quieter Road Surface ▪ Improved Safety ▪ Reduce reactive maintenance	▪ Improved Drainage ▪ Improved Road Markings ▪ Improve Aesthetics ▪ Reduction in Backlog ▪ Improve network resilience ▪ Improved coordination of works	▪ West Midlands: £45m invested in carriageways with BCR of 6.51 [91] ▪ Norfolk: £10m invested in drainage with BCR of 6.6 [92]
Footway/ cycleways	per +£50M	▪ Improved condition ▪ Improved Aesthetics	▪ Reduction in Backlog ▪ Reduction in Injuries/Claims	▪ Commons Library Briefing estimates BCR of active travel investment of 5.62[13]
Structures	per +£50M	▪ Reduction in unexpected structural failures ▪ Reduction in Backlog	▪ Reduction in diversions and journey times ▪ Reduction in Restrictions	▪ Portsmouth: £12m invested in bridge replacement with BCR of 114 [93]
Lighting/ ITS	per +£25M	▪ Reduction in unexpected structural failures ▪ Increase EV Charging Infrastructure ▪ Increase Active Travel Infrastructure ▪ Improved safety and security	▪ Increase in LED's / Reduction in OpEX and CO2 ▪ Connected Intelligent Traffic Systems (ITS)	▪ Lancashire: £20m invested in LED street lighting with BCR of 4.91 [94]

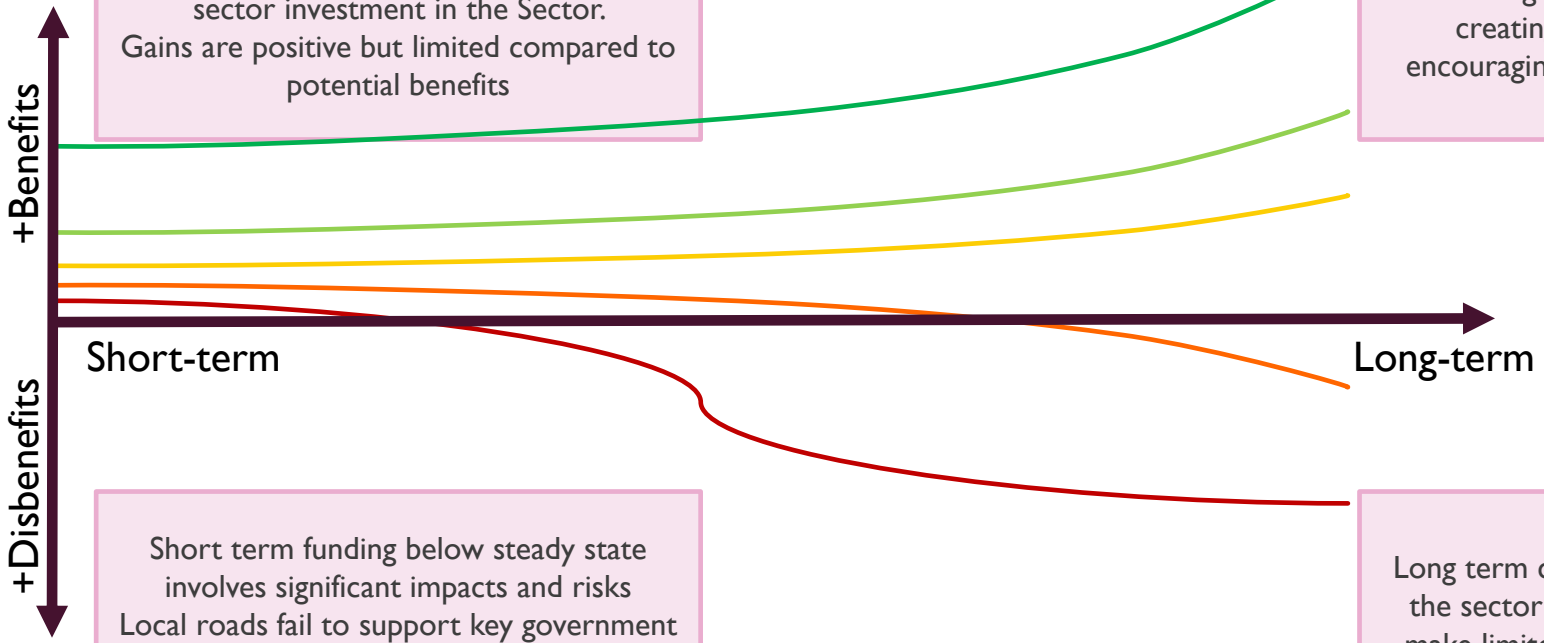
Benefit of Local Road Maintenance – Potential socio-economic contributions

- Improved maintenance of the local road network will create benefits across the following themes, to be determined by level of investment and targeting of maintenance interventions:
  - Reduction in current costs associated with claims – £12.5m [66, 78]
  - Reduction in congestion costing UK £7.9bn in 2019 [9]
  - Reduction in damage to vehicles, annual estimates ranging from £1.25bn [95] to £4.09bn [53]
  - Reduction in costs associated with physical inactivity of £7.4bn per annum [42]
  - Reduction in annual costs to society of transport-induced poor air quality, ill health and road accidents of £40bn, and traffic accidents costing around £9bn [53]
  - Reduction in cost of health impact of air quality associated with transport of £4.5bn to £10.6bn at 2009 prices = £5.6bn to £13.3bn today [55]
  - Minimise impacts of severe weather that have cost up to £280m per day of disruption [24]
  - Reduction in absenteeism costs to business of £5bn per annum due to physical inactivity [58]
  - Reduction in NHS costs of £17bn over 20 years due to active travel replacing short motor vehicles, plus potentially additional £2bn per annum due to reduced obesity levels [59]
  - Reduction in costs to SMEs in wasted staff time, fuel costs, vehicle repair costs and production of £5bn per annum [32]
  - Generate savings of £6.8bn in electricity costs over 25 years from £755m investment in LED upgrades [96]
  - Potential share of $900bn global market in highway maintenance [20]

Investment Certainty [97-100]

Short term increase in funding supports improvement but does not sustain private sector investment in the Sector.
Gains are positive but limited compared to potential benefits

Increased capital investment and longer-term settlement provides virtuous circle, maximizing benefits of asset management, creating economies of scale and encouraging investment in people, skills, technology.



Short term funding below steady state involves significant impacts and risks
Local roads fail to support key government policy targets and has broader socio-economic disbenefits for all

Long term certainty of "bad news" allows the sector to cut cloth accordingly and make limited investments to slow down increase in disbenefits over time

Public Value Framework

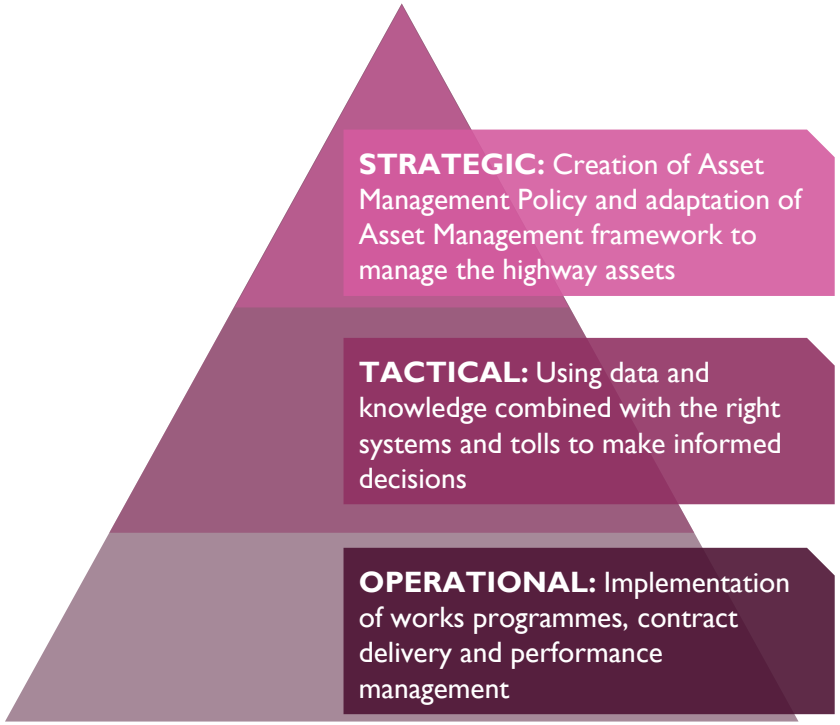
Pillar 1: Pursuing Goals – Summary

- Local roads make up 98% of the network and are used in almost every journey. The local road network is estimated to be worth £400 billion – of the UK's most valuable public assets.
- Well-maintained local roads allow for faster and more reliable journeys, boosting local businesses and serving all road users. High quality local roads are also central to the future of transport, playing an important role in the take-up of autonomous vehicles and greener forms of transport such as cycling and buses. If we are to meet the aims of the National Infrastructure Strategy and deliver in a way that is fairer, faster and greener, then we must invest in the condition of our local roads.
- Local roads are the arteries that truly unite our countries they are the ties that bind communities together. If we are to unleash the full productive power of every corner of England and bring hope and opportunity for each part of the UK, then we must ensure that the life blood of our economy is 'pumping' through these veins.
- For decades, local roads have been the poor relation, underinvestment has led to a decline in the underlying condition of all components of the asset, a plague of potholes, and widespread public dissatisfaction. Over the last decade the Department for Transport (DfT) working with Local Highway Authorities (LHAs) has focused on embedding the efficient and effective highway asset management practices that have helped arrest the rate of decline and ensured that every pound invested in the condition of our Local Roads can generate maximum return for the economy. The highway sector now has the tools to deliver well, but it is clear decades of neglect cannot be halted through efficiency alone, substantial and sustained investment is required to halt the decline and stabilise the overall health of our nation's infrastructure, all of which depends on our Local Roads.

Case Studies C1, C2, C3, C4, C5

Pillar 2: Managing Inputs – Summary

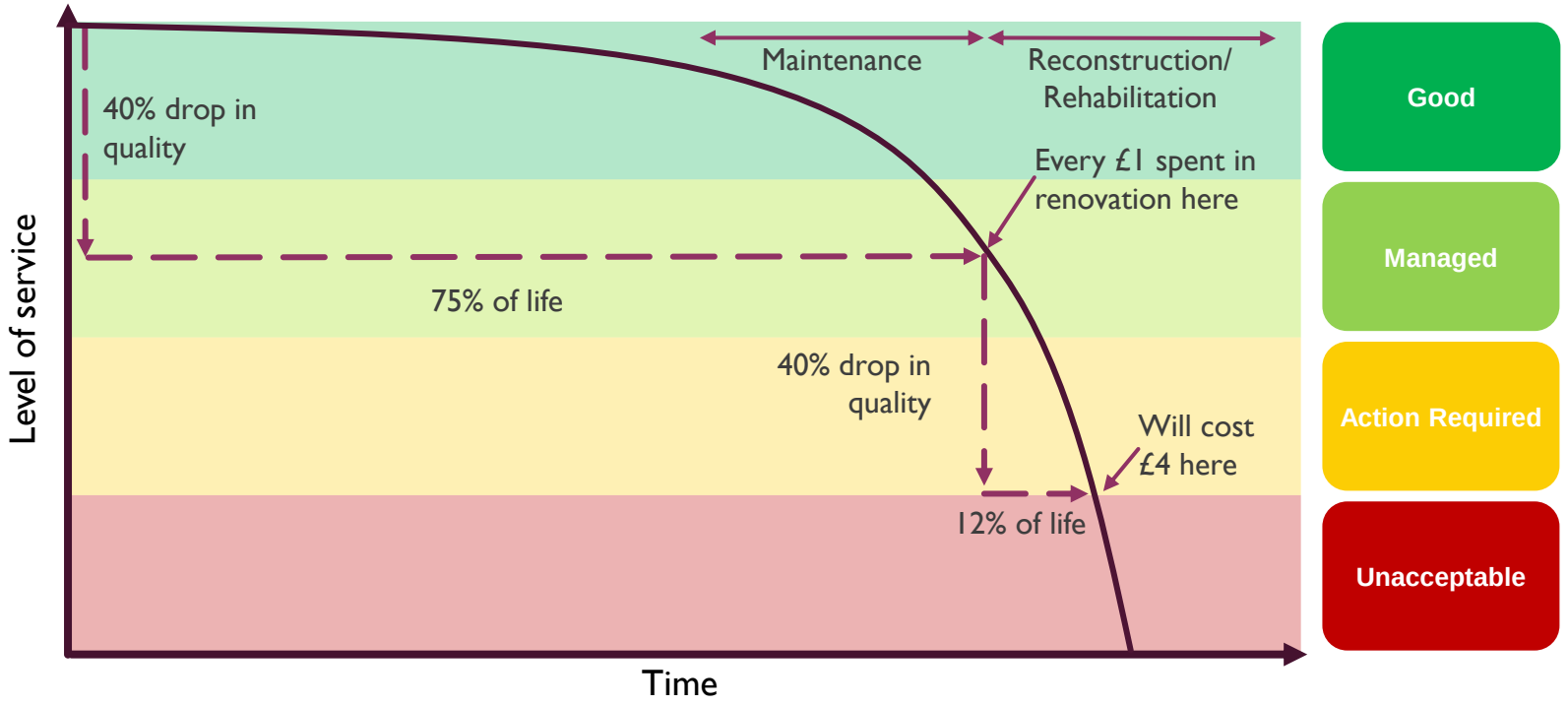
- The local road sector has universally adopted asset management as a means to delivering highway maintenance to the best possible effect within financial constraints.
- Line of sight is provided from high levels objectives through to operational activities, and a data-led process supports decision making and financial planning.
- National level analysis has been undertaken by the UK Roads Liaison Group and DfT, as part of the State of the Nation work that has informed this overall submission.
- Local level analysis is done through Asset Management Strategies and Lifecycle Plans, based around local levels of service, scrutiny of members and engagement with stakeholders.
- Funding is currently uncertain from year to year, with multiple streams that are not ringfenced. As such, highways teams use asst management principles to make the case and optimising spend that is allocated.
- Benchmarking across local highway authorities is common via regional groups, industry organisations and peer reviews. Value for money is also promoted via competitive tendering for contractors to deliver highway maintenance services, and the promotion of innovation across the sector.
- Managing risk is at the heart of asset management, and authorities generally adopt the UKRLG Code of Practice (Well-managed Highway Infrastructure), which promotes the use of a risk-based approach to managing local road networks.



Case Studies C6, C7, C8, C9, C10, C11, C12, C13, C14

Pillar 2: Managing Inputs

The right intervention at the right time = enhanced value for money and improved service



Pillar 3: User and Citizen Engagement – Summary

- The National Highway and Transport Public Satisfaction Survey (NHT Survey) collects the public's views on different aspects of Highway and Transport in local authority areas annually. Local highway authorities are using insights from the NHT Survey to inform their asset management strategies.
- The Public value better quality roads; and they appear to value roads in their locality most. Consequently, The Public value interventions on the road network in their locality, they value seeing improvements to "their" roads.
- Demographic factors and car ownership also impact expected satisfaction with highways, car dependency increases the level of dissatisfaction with the condition of roads. The Public value local roads highly and the taxpayer will welcome substantial investment in their local roads. Such investment will enhance public satisfaction.
- Potholes are most visible issue, but all aspects of network have potential impacts on users and their lives
- The NHT Survey informs the link between user and client experience and better outcomes, DfT has worked with the highway sector to establish a comprehensive performance management framework (PMF). Using a framework is fundamental to support the implementation of an asset management strategy and can be used to measure performance and continuous improvement in general.
- Value for money for the taxpayer is linked through a measurement hierarchy to allow aggregation of performance at any level and an overall assessment of performance at each level and all is underpinned by a standard set of national measures across the nine main components of the asset that form our Local Roads: Carriageways, Footways, Cycleways, Rights of Way, Drainage, Green Infrastructures, ITS Infrastructures, Street lighting and Structures.
- Plans to improve participation and drive change through understanding the user experience well are being encouraged through the DfT's incentive fund and a well-developed network of best practice improvement groups and highway alliances. The highway sector can deliver but can only do so if given the resources to do so.

Case Studies C14, C15, C16, C17, C18, C19, C20, C21, C22, C23

Pillar 4: System Capacity – Summary

The highways supply chain is well established and used to reacting to large and short notice changes to work programmes as a result of national and local changes in budget allocations. Although this has become almost customary, it nevertheless results in inefficiencies and certainty of funding over a medium to longer period would allow both local authorities and the supply chain to realise the full efficiencies of planning capacity in terms of their procurement and operations, economies of scale and well-trained clients, supervisors and operatives.

- Well-established, skilled and professional industry combining public and private sector – wide ranging supply chain, including SMEs
- Supported by regional / national groups, professional institutions, and engagement with stakeholders throughout BAU
- Collaborative behaviours / sharing of good practice and innovation, benchmarking as previous
- Contracting models for delivery
- Ongoing development of staff and leadership, competence frameworks
- Significant growth potential (jobs, technology) if certainty of funding is provided, sustainable over long term
- Can ramp up and spend investment wisely, quickly, nationally and at lower risk than megaprojects

Case Studies C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39

The 13 areas to consider under the Public Value Framework

Pillar 1: Pursuing Goals

1. Understanding vision and goals

- The vision for local roads across England – ***'Delivering value, prosperity and a heathier society through highway maintenance'***
- Desired outcome – ***'A safe, cost effective and well maintained highway network that supports economic growth, social mobility, healthy travel choices and a shift to greener lower carbon materials and solutions'***
- Investing in local highways will deliver benefits for other sectors within each LA ➡ 
- Through good and cost effective maintenance, LAs aim to maximise the contribution they make to the local and national economies, health and wellbeing, and the environment.
- DfT and LAs working together using established, monitor the value of their highways assets and aim to invest enough to maintain those assets at the same value
- Interdependencies with virtually all other big gov policies
- Constraints via level and certainty of investment, capacity and capability within sector (linked to previous)

Pillar 1: Pursuing Goals

2. Degree of ambition

- Our objectives, and those of each LAs, are aligned with national guidance, strategies and commitments.
- National guidance developed through improvement and update of existing material with gov policy and lessons learnt, plus extensive collaboration within and outside DfT / LA (e.g., professional institutions, user groups etc.)
- We know what we should we doing, but LAs simply don't have enough budget so they end up just focusing on filling potholes and not delivering other benefits and services to their communities
- Long term budgets (5-10yr) will allow LAs to coordinate with other government initiatives (e.g., broadband rollout via utilities, weight of EVs, charging infrastructure) that often have an impact on the condition of highways assets. This will allow for more efficient AM and increased value for UK PLC across virtually all public and private activity.

Pillar 1: Pursuing Goals

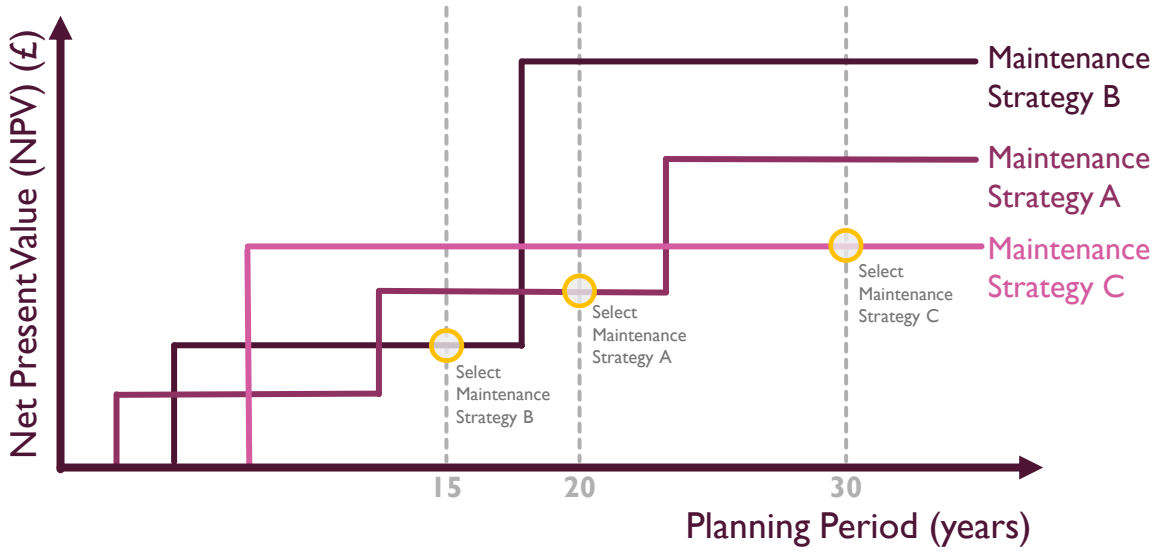
3. Implementing planning and monitoring progress

- Asset management strategies and plans are reviewed regularly to ensure senior 'buy-in' and scrutiny of approach
- There are processes in place to review and monitor the delivery of AM objectives
- Standard reporting from LAs to DfT and government
- Encouraging and facilitating AM processes to gather asset data.
- We want to manage and monitor other assets (not just carriageways) but we need comparable data across asset types to do be able to do so.

Pillar 2: Managing Inputs

4. Managing financial resources

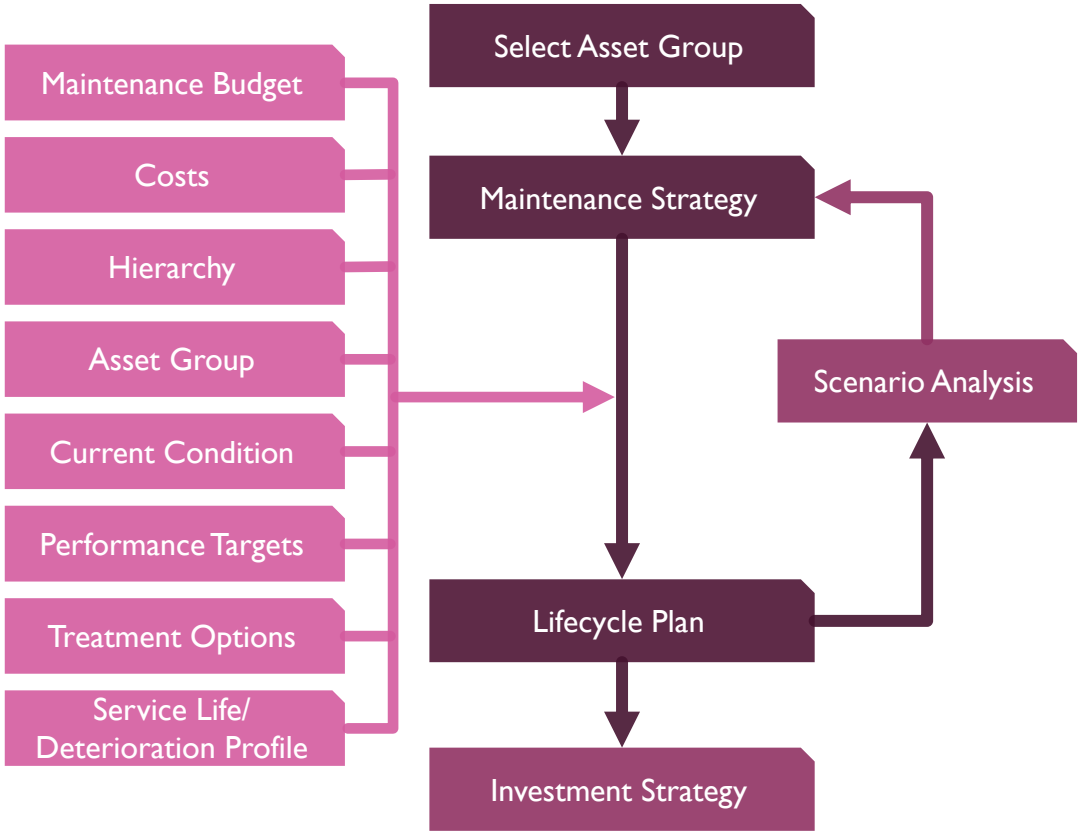
- Local highway authorities have implemented asset management strategies for many years, linking the use of resources to the delivery objectives. These provide line of sight from Government policy, through the Department for Transport, to local authorities and then ultimately supply chain.
- Asset management strategies and plans are reviewed on a regular basis to ensure senior 'buy-in' and scrutiny of approach, with continual improvement and refinement. Management information is regularly provided to senior leadership to provide scrutiny and sign-off of asset management plans, using a combination of high-level information with more granular data available where necessary.
- Highway professionals have been facing historic and recent challenges well, however there is a limit to how much can be achieved with current resources. Major challenges relate to increasing demand on the network, increasing levels of customer expectation, increasing levels of maintenance backlog and increasing pressure on maintenance funding.
- There are processes in place to review the management of resources driven by the approach of the incentive fund, with local highway authorities demonstrating significant progress over recent years and now operating in a mature state.
- It is also critical that highways maintenance practitioners communicate with internal stakeholders across services, to align with needs / activities across different highway departments and public service.



Pillar 2: Managing Inputs

5. Quality of data and forecasts

- Local highway authorities received a mixture of funding from DfT, MHCLG and other sources. However, government policy is that this funding is not ringfenced, so authorities allocate this across services as per local requirements / local decisions. Some variability is experienced due to different levels of local taxation across authorities.
- Highways teams display strong competence in making the case for funding allocations and then optimising the expenditure of what is allocated (as this is currently well under the required levels of investment for maintaining the full asset portfolio).
- Within authorities, there is accountability and clear audit trails of how budgets are spent and what was achieved, via sign off by finance officers plus commercial arrangements with supply chain in the delivery of highway maintenance services.
- All local highway authorities undertake lifecycle planning, which utilises scenarios to forecast required levels of investment to achieve a certain level of performance or to understand the impact on performance of constrained budgets. This is commonly used to inform senior decision makers when making the case internally for funding, and also as a basis for external funding bids.
- Value for money is ensured by using asset management principles to provide a clear link between spend / input and delivering the objectives.



Pillar 2: Managing Inputs

6. Benchmarking and cost control

- Benchmarking has been adopted by the highways sector as a means of improving efficiency and performance, and this has been reinforced by its inclusion as a requirement in the self-assessment questionnaire for the DfT incentive fund.
- A range of methods exist, ranging from specialist organisations such as CQC, and APSE, to peer reviews, though to internal reviews providing scrutiny by members and sharing business intelligence within authorities.
- Knowledge sharing is active, via industry bodies such as the Road Surface Treatment Association (RSTA), collaboration groups such as the Local Council Roads Innovation Group (LCRIG) and professional institutions such as the Chartered Institution for Highways and Transportation (CIHT) or Institute of Highways Engineers (IHE). These networks are used to share lessons learned and good practices.
- As part of the asset management process, historical trends are routinely monitored to understand and project future pressures on costs. Competitive tendering and commercial / technical innovation is used to ensure that the expenditure of public funds provides the best value possible.

Pillar 2: Managing Inputs

7. Cost shifting

- Highways professionals within local highway authorities are well aware of the negative impacts of deferring maintenance spend, which include but are not limited to:
  - Reduced value for money and increased spend required over the long term (ref scenario modelling).
  - Reduced levels of service and progress towards Government targets, including safety, active travel, carbon etc. (ref benefits).
  - Impacts on the private individuals and businesses in terms of vehicle damage, delays etc. (ref user group reports).
  - Impacts on the wider public sector such as increased social care and health care costs (ref NICE).
  - Studies that demonstrate that for every £1 cut on local roads, there is a wider economic cost of £1.67. (ref TRL study).
- There are direct impacts on the local road network that may also stem from other Government initiatives e.g., the £5bn broadband rollout plus the large-scale installation of EV chargers will involve interventions on the carriageway and footway networks, which, it not properly managed / scheduled, may cause significant deterioration. For EV chargers, depending on the commercial arrangement used, this may also increase future maintenance liabilities.
- Managing risk is a fundamental of part of asset management, with risks to assets and service constantly being identified and mitigated. The sector delivers extremely effectively with the budgets available, but it is not currently possible to mitigate every risk with the budgets available. As such, authorities apply a risk-based approach to miminise impact and focus on areas of investment that will provide greatest benefits (ref CoP).

Pillar 3: User and Citizen Engagement

8. Public and taxpayer legitimacy

- The National Highway and Transport Public Satisfaction Survey (NHT Survey) collects the public's views on different aspects of Highway and Transport in local authority areas annually. The survey started in 2008 and over its lifetime 140 authorities have participated in total, surveys have been sent to over 4.8 million households, with over 1 million responses. In the past year 109 Authorities took part, surveys were sent to 404,094 households, 95,704 responses were received, an average response rate of 23.8%

Pillar 3: User and Citizen Engagement

9. User and client experience and participation

- The NHT Survey informs the link between user and client experience and better outcomes, The DfT has worked with the highway sector to establish a comprehensive performance management framework (PMF). Using a framework is fundamental to support the implementation of an asset management strategy and can be used to measure performance and continuous improvement in general. Value for money for the taxpayer is linked through a measurement hierarchy to allow aggregation of performance at any level and an overall assessment of performance at each level and all is underpinned by a standard set of national measures across the nine main components of the asset that form our Local Roads: Carriageways, Footways, Cycleways, Rights of Way, Drainage, Green Infrastructures, ITS Infrastructures, Street lighting and Structures.
- Consequently, the impact of investment in any one asset group is linked through the PMF to the vision we held for all local road users. Further, LHA case studies evidence that this link between user participation and improved outcomes is robust. Plans to improve participation and drive change through understanding the user experience well are being encouraged through the DfT's incentive fund and a well-developed network of best practice improvement groups and highway alliances. The highway sector can deliver but can only do so if given the resources to do so.

Pillar 4: Developing System Capacity

10. Capacity to manage the delivery chain

- The DfT Self-assessment incentive fund process and improvements over the past 5-6 years can be used to demonstrate this as can the value of 'best value' working groups including the Local Council Roads Innovation Group (LCRIG), Midlands Highways Alliance+ (MHA+) and other regional groups and alliances. Sharing best practice and procurement through alliance frameworks and more importantly the efficiencies these have brought can be demonstrated through their annual reports etc. Procurement guidance and policy notes could be cited and efficiencies from local authority reports where they have formal partnership contracts, particularly over longer periods.
- To show the responsiveness and resilience of the supply chain, examples of delivery of challenge fund schemes within tight deadlines could be used, along with examples from adverse weather events. Investment in improved and innovative plant and machinery along with development and reviews of standards can be used for evidence.
- Local authority partnership success reporting, the National Highways and transportation survey trend reporting and CQC reports can also be used to demonstrate effective consistent commercial delivery throughout the organisation.
- The awareness of new technology requirements, its development and deployment to improve outcomes should be demonstrated with ADEPT live lab examples, the past and future programmes of conferences and exhibitions and the LCRIG Infrastructure Innovations Board (IIB).

Pillar 4: Developing System Capacity

11. Workforce capacity

- Examples of Skills gap analysis, planning and implementation of apprenticeships and supported professional training e.g., EngTech, IEng, CEng, NVQ, HNC, BSc, MSC can be evidenced along with LHA business continuity plans, examples of partnership working with universities and colleges to show they are running the required courses and closing the skills gap.
- Competency frameworks and accreditations e.g., the Asset Management Competency Framework and Highway Inspector Competency Framework, along with the National Highway Sector Scheme 13 Silver Certificate requirements can be demonstrated.
- Leadership capability development can be shown with LA Skills gap analysis, investment in professional qualifications and other training e.g., MBA. Local authority succession plans, year on year professionally qualified leaders reports and recruiting from the private sector.

Pillar 4: Developing System Capacity

13. Stakeholder management

- To demonstrate how well the public body understands the position of its key interest or stakeholder groups, it is necessary to show the link with Ministers and local authority elected members. Involvement in and attendance at sector conferences and exhibitions. Working with sector groups / Associations such as the Road Surface Treatments Association (RSTA), membership of their asset management group and their membership of the UK / ADEPT Asset Management Board, the Asphalt Industry Alliance (AIA) and the Mineral Products Association (MPA). The RAC Foundation, Automobile Association and Transport Focus. Use of published reports and feedback.
- Evidence of what the public body is doing to improve the support from key interest groups for the policy or programme could be provided by referring to consultation and involvement with key reviews and policy development e.g., the Self-assessment incentivised funding review, the development of the Well managed highways Infrastructure Code of Practice, Transport Asset Management Guidance and the CIPFA Transport Infrastructure Assets Code of Practice (Valuation).
- Local authority 'best value' national and regional groups operate throughout the country, with the LCRIG being the best national example and the Midlands Highway Alliance Plus (MHA+) a regional example. These groups are made up of local highway authority professional engineers and supply chain members, working together to help all local authorities achieve desired outcomes and improvements in their highway asset management. They develop and review guidance documents and other industry papers to ensure knowledge and best practice is shared and implemented throughout the authorities.

Pillar 4: Developing System Capacity

10. Capacity to manage the delivery chain

- The DfT Self-assessment incentive fund process and improvements over the past 5-6 years can be used to demonstrate this as can the value of 'best value' working groups including the Local Council Roads Innovation Group (LCRIG), Midlands Highways Alliance+ (MHA+) and other regional groups and alliances. Sharing best practice and procurement through alliance frameworks and more importantly the efficiencies these have brought can be demonstrated through their annual reports etc. Procurement guidance and policy notes could be cited and efficiencies from local authority reports where they have formal partnership contracts, particularly over longer periods.
- To show the responsiveness and resilience of the supply chain, examples of delivery of challenge fund schemes within tight deadlines could be used, along with examples from adverse weather events. Investment in improved and innovative plant and machinery along with development and reviews of standards can be used for evidence.
- Local authority partnership success reporting, the National Highways and transportation survey trend reporting and CQC reports can also be used to demonstrate effective consistent commercial delivery throughout the organisation.
- The awareness of new technology requirements, their development and deployment to improve outcomes should be demonstrated with ADEPT live lab examples, the past and future programmes of conferences and exhibitions and the LCRIG Infrastructure Innovations Board (IIB).
- A more robust and consistent forward commitment to investment in highway maintenance would support contractors in developing a more resilient supply chain and investing in innovation.

Public Value Framework
Case Studies

C1 Strategic Alignment & Long-term Benefits of AM

Self assessment/challenge fund alignment: Incentive Fund SAQ Q1

Local Authority/Organisation: Hertfordshire Council

Why

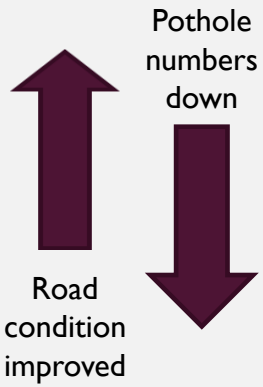
- 'Best Value' review in 1999 showed residents wanted a better service
- Members were keen to offer improvements
- Funding was limited, so a 'step change' was required
- International expertise drew in global good practice
- Delivering change takes time and commitment
- **Hertfordshire published UK's first highway AM plan in 2001**

What and how

- Engaging elected Members & senior decision makers was key
- Tools developed* to optimise value, give Members real options and set out likely consequences of choices
- Long term strategies were agreed and linked to budgets
- Members felt engaged and empowered and have continued to support the strategy
- Policy developed in 2012 to support good Asset Management
- Policy, strategy and plan regularly reviewed
- Annual updates** proved to members to show progress and engage them, as community leaders, on future direction

(*see case study 11 **see case study 42)

Hertfordshire AM Policy and Strategy



Benefits and outcomes

- Programmes, strategies & budgets have remained reasonably stable, even during financial challenges; this has enabled:
- Better advance planning and coordination, further improving outcomes and value for money
- Created confidence in forecasts by delivering on commitments
- Road condition maintained or improved in line with agreed targets
- Number of reactive pothole repairs has gone down as focus on preventative maintenance bears fruit

Supports

Build Back:

Healthier

Fairer

Safer

Stronger

Greener

Better

Hertfordshire

Produced by the UKRLG Asset Management Board to provide evidence for DfT's consideration. The content within does not necessarily reflect the views of DfT

C2 Fund – Structures Maintenance

Self assessment/challenge fund alignment: Q5

Local Authority/Organisation: Derbyshire County Council

Why

The A6 is the main arterial route through the County from Greater Manchester through the Peak District National Park and the Derwent Valley Mills World Heritage Site into the City of Derby. It is therefore integral to effective operation of the visitor economy and to the local aggregates and minerals industry.

The total loss of this route or the imposition of weight restrictions on it would have major impact on the local economy and the surrounding areas as traffic would be diverted on to other less suitable roads leading to increased journey times, disturbance to communities and increased wear and tear on other Highway assets and the potential increase in road safety risk.

What and how

Ongoing management of the structures has identified that most retaining walls are at the end of their life, with several needing major intervention due to the increase in both traffic volumes and vehicle weights. In addition. climate change has increased the intensity of flow levels of many rivers with the River Derwent leading to an increase in scour to adjacent structures.

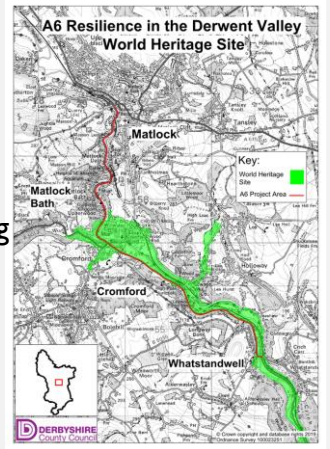
Implement prioritised improvements to Highway structures along the section of A6 between Matlock and Whatstandwell along with a smart drainage technology pilot to prevent flooding/drainage problems by using data intelligently to effectively manage the drainage asset. This section has been identified as the most critical section with the highest concentration of poor condition retaining wall assets

Works are currently progressing with a mixed economy approach utilising in-house resources, external frameworks and design and build.

Benefits and outcomes

Outcomes of this project would maintain and improve network resilience to prevent the loss and provide the following expected benefits and outcomes:

- Easing congestion by providing reliable journey times without the disruption involved in diversions and weight restrictions. The estimated cost of a diversion would be in the order of £90k/day.
- Improved air quality from less congestion and smoother traffic flow resulting in reduced CO2 emissions.
- Road Safety by having structures that won't collapse and by keeping traffic on an appropriate route rather than other less suitable routes or other local rat-runs to avoid lengthy diversion routes.
- Better access to jobs from more reliable journey times supporting the visitor economy to the Peak District and World Heritage Site.
- Greater Inward Investment from network continuity, the A6 is a critical artery in linking the rural economy to connectivity to the wider network providing transport links to the north, south, east and west of the country.
- Unlocking potential for housing development is provided from continued network resilience making such investment more attractive as can be seen with the many developments in the Matlock area.
- Flood Alleviation the Environment Agency uses a significant length of the parapets along the A6 from Matlock-to-Matlock Bath as a flood alleviation measure to contain the River Derwent.



Supports

Build Back:

Fairer

Safer

Stronger

Greener

Better

DERBYSHIRE County Council

Produced by the UKRLG Asset Management Board to provide evidence for DfT's consideration. The content within does not necessarily reflect the views of DfT

C3 HMAT – Quantifying Economic Impact

Self assessment/challenge fund alignment: Q5 and Q8

Local Authority/Organisation: Herefordshire Council

Why

- Quantify the economic impact of investment in the condition of the Local Road network in Herefordshire;
- Provide Herefordshire Council with quantitative analysis to demonstrate to stakeholders the impacts of applying different maintenance budgets to the network of road they manage; and
- As a consequence, secure the investment in works that would secure these benefits over the 30-year analysis period.

What and how

Using local data representative of the road network in this county the Transport Research Laboratory (TRL), Herefordshire Council and their provider Partner, Balfour Beatty Living Places modelled four investment scenarios (baseline £1.6m p.a. on carriageways, +£10m, over two years, +£10m adjusted rates, +£10m adjusted rates and profile).

The HMAT model was used. HMAT was developed by TRL on behalf of the DfT. The model predicts the quantifiable impacts of levels of road maintenance, and thus demonstrates how the condition of the local road network evolves over time under different spending trajectories and how this impacts both maintenance and costs to road users and society.

Comparing Investment Scenarios

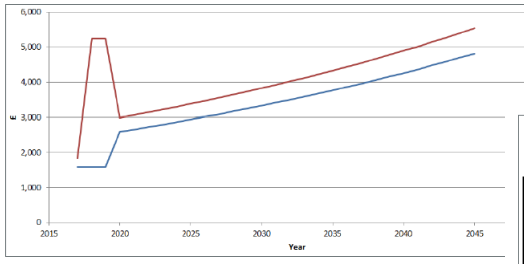


Figure 1: Overall maintenance budget inputs - undiscounted (S1 in blue, S2 in

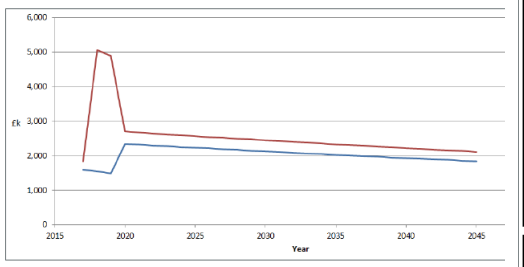
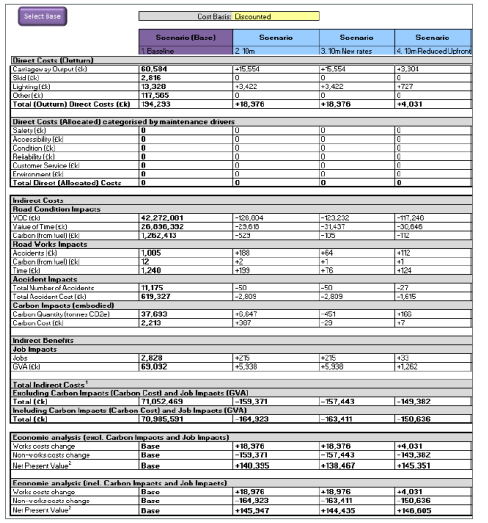


Figure 2: Overall maintenance budget inputs - discounted (S1 in blue, S2 in r



Select Base	Cost Basis: Discounted			
	Scenario (Base)	Scenario	Scenario	Scenario
	1. Baseline	2. 10m	3. 10m New rates	4. 10m Reduced Uplifts
Direct Costs (Outturn)				
Carriageway Output (£k)	60,594	+15,554	+15,554	+3,301
Skid (£k)	2,816	0	0	0
Lighting (£k)	13,320	+3,422	+3,422	+727
Other (£k)	117,565	0	0	0
Total (Outturn) Direct Costs (£k)	194,293	+18,976	+18,976	+4,031
Direct Costs (Allocated) categorised by maintenance drivers				
Safety (£k)	0	0	0	0
Accessibility (£k)	0	0	0	0
Condition (£k)	0	0	0	0
Reliability (£k)	0	0	0	0
Customer Service (£k)	0	0	0	0
Environment (£k)	0	0	0	0
Total Direct (Allocated) Costs	0	0	0	0
Indirect Costs				
Road Condition Impacts				
VOC (£k)	42,272,001	-28,004	-153,232	-117,240
Value of Time (£k)	26,836,352	-23,616	-31,437	-30,845
Carbon (from fuel) (£k)	1,262,413	-523	-135	-112
Road Works Impacts				
Accidents (£k)	1,005	+188	+64	+112
Carbon (from fuel) (£k)	12	+2	+1	+1
Time (£k)	1,240	+189	+76	+124
Accident Impacts				
Total Number of Accidents	11,175	-50	-50	-27
Total Accident Cost (£k)	619,327	-2,809	-2,809	-1,615
Carbon Impacts (embodied)				
Carbon Quantity (tonnes CO2e)	37,693	+0,647	-451	+166
Carbon Cost (£k)	2,213	+307	-29	+7
Indirect Benefits				
Job Impacts				
Jobs	2,829	+276	+276	+33
GVA (£k)	69,092	+5,538	+5,538	+1,262
Total Indirect Costs				
Excluding Carbon Impacts (Carbon Cost) and Job Impacts (GVA)				
Total (£k)	71,052,469	-159,371	-157,443	-149,382
Including Carbon Impacts (Carbon Cost) and Job Impacts (GVA)				
Total (£k)	70,985,591	-164,923	-163,411	-150,636
Economic analysis (excl. Carbon Impacts and Job Impacts)				
Works costs change	Base	+18,976	+18,976	+4,031
Non-works costs change	Base	-159,371	-157,443	-149,382
Net Present Value	Base	+140,395	+138,467	+145,351
Economic analysis (excl. Carbon Impacts and Job Impacts)				
Works costs change	Base	+18,976	+18,976	+4,031
Non-works costs change	Base	-164,923	-163,411	-150,636
Net Present Value	Base	+145,347	+144,435	+146,685

Figure 5: Summary results for scenarios S1, S2, S3 & S4 (in AOM)

Benefits and outcomes

This analysis demonstrated that an additional investment in road maintenance has significant benefits throughout the analysis period.

Across all the modelled scenarios compared to the base scenario, for every additional £1 spent on maintenance it led to a saving (or benefit) of over £8!

Supports

Build Back Safer

Stronger

Better

Herefordshire Council

C4 Challenge Fund Bid

Self assessment/challenge fund alignment: Q5 and Q9

Local Authority/Organisation: Herefordshire Council

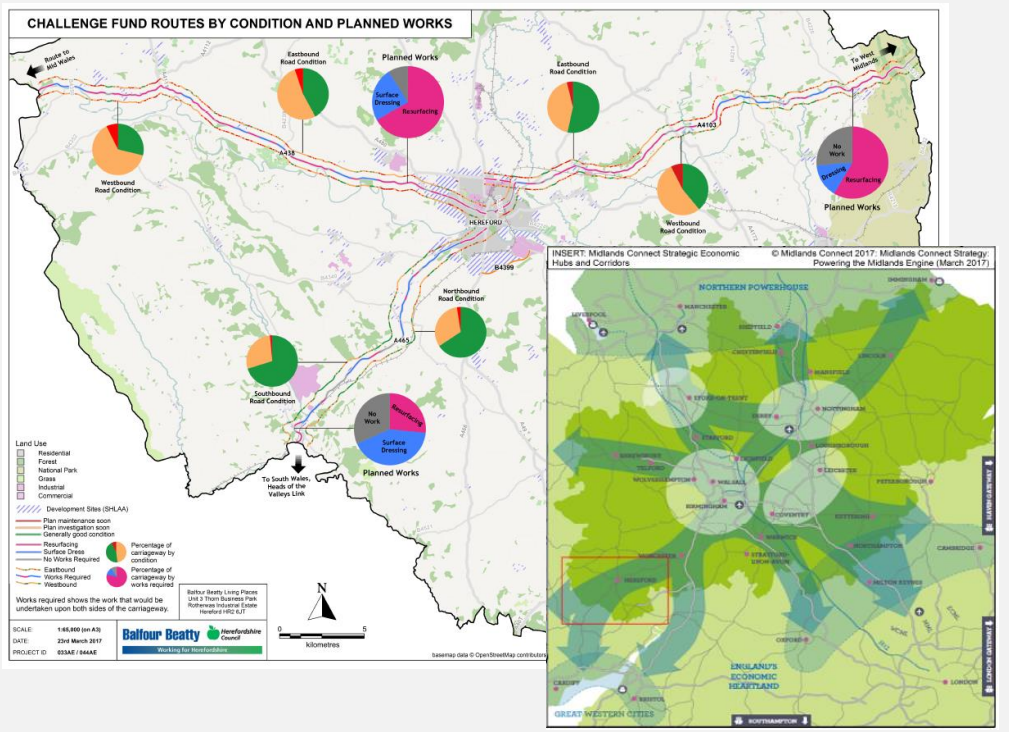
Why

- Economic growth through the maintenance of routes to Herefordshire's Enterprise Zone.
- These cross-county routes connect Hereford via the A465 to South-Wales; the A438 to Mid-Wales; and A4103 to Worcestershire and onto the West Midlands.
- The Enterprise Zone and all routes are Midlands Connect Strategic Economic Hubs and Corridors.

What and how

- Improvements secured through 25.5 miles of carriageway resurfacing and 13.4 miles of surface dressing works in 2017/18.
- Benefits realised through route specific lifecycle planning to reduce the whole life cost.
- Herefordshire committed £3m to support growth and efficiency from its own capital programme along with £5m by DfT through the Local Highways Maintenance Challenge Fund.

Maintain Links Between Enterprise and Markets



Benefits and outcomes

Benefits to the nation's economy £146.6 Million as a consequence of 38.9 miles of key routes being put into good condition throughout.

Supports

Build Back:

Safer

Stronger

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Herefordshire Council

C5 Value for Money Assessments

Self assessment/challenge fund alignment: Q15 and Q16

Local Authority/Organisation: ADEPT – FHRG

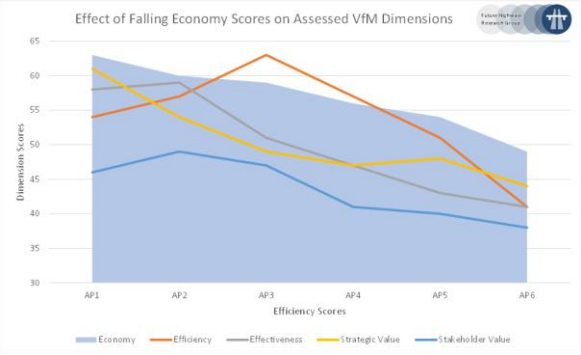
Why

Value for money (VfM) assessments are undertaken as a benchmarking assessment of the performance of highways authorities that are members of the Future Highways research Group (FHRG). The FHRG consists of a round 36 English highway authorities with the aim of developing and sharing best practice in the sector.

What and how

FHRG members include authorities with directly delivered services; a contracted integrated provider; separate, contracted, design and construction providers; or mixed economy services (including alliances). Each VfM assessment considers performance in five dimensions briefly summarised below:

- Economy – scale of funding/financial management/income generation
- Efficiency – productivity/service resilience/flexibility
- Effectiveness – performance of services/asset condition
- Strategic Value – alignment and scale of contribution to strategic drivers
- Stakeholder Value – public/ executive/members/ national agencies/ 'neighbours'



Benefits and outcomes

As economy scores decline, efficiency initiatives seek to do more with less. An increase in efficiency drives a small, short-term improvement in effectiveness. These effectiveness gains are quickly undermined by short-term, cost-driven decisions. The consequences of these decisions result in a significant and rapid decline in services resilience, agility and in effectiveness.

Stakeholders (citizens and members) typically experience a small improvement in services performance, probably based on the visibility of increased activity on the network combined with a greater focus on short-term measures (patching and surface dressing). These positive perceptions are rapidly superseded by experiences of failed repairs and poor-quality surfaces.

Early efficiency improvements are not sufficient (in delivering cashable benefits) to compensate for reduced budgets, short-term interventions and a growing works backlog. Efficiency scores rapidly decline. Strategic performance scores decline with economy scores. Major business improvement initiatives and flagship programmes are typically postponed or cancelled as budgets are reduced. Some spikes in strategic performance (as in AP5) can be attributed to additional, ringfenced funding for services innovation (as in Live Labs). Political stakeholders become increasingly frustrated with the network condition and highways services and often intervene to try to improve services funding in an effort to improve public satisfaction.

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ADEPT
Association of Directors of Environment, Economy, Planning & Transport

C6 Asset Management Strategies and Efficiencies

Self assessment/challenge fund alignment: Q1 and Q6

Local Authority/Organisation: Kent County Council

Why

The incentive fund requires us to have an Asset Management Policy and Strategy in place and for senior decision makers to be consulted and involved in developing our approach to asset management.

Over the initial 3 years of the incentive fund, as we developed and embedded good asset management practice across our organisation, we adopted and published three successive strategy documents.

In late 2020, we reviewed the existing strategy documents and concluded that they should all be updated to reflect our now well established approach to asset management.

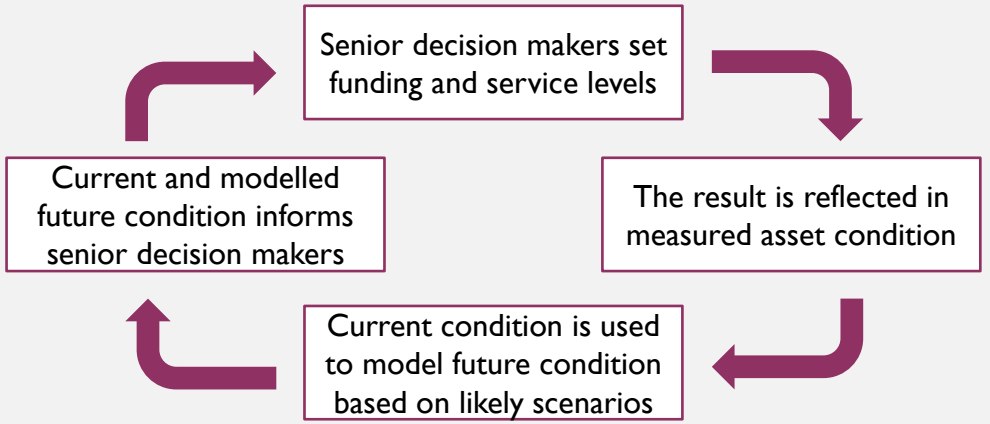
What and how

We thoroughly reviewed our Asset Management Policy and Strategy, combining the three documents into one Highways Asset Management Plan (HAMP).

This included a strategic analysis of our asset management approach and a detailed breakdown of how we will manage different asset groups over the coming 5 years.

Senior decision makers were consulted and able to influence the strategy during its development and then members were then able to formally review and adopt it through a cabinet committee and the key decision process.

Asset Management Strategy Review Process



Benefits and outcomes

The process of consultation and then review/adoption has clearly shown members and other senior decision makers the value of good asset management practice.

It has also shown them how the condition of our road assets and the size of our maintenance backlog is likely to change in response to the decisions they are making, especially around funding levels.

This process of regular strategy reviews is critical to ensure decision makers are properly informed about the choices they are making and that the information they are given is current.

This review process/cycle is shown above.

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C7 Lifecycle Planning for Roads & the Value of AM

Self assessment/challenge fund alignment: Incentive Fund SAQ Q5

Local Authority/Organisation: Hertfordshire Council

Why

For Hertfordshire, like most authorities, carriageways are a very valuable asset group

- GRC/Spend
- Value to users (all modes, not just cars)

Preventative maintenance extends the life of road surfaces

- Usually cheaper so lower cost than renewal
- Less material and transport involved = Lower carbon footprint

Better service at lower cost!

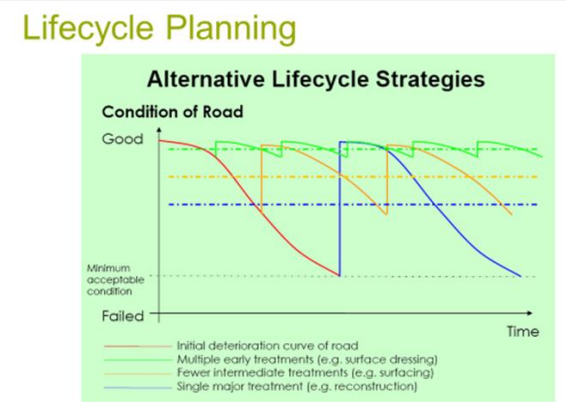
BUT needs to be planned ahead - 'right treatment, right time'

Lifecycle planning supports this and allows benefits to be unlocked

What and how

- Regular condition surveys to ensure robust data
- Use of innovative model to predict future performance and help optimise programmes
- Focus on best long term outcomes for customers (better condition, fewer defects)
- Experienced team of engineers in service to validate, challenge and refine schemes and deliver them as countywide programmes to maximise efficiency

Hertfordshire Lifecycle Planning



'Right treatment, right time' can reduce costs **and** improve average condition

Benefits and outcomes

- Range of maintenance strategies considered for **all** roads
- Lifecycle planning helps identify those that offer best benefits
- Optimised programmes mean schemes offering greatest long term benefits for customers are chosen
- Preventative maintenance opportunities are not missed
- Fully optimised approach delivers value for money
- Same LoS based fixing assets when they fail would **cost 50% more**
- **Hertfordshire has been able to afford to maintain its roads more easily**

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C8 Structures Asset Valuation and Investment (SAVI) tool

Self assessment/challenge fund alignment: Q5

Local Authority/Organisation: Hertfordshire Council, ADEPT, Bridges Board

Why

The Structures Asset Valuation and Investment (SAVI) tool allows bridge managers to:

- Make informed decisions on maintenance prioritisation
- Calculate stock value in accordance with CIPFA guidance
- Understand long-term funding needs and risk profile

Condition data is readily available but what was needed were processes for prioritisation of maintenance works based on cost and risk.

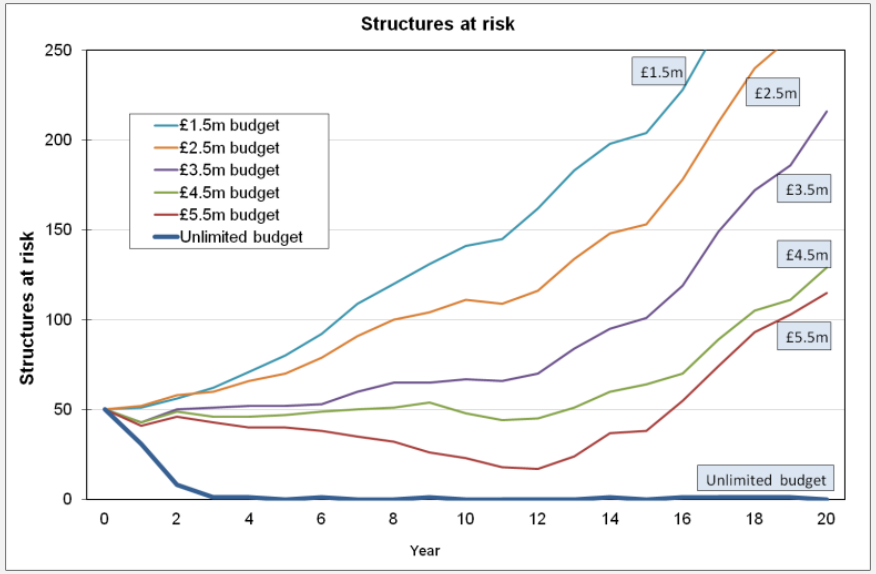
What and how

SAVI was developed through collaboration between UK Bridges Board, ADEPT and Hertfordshire County Council with UKRLG research funding. It builds on earlier work on the Structures Asset Management and Planning (SAMPT) tool.

The tool is made freely available through the OGL licence. It is anticipated that Asset Management software providers will adopt the methodology.

Further work will allow carbon calculation alongside cost information

Improving safety, reducing risk



Optimisation of spend against risk

Benefits and outcomes

- Wise investment - informed decision making
- Safer roads - reduced risk to road users from problems with structures
- Improved long-term forward planning

Supports

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The

C9 Highways Resilience Toolkit (HIRAM)

Self assessment/challenge fund alignment: Q9 and Q11

Local Authority/Organisation: Dorset Council

Why

Member authorities of the South West Highways Alliance (SWHA) identified a need to develop a toolkit to help them respond to changing demands arising from the effects of climate change.

Highway authorities wanted the ability to manage resilient sites and report on high risk areas to focus on future maintenance.

The intention was that such a toolkit would help inform and support the case for increased future funding (Challenge Fund).

The toolkit was intended to be managed within the SWHA, but made available to other highway authorities in the UK

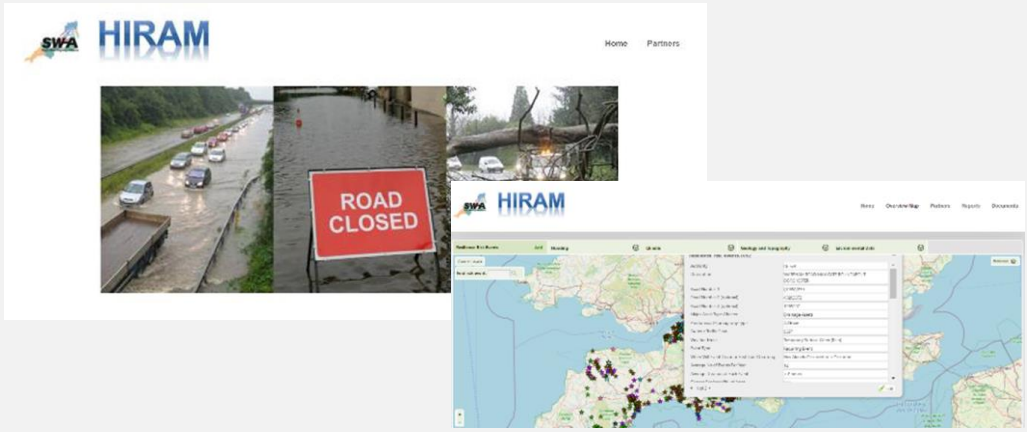
What and how

The toolkit was built through collaboration within the south west authorities and WPM, to build the software / toolkit, which included a number of workshops.

This project evolved into a resilience toolkit, enabling authorities to record and evaluate network resilience issues linked to roads, drainage, landslips, vulnerable bridges etc.

Possible resilience sites would be recorded by highways community teams / Inspectors, asset group leads, Flood Risk Management colleagues, operational workforce (e.g., gully emptying crews)

HIRAM Resilience Toolkit



Benefits and outcomes

- The toolkit is used to evaluate priority resilience sites, to inform programmes of work, or priority schemes for bidding (e.g., to the DfT Challenge Fund).
- Evaluates sites based on Total resilient risk, Economic risk, Local Community Risk, Community Risk, Carbon risk, Value for money schemes (cost vs benefit)
- HIRAM formed the basis of South Gloucestershire and Bristol City Council's successful Challenge Fund bid.

LOCAL AUTHORITY MAJOR SCHEME DECISIONS (southglos.gov.uk)

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C10 Pavement Asset Data Management

Self assessment/challenge fund alignment: Q4, Q5 and Q6

Local Authority/Organisation: Kent County Council

Why

We were using an older pavement asset data system supplied by an external provider. It met the minimum requirements of such a system its functionality was compared to some other solutions.

With the natural end of the contract with this provider the opportunity was taken to review this service and a new provider was commissioned. They provide a more advanced data management system.

With the implementation of this new system,(Horizons) significant time had to be spent upskilling users, bringing data into the system and developing the asset lifecycle models.

What and how

We were able to bring our existing asset data into the system to display it in clear manner. This allows users to easily access data on our network, its condition and past/future works.

The powerful modelling tools allow us to analyse how our pavement assets deteriorate and how we should treat them to renew and preserve them.

We have been able to use these models to predict the future condition of our assets with different funding scenarios and maintenance strategies.

These are shared with senior decision makers to inform them about the condition of our network. We are able to show them he consequences of the choices they make and influence their decisions.

Heat Map - Condition on Classified Roads

Benefits and outcomes

Robust modelling, combined with regular engagement with senior decision makers has allowed us to build their confidence in the data we present.

Effective presentation has allowed us to better inform decision makers by demonstrating clear and concise information that is tailored to their skill and knowledge level.

An example of this data presentation is the heat map shown above which clearly shows area of poor condition.

Through this we have been able to ensure senior decision makers fully understand the funding and condition challenges our highway network is facing, and secure additional funding and investment.

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C11 Highways and Transport CIPFAstats+ Datasets

Self assessment/challenge fund alignment: Q15 and Q16

Local Authority/Organisation: CIPFA

Why

Highways and Transport CIPFAstats+ Datasets provide a comprehensive overview of how a local authority manages their highway and transport services, expenditure and income and how effective it is compared to similar authorities.

Keeping the UK moving is key for businesses and residents residing in your borough. Having interactive comparative data at your fingertips allows you to do just that.

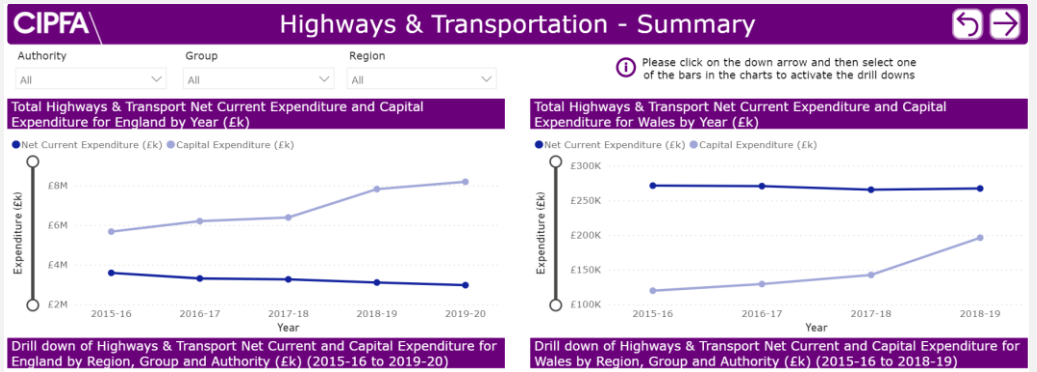
What and how

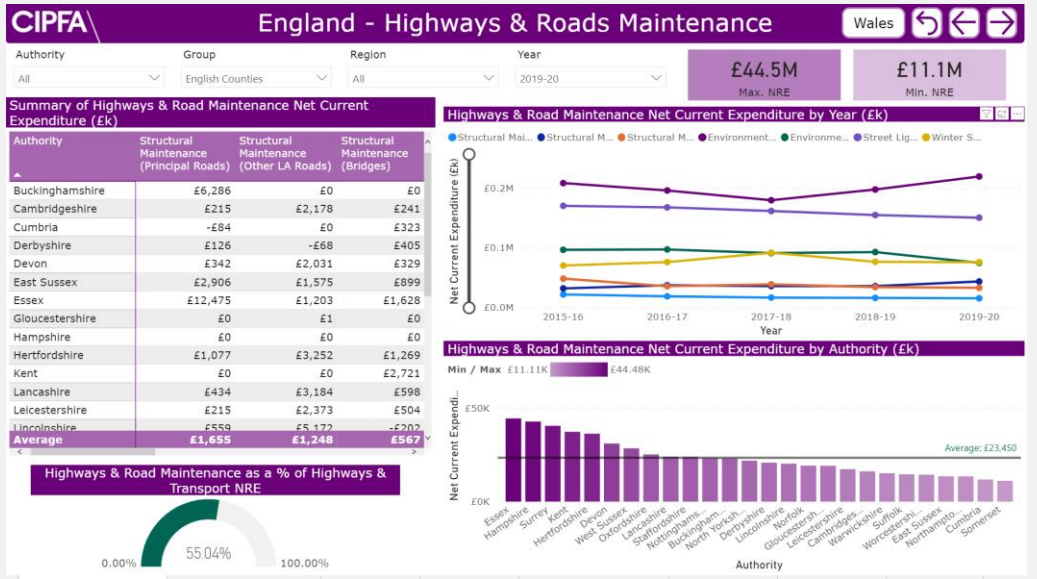
CIPFA's Highways and Transportation Actuals Statistics Dashboard for England and Wales will provide an array of interactive tools, detailing authorities' estimated revenue and capital expenditure.

Users will be able to access information regarding the cost of routine maintenance, street lighting, winter service, road safety, public transport (including revenue support and concessionary fares), co-ordination costs of transport support, park and ride schemes and car parking.

Supplementary data will include details of gross income from car parking changes, the number of car parking spaces and the number of penalty/excess charge tickets issued. Information on road lengths will also be available with a detailed analysis of road maintenance per kilometre.

CIPFA Power BI Dashboard





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CIPFA The Chartered Institute of Public Finance & Accountancy

C12 NHT CQC – Highway Cost Efficiency

Self assessment/challenge fund alignment: Q15 and Q16

Local Authority/Organisation: NHT

Why

The National Highways and Transport (NHT) Cost Quality Customer (CQC) Efficiency Network was formed in 2015 to help drive efficiency across the Highway Sector.

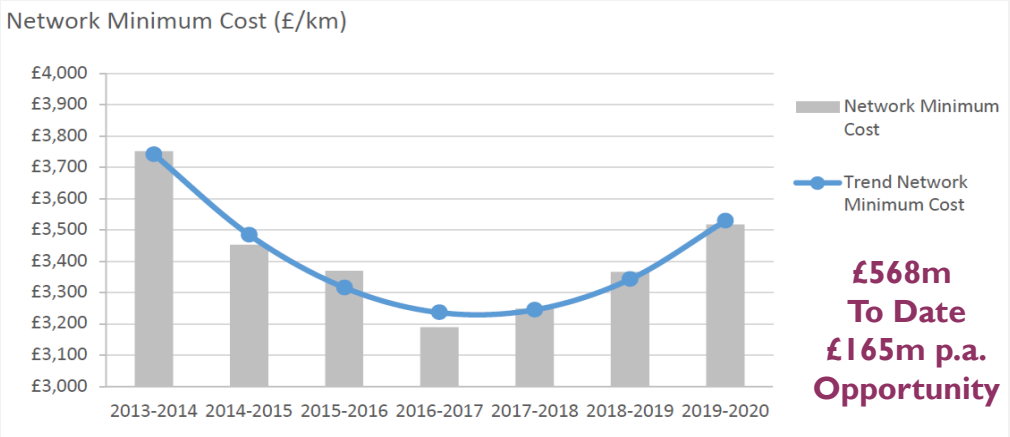
What and how

NHT CQC has focused on comparing expenditure on road maintenance on a like for like basis to quantify improvements and efficiency savings.

To achieve this the Network uses state of the art statistical techniques to provide better like-for-like cost comparisons between authorities than has been possible using traditional benchmarking. It does this by adjusting for differences in size, traffic volume, wages and road condition to derive a Normalised Cost for each highway authority. This £/Km cost can be used to compare with any other authorities and evaluate the overall improvement in efficiency across the Highway Sector.

Through this analysis new opportunities for improvement have been identified for authorities through improving procurement; programming; and investing in optimising the condition of roads.

NHT CQC – Driving Sector Efficiency



Benefits and outcomes

The Efficiency Improvement is 13.5%, , a Total Realised Efficiency Savings of £47.7m in 2019/20 and a cumulative savings of £568.9m since 2013/14. The potential saving opportunities total £55m p.a. through procurement of road treatments, £65m p.a.. through programming and £45m p.a. through a shift towards optimal road condition. The overall opportunity is £165m p.a. or 17% of annual expenditure.

This potential can only be realised through a substantial, predictable and sustained investment in the condition of roads.

Supports

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C13 Incentive Fund Maturity

Self assessment/challenge fund alignment: All

Local Authority/Organisation: DfT

Why

The Government announced that £6 billion was being made available between 2015/16 and 2020/21 for local highways maintenance capital funding. From that funding, £578 million has been set aside for an Incentive Fund scheme, to reward councils who demonstrate they are delivering value for money in carrying out cost effective improvements. Each local highway authority in England (excluding London) is invited to complete a self-assessment questionnaire, in order to establish the share of the Incentive fund they will be eligible for.

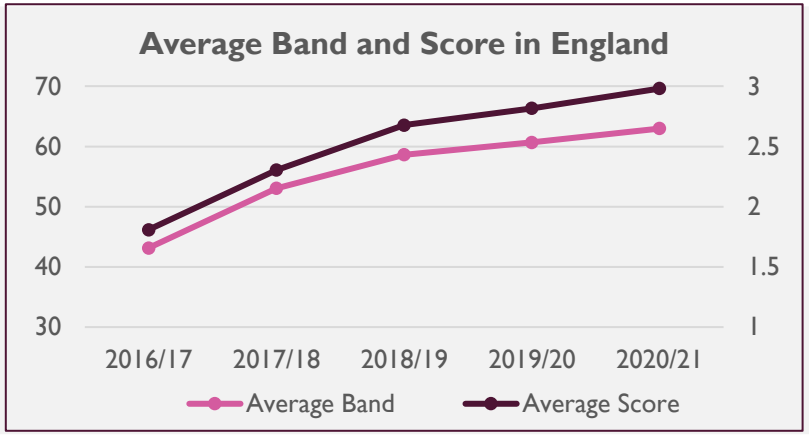
What and how

Each authority will score themselves against 22 questions and place themselves into one of 3 Bands on the basis of the available evidence.

The questions are designed to enable authorities to assess their progress on the journey to the implementation of good practice, which will create an environment for effective and efficient delivery and enable capital funding to maximise its return. Underpinning this are the needs of stakeholders and the communication of the importance of the highway service and the needs for well-maintained highways.

The incentive funding awarded to each local highway authority will be based on their score in this questionnaire and will be relative to the amount received through the needs-based funding formula.

Incentive Fund Scores



Benefits and outcomes

Over the last four years, the Highways Maintenance Efficiency Programme (HMEP) has developed a selection of products and services that promote efficient and effective working practices. These resources are founded on the good practice that many authorities are already adopting. In producing this self-assessment questionnaire, an objective has been to build on this good work and to support authorities who are on the journey towards improving their working practices.

Local authorities are not competing for funding but are demonstrating that efficiency measures are being pursued in order to receive their full share of the funding.

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Department for Transport

Produced by the UKRLG Asset Management Board to provide evidence for DfT's consideration. The content within does not necessarily reflect the views of DfT

C14 Risk Based Approach – Highways Code of Practice

Self assessment/challenge fund alignment: Q8

Local Authority/Organisation: DfT – UKRLG

Why

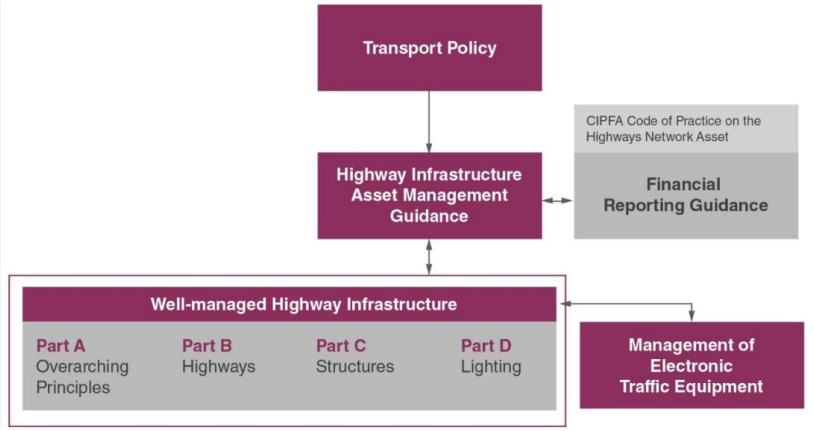
Over the last 15 years the UK highway sector has been working consistently towards the implementation of good asset management. The latest addition to this collection is the Code of Practice Well-managed Highway Infrastructure which builds on the previous Codes whilst reflecting the developments in asset management and today's challenges in managing highway infrastructure.

What and how

A whole lifecycle asset management approach sits at the heart of the new Code, which makes clear recommendations on treating the highway asset in its entirety and not as separate components. Emphasis is given on addressing the issues that enable authorities to implement an efficient lifecycle approach, including data collection and management, engagement with stakeholders, a risk-based approach to routine maintenance activities and focus on improving the resilience of the highway network.

The risk-based approach empowers authorities to set their own policy on all aspects of the highway service. The Code recommends that in setting such policies, authorities should consider safety, local needs and priorities, expectations and requirements of communities, businesses and other stakeholders as well as affordability. This enables the delivery of a highway service that is not based on national standards but is fit for purpose at local level.

Asset Management Guidance Hierarchy



Benefits and outcomes

The biggest change in the new Code is the emphasis on the risk-based approach. This approach recommends that all risks associated with highway service activities are assessed, including safety, reputational and financial risks. All decisions in developing and implementing policies and prioritising activities should be made based on the authorities' approach to managing these risks.

This enables authorities to remove any "gold plated" standards from the way they manage assets and prioritise activities that deliver value for money over the long term, without compromising safety. The Code recommends that any policies developed take into consideration stakeholder requirements, so the service delivered is fit for purpose.

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Department for Transport

C15 Community Engagement: Maintenance for Active Travel Strategy

Self assessment/challenge fund alignment: SAQ Q13

Local Authority/Organisation: Hertfordshire Council

Why

Hertfordshire identified the need for a specific strategy for how maintenance works could better support active travel and thus make more focussed contributions to modal shift and tackling climate change – MATS or 'Maintenance for Active Travel Strategy'.

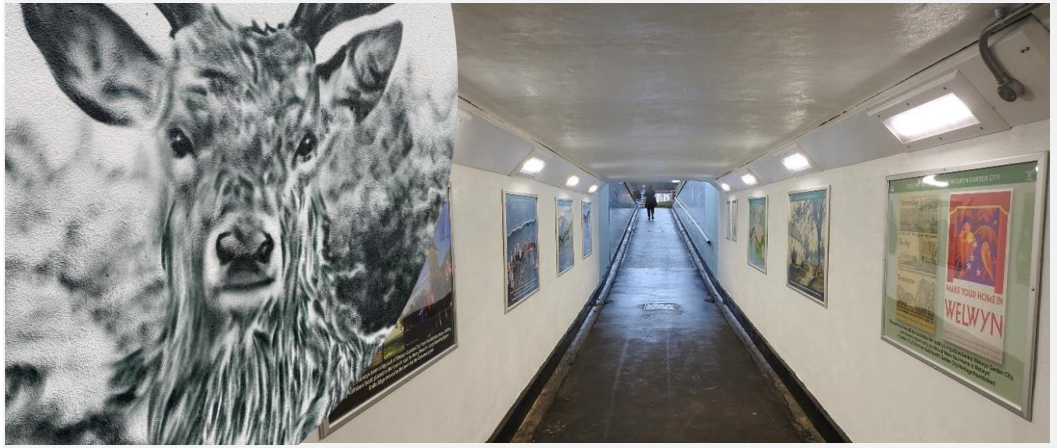
Looking for quick, simple 'wins' that could be delivered through routine maintenance work to complement larger strategic projects.

Needed to be inclusive and consider the needs of all users, especially those with particular mobility challenges.

What and how

- National guidance and good practice played a key role, but also held specific workshops with key local user groups during development, including representatives of:
  - 'Modal' focussed groups (e.g cyclists)
  - Disabled people (e.g. wheelchair users, visually impaired users)
  - Subject matter experts to support discussions
- Workshop outputs fed into MATS development
- Directly influenced final strategy and tools

Subway Refurbishments – Driven by MATS



Benefits and outcomes

- MATS formally adopted in 2019
- Directly supports both HIAMP and LTP objectives
- Workshop information ensured experts considered issues and did not 'assume' users challenges and priorities
- Led to creation of a simple 'checklist' for scheme designers to identify and solve minor issues acting as Active Travel blockers as part of bigger schemes
- Helped development of other programmes to tackle issues identified as 'blockers' but not always considered technical priorities (e.g. subway refurbishments)

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Hertfordshire

Produced by the UKRLG Asset Management Board to provide evidence for DfT's consideration. The content within does not necessarily reflect the views of DfT

C16 NHT Survey

Self assessment/challenge fund alignment: Q12

Local Authority/Organisation: NHT

Why

To understand the public's satisfaction with highway and transport services ,the National Highway and Transport Public Satisfaction Survey (NHT Survey) collects the public's views on different aspects of Highway and Transport in local authority areas.

The NHT Survey covers; Pavements, Cycle Routes/Lanes, Local Bus Services, Local Taxi (or mini cab) Services, Community Transport, Demand Responsive Transport, Safety on Roads, Traffic Congestion, Levels of Traffic Pollution, Street Lighting, the Condition of Roads and the local Rights of Way Network.

What and how

In 2020 109 Authorities took part. A total of 140 Authorities have taken part in the survey since 2008.

The Survey has been sent to over 4.8 million households since it was first launched in 2008 and over 1 million members of the public have made their views known.

The NHT Survey has become an unrivalled resource of public perception on Highways and Transport services in local authority areas going back thirteen years.

Example of NHT Survey Output

Ref	Indicator Name	2020
HMBI23	Speed of repair to damaged pavements	39%
HMBI24	Quality of repair to damaged pavements	47%
HMBI25	Weed killing on pavements	45%
HMBI26	Condition of road signs	61%
HMBI27	Cleanliness of road signs	58%
HMBI28	Undertakes cold weather gritting (salting)	58%
HMBI29	Undertakes snow clearance	53%
HMBI30	Speed of repair to damaged roads	31%
HMBI31	Quality of repair to damaged roads	38%
HMBI32	Weed killing on and roads	50%

Ref	Indicator Name	2020
WCBI27	The number of cycle lanes provided	44%
WCBI28	The number of cycle routes provided	45%
WCBI29	The location of the cycle lanes provided	46%
WCBI30	The location of the cycle routes provided	48%
WCQI15	Provision of cycle routes	51%
Ref	**Indicator Name**	**2020**
RSBI04	Safety of walking	61%
RSBI05	Safety of cycling	48%
RSBI06	Safety of children walking to school	54%
RSBI07	Safety of children cycling to school	43%

Benefits and outcomes

Results are reported using 156 individual performance indicators. The highest recorded satisfaction score was 84% for 'Number of Bus Stops' and lowest 18% for 'Speed of Repair to Damaged Roads'.

The main changes in satisfaction by Themes are summarised below:

- 'Overall Satisfaction' is up,
- All 'Communication' indicators are up,
- Some 'Public Transport' indicators are up, and some are down,
- All 'Walking & Cycling' indicators are down except two Key Business Indicators (KBIs),
- The majority of 'Tackling Congestion' indicators are down,
- All but one 'Road Safety' Indicators are down and
- All 'Highway Maintenance' indicators are down except two KBIs.

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C17 What improves public satisfaction?

Self assessment/challenge fund alignment: Q12

Local Authority/Organisation: West Yorkshire Combined Authority and U. of Leeds

Why

To understand what improves public satisfaction with respect to highway maintenance and management The Institute for Transport Studies at the University of Leeds undertook an investigation to identify and quantify the key drivers of public satisfaction with Highway maintenance. This used analysis of spatial data for the West Yorkshire Combined Authority.

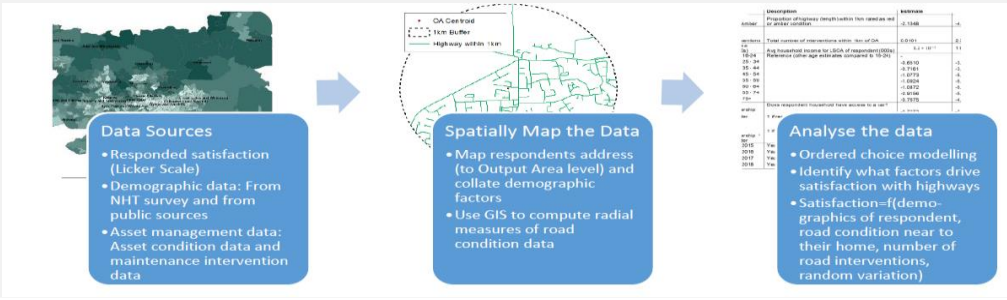
What and how

This study used the rich data available through spatial modelling from the National Highway and Transport (NHT) public satisfaction survey, together with demographic and social data and asset management data.

The data was mapped to spatial coordinates to tailor it for each survey respondent in terms of demographic and asset data for their locality.

This was then analysed through advanced ordered choice modelling to isolate which attributes imply that respondents are more or less likely to answer "Satisfied". An extensive set of possible attributes of the highway network were then tested to determine what roads individuals tend to consider when making their satisfaction response to the NHT survey.

Advanced Ordered Choice Modelling



Benefits and outcomes

Key findings

1 The public value better quality roads
- We find statistically significant impacts of improved roads
- Better road condition implies a higher probability of someone answering "satisfied"

2 The public value roads in their locality most strongly
- Our work identifies a 1km distance radius for a respondent's residential location as the extent to which they value the quality of the roads
- We have tested many possible ways people might perceive road condition based on different distances and road types to determine this conclusion

3 The public value interventions on the road network in their locality
- More maintenance interventions in the vicinity of the home OA improves satisfaction with road condition
- This could be either because the public see the better road state after the intervention, or because they value seeing the council undertaking improvements to "thier" roads

4 Demographic factors and car ownership impact expected satisfaction with highways
- Young adults are most likely to answer "satisfied" compared to older adults
- Car ownership in a household increases the probability of a respondent answering "unsatisfied"

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West Yorkshire Combined Authority

UNIVERSITY OF LEEDS

C18 LGA Polling on Resident Satisfaction

Self assessment/challenge fund alignment: Q12

Local Authority/Organisation: Local Government Association (LGA)

Why

The Local Government Association (LGA) measures resident satisfaction with councils.

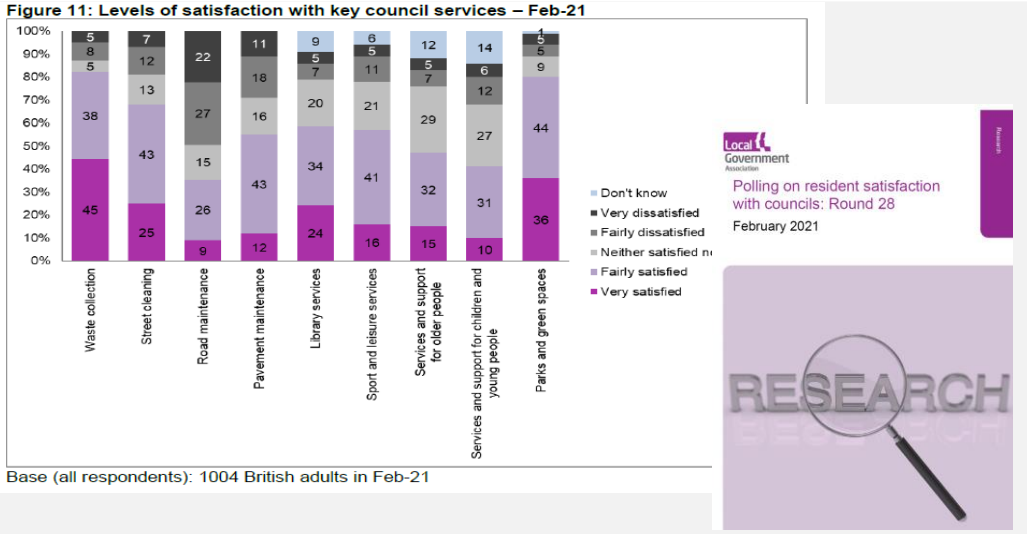
What and how

Six key indicators are used to measure residents' views of their local council. Respondents are also asked to indicate their level of satisfaction with nine council services.

Other questions focus on perceptions of safety, trust in politicians/government and media coverage of councils. Additional questions are occasionally asked.

Between 10 February and 14 February 2021, a representative random sample of 1,004 British adults (aged 18 or over) was polled by telephone. Respondents were invited to indicate how satisfied or dissatisfied they were with waste collection; street cleaning; road maintenance; pavement maintenance; library services; sport and leisure services; services and support for older people; and services and support for children and young people. And also parks and green spaces.

Levels of satisfaction with Key Council Services



Benefits and outcomes

Of the nine services presented, there were two significant decreases in satisfaction since October 2020: road maintenance (a drop from 43 per cent to 35 per cent) and services and support for children and young people (a drop from 46 per cent to 41 per cent).

Overall, road maintenance continues to have the highest level of dissatisfaction of all services.

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C19 Global Infrastructure Index

Self assessment/challenge fund alignment: Q12

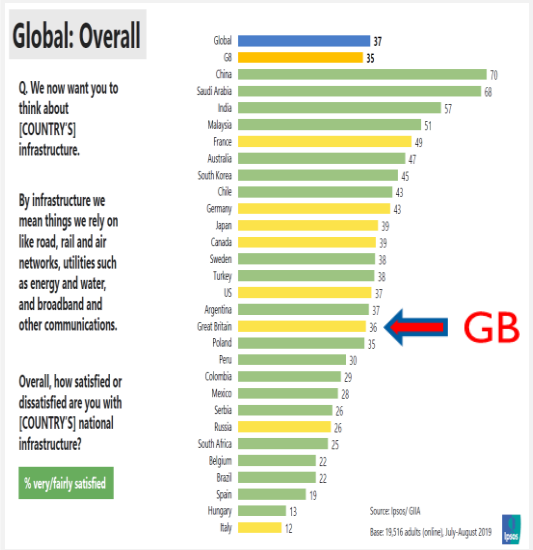
Local Authority/Organisation: Ipsos MORI

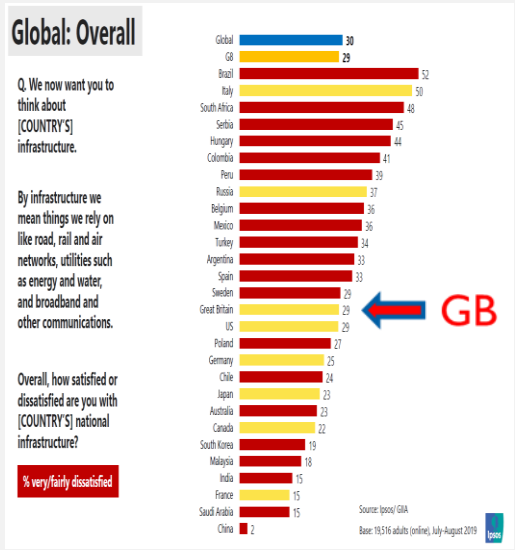
Why

To understand how public satisfaction and priorities for infrastructure compare on a global basis.

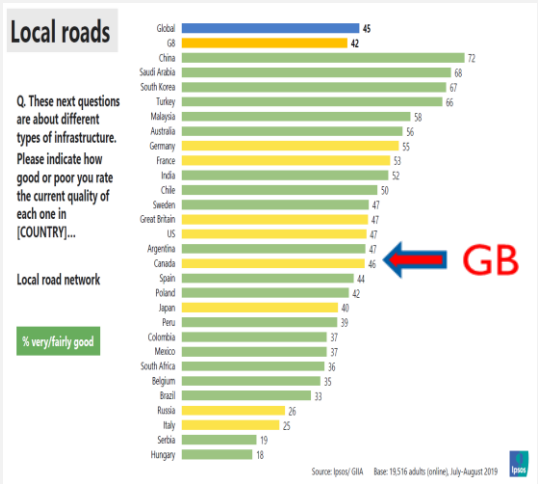
What and how

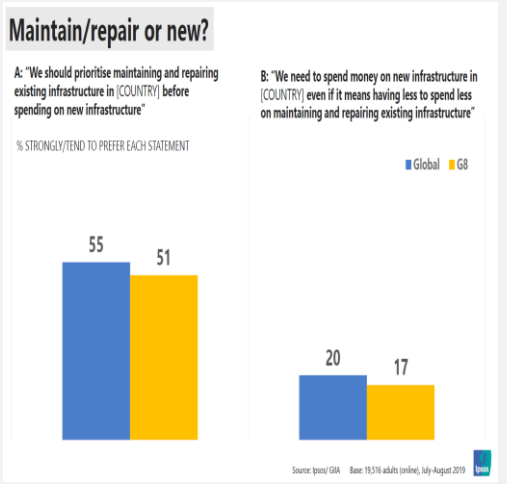
The fourth Global Infrastructure Index conducted via Ipsos' Global @dvisor between 26 July –9 August 2019 in 28 countries via the Ipsos Online Panel system and involving 19,516 participants.





Local Roads – Maintain Existing vs Build New





Benefits and outcomes

Globally, the majority would prioritise maintaining and repairing existing infrastructure before spending on new infrastructure.

In G8 nations, the Local road network is a relatively high priority for future investment compared to the global average.

Supports

Build Back:

Fairer

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C20 The Condition of England's Local Roads and how they are Funded

Self assessment/challenge fund alignment: Q1

Local Authority/Organisation: RAC Foundation

Why

The RAC Foundation commissioned this study in 2015 as the condition of local roads in England is a matter of concern to the public, local politicians and highway engineers. The report brings together what is known about the condition of these important assets, how they are funded.

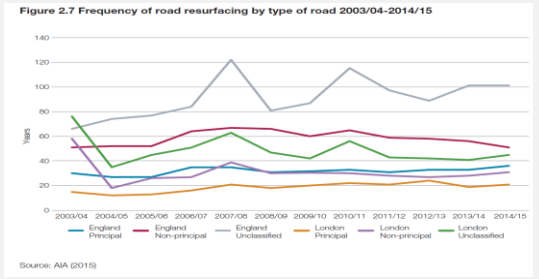
What and how

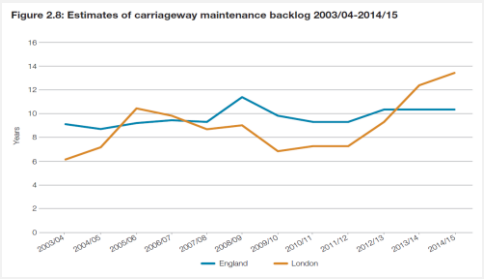
Rarely has there been such a focus on transport infrastructure as we are experiencing today. The Government is making large sums available for investment in our railways and roads. Much of the debate is about adding capacity, which is undoubtedly needed as both the economy and the population grow. But what about the roads we already have? Maintenance of the existing network might not conjure up the same excitement as brand-new projects, but it is arguably more important.

Because this is the network, we already rely on to get to work, to the shops, to school: the network that commerce relies on to do business. So, it must be in good order.

The report casts a forensic eye over the ways that local roads get funded. It paints a picture of complexity and uncertainty, two of the biggest enemies of good infrastructure management.

Frequency of Road Surfacing and Backlog





Benefits and outcomes

A critical factor in maintaining roads to a good standard is the availability of sufficient, consistent and reliable funding.

Local authorities in England rely heavily on grants from central government to fund their roads maintenance.

With growing demands for other local services some, such as child and adult social care, are very difficult to control, highways maintenance budgets are being squeezed between funding for these and reductions in overall revenue spending. As a result, LHA maintenance spending has reduced. Consequently, DfT capital grant regime will be in jeopardy as the lack of routine maintenance will accelerate the deterioration of local authority highway assets with a consequent expansion of the structural maintenance backlog – which the DfT grant regime is designed to prevent.

Supports

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RAC Foundation

C21 Communications - Surface Dressing

Self assessment/challenge fund alignment: Q2 and Q14

Local Authority/Organisation: Dorset Council

Why

We work very closely with dedicated officers in our Communications Team to ensure our stakeholders are well informed about our Highways Service.

We receive many enquiries and complaints every year about surface dressing, with some members of the public seeing it as a sub-standard treatment, and failing to understand why we apply it.

We wanted to communicate to our stakeholders why we do early life surface treatments such as surface dressing, in non-engineering terms, especially as treated roads may have seemed in good to fair condition, and to explain the process, and what to expect.

What and how

We produced a web page that included an animated graphic, communicating key messages about surface dressing.

This animated video is now being used by other highway authorities to deliver stakeholder information about surface dressing.

The video has an illustration of road construction layers represented as layers in a latte, which made it relatable (and prompted much discussion among engineers).

That year we released weekly updates, supported by the film.

Surface dressing animated graphic

www.dorsetcouncil.gov.uk/surface-dressing

Benefits and outcomes

The video and supporting web page provided information about what the public could expect, what might affect such operations, and what they could do to assist our crews on the day of the works.

The video was widely viewed across various media platforms

What we found that year was a drop in enquiries / complaints about surface dressing.

There was a better understanding from some stakeholders as to why we use surface treatments, such as surface dressing.

Supports

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C22 Demonstrating benefits of appropriate intervention options

Self assessment/challenge fund alignment: Q5

Local Authority/Organisation: Hull City Council

Why

Repairs to these sections were urgent and to fund them through the annual maintenance programme would take 15 years + to complete.

Challenges:

Existing network constructed in aging concrete. Existing poor ground conditions including voids below the existing concrete. Thermal movement of the existing concrete. Asphalt overlays suffering from reflective cracking or total failure. Increase in reactive maintenance work causing delays for road users. Increase in claims against the authority due to the defects caused. Higher levels of vibrations felt by road users, residents and property owners.

Concrete Failures and Repairs

What and how

Removed existing Asphalt overlays. Reconstructed areas of failed concrete. Sealed existing joints/surface cracks in concrete with materials with high expansion/compression capabilities. Overlayed the concrete with a layer of asphalt (SAMI) designed to absorb vibrations/movement, reducing stress levels on the surface asphalts. Used polymer modified Asphalts containing a high binder content which give higher levels of flexibility and strength for surface layers, enhancing resistance to reflective cracking and surface deformation. All brief and tender work done in house. Work tendered on procurement framework managed by neighbouring authority. Onsite work carried out by local contractors. Project managed on site inhouse. Design – delivery approx. 9 months. Short delivery times set by DFT achieved despite tight constraints.

Benefits and outcomes

Increased carriageway life span. Reduced noise and vibration and increased skid resistance. Smoother, safer surfaces for all road users, encouraging sustainable transport trips. Improved cycling network (part funded by active travel fund) only achievable after improved surfacing works . Greener travel benefitting the local environment. Carriageway now capable of standing up to higher levels of stress. Reduction in future reactive maintenance / delays for road users. Reduction in claims against the authority and risk of personal injuries. Benefit to city in reduced user costs representing good value for money. Other failing parts of the network especially residential areas can now be targeted meaning other residents/business in the city will indirectly benefit from this work being carried out. Cost savings due to works undertaken in 3 large contracts.

Supports

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Hull City Council

C23 East Sussex Highways – Guide to Highways

Self assessment/challenge fund alignment: Q2, Q6, Q13 and Q14

Local Authority/Organisation: East Sussex County Council

Why

The Guide to Highways was created to respond to those frequently asked questions received by the highways Customer Centre, Councilors and Officers.

The aim was to provide the public and Councilors with a simple understanding of the service East Sussex Highways delivers, whilst alleviating the need for Customer Service Advisors to create responses to those questions on an individual basis.

As Highways is a technical service, it was important to use uncomplicated terminology to ensure the document was accessible to all.

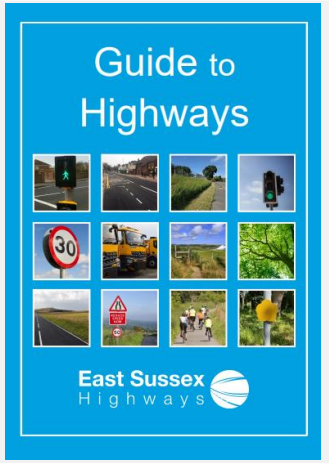
What and how

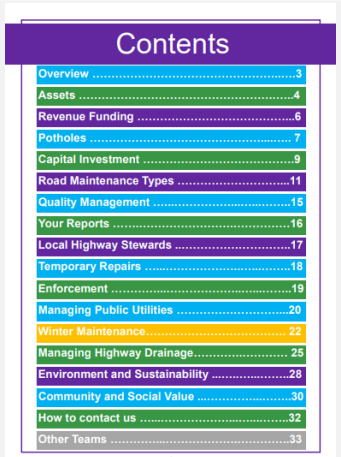
In 2019 we created two documents, a public facing and a Councilor's only document. To begin we focused on the areas we received most contact around, such as potholes, how money is spent and the asset management approach.

Information was then gathered from various teams, collated and formatted into the guide. It was key that the document included images and color to enable it to be interesting. The initial draft took 6 months to pull all the information together working around other projects. Since 2019 we have been reviewing, adapting and adding information to ensure it keeps serving its purpose. This year we combined both documents into one Guide to Highways, as we found there was no need for two separate documents.

The challenges are to constantly maintain an up-to-date document and get the relevant information from teams.

East Sussex Guide to Highways





Benefits and outcomes

The Guide to Highways has benefitted Customer Centre staff in allowing them to be confident responding to queries, using the information within the guide. Which has in turn reduced the need to search for answers from various teams, helping efficiency.

The Guide has allowed us to become more transparent to the public, allowing them to understand the reasons behind why we deliver the service as we do.

It is also a useful reference document for Councilors, used to increase their knowledge, whilst also being able to direct their constituents to it when they receive highways related questions.

We are therefore keen to continue developing and improving the guide.

Supports

Build Back:

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C24 Young Professionals

Self assessment/challenge fund alignment: Incentive Fund SAQ Q7

Local Authority/Organisation: Hertfordshire Council

Why

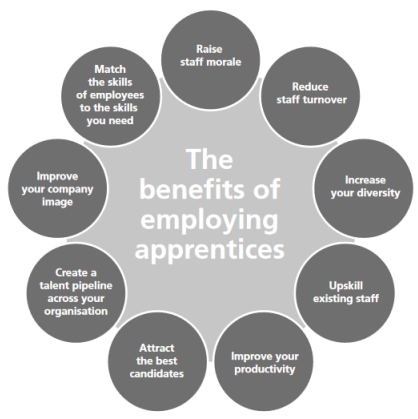
Like many local authorities, Hertfordshire has struggled to recruit and retain staff who have both the right technical skills and an understanding of how a local authority is required to operate; we also have the challenge of an ageing workforce.

Modern apprenticeship programmes offered the opportunity to address both issues by allowing us to 'grow our own' staff with the right mix of skills while developing the next generation and

What and how

- Working with a local college, we established a four year programme to take school leavers through NVQ levels 3 & 4
- Employed the apprentices as part of our maintenance team to allow them experience of a range of programmes & techniques
- Used Asset Management Competency Framework amongst other tools to identify key skills for development as part of 'on the job' training to complement college work
- Supported membership of professional bodies to help future career development

The Benefits of Apprenticeships



Our first (2015) intake of engineering apprentices were shortlisted for a CIHT award

Benefits and outcomes

New intake of staff

- Both apprentices taken on in 2015 are still within the service, achieved promotion on merit after completing the programme and are working as Engineering Project Managers, each responsible for their own programme worth c£5m p.a.
- The model continues to operate with three apprentices completing NVQ level 3 this summer
- One has joined the programme from an administrative role, rather than as a school leaver, further widening the opportunities for career progression within the service

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C25 Annual Asset Performance Report

Self assessment/challenge fund alignment: Q1, Q2, Q3, Q4, Q5, Q6, Q7 and Q8

Local Authority/Organisation: Hertfordshire Council

Why

The development and publication of the revised 2008 Transport Asset Management Plan gave Hertfordshire increased opportunity to engage with elected Members and increase their understanding of AM.

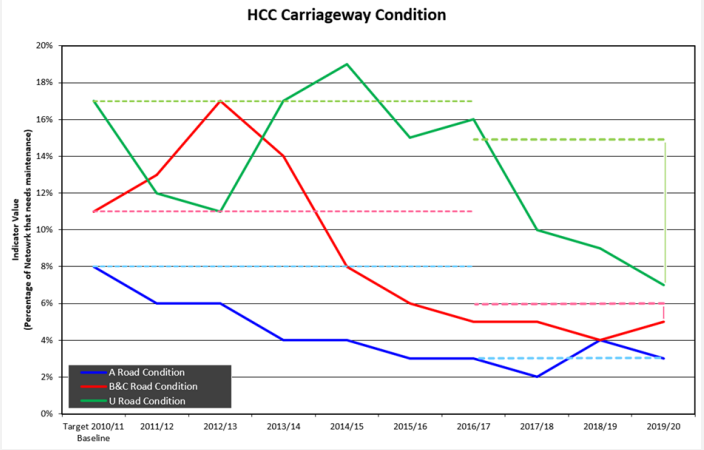
To continue this good work between major revisions to the AMP, it was decided to produce an Annual Report, modelled on those used for other key strategy documents like the LTP this would cover updates on delivery, challenges and opportunities and future plans for programmes of work or strategy development.

What and how

The Annual Asset Performance Report (APR) takes the form of a regular report taken to the appropriate Cabinet Panel including:

- Reporting (delivery of works, performance against targets, performance against the Incentive Fund questionnaire etc.)
- Update on emerging strategic challenges and opportunities
- Setting or revising plans, targets and programmes for the future
- A regular opportunity to discuss strategies and priorities to keep Members engaged and informed
- The chance to discuss new proposals with Members and secure their input and support

Annual Report – Keeping the Topic Fresh



Benefits and outcomes

An AMP APR has been delivered every year since 2009

This keeps the topic fresh in the minds of Members and means that key targets such as condition of assets and performance against the DfT Incentive Fund remain in their minds

It gives the opportunity to make minor updates to the AMP and add additional strategies to it with full Member support without making major changes to the larger document

Over the years it has also helped us discuss and respond effectively to emerging challenges from Climate Change to Covid19

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C26 Private Sector Strategic Partnership

Self assessment/challenge fund alignment: Q17

Local Authority/Organisation: Dorset Council

Why

Dorset Council has a mixed economy delivery model for its structural maintenance and highway improvements construction programmes.

The strategic partnership contract is our third generation with Hanson Contracting, therefore we have been able to build on the excellent working relationships forged since we first begun working together in 2002.

Our Service delivery model is under continued scrutiny with evidence provided to Councillors that it offers value for money when compared to alternative delivery models.

What and how

In 2017, effective procurement of our non-in house element of service delivery was provided by competitively tendering the Dorset Highway Works Term Service Contract using the HMEP Standard Form of Contract for Highway Maintenance.

This tender evaluated potential partners based on quality and price.

The performance of the contract is reported monthly and reviewed quarterly by an Operational and Strategic Board.

An annual joint review meeting is held with Hanson Contracting to ensure that the partnership is still effective and has value.

Dorset Council / Hanson Annual Summary Report

Benefits and outcomes

- Going into 10th year with zero reportable RIDDOR incidents
- Certificate maintained for collaborative working ISO 44001
- Cost savings when compared to other frameworks
- Review of performance at quarterly Operational and Strategic Board meetings
- Shared involvement in local community projects
- Shared vision, values and behaviours
- Joint sustainable ventures (e.g., recycling, low energy asphalts)
- Access to our partner's supply chain
- Enabling stakeholder engagement / feedback

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C27 Midlands Highway Alliance+ Contracting Alliance

Self assessment/challenge fund alignment: Q21

Local Authority/Organisation: Midlands Highway Alliance

Why

- Local highways authorities often require top up capacity to assist them with engineering design and other professional services, particularly when they have a large number of projects to deliver in a relatively short space of time
- They also require to procure contracts for the delivery of larger, particularly one off construction schemes e.g. the delivery of a new bypass
- The tender documentation, legal agreements and competency checks for procuring the required top up capacity are both expensive and time consuming to put together

What and how

- The Midlands Highway Alliance Plus (MHA+) has membership from over 40 local highway authorities
- The MHA+ consulted with members and as a result developed, tendered and let professional services and contracting services framework contracts for use by their membership
- The Professional Services Partnership framework contract has now been let for the third time (PSP3) for 5 years and following reviews, contract improvements are made each time
- The Medium Schemes Framework contract has similarly been let 3 times with the 4th (MSF4) already being developed

MHA+ Medium Schemes Framework 3

Figure 1: MSF 3 aims and objectives

Midlands Highway Alliance Plus

MHA, MSIG, WMHA: Moving Forwards Together

Benefits and outcomes

- MHA+ member authorities have been able to top up and /or procure professional and contracting services to deliver hundreds of projects efficiently and economically
- Procurement costs have been slashed for local highway authorities as all they pay is 0.25% (minimum £2,500 and maximum £50,000), based on the value of the project for use of the Medium Schemes Framework for construction delivery
- The fee for the use of the Professional Services Framework is just 1% of the value of work undertaken by each supplier, with all fees reinvested back into the running costs for the alliance

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MHA Midlands Highway Alliance Driving Collaboration

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C28 AM Competence Framework for Highway Authorities

Self assessment/challenge fund alignment: SAQ7

Local Authority/Organisation: DfT – UKRLG

Why

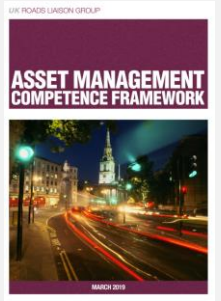
UKRLG has a dedicated Asset Management Board which has been supporting the development of capacity and capability within the sector. As part of their ongoing work and in response to practitioner feedback they commissioned the development of an Asset Management Competence Framework (AMCF) for Highway Authorities and a Highway Inspector Competence Framework (HICF) in the UK.

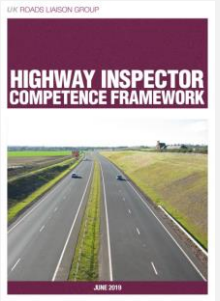
What and how

The Asset Management Competence Framework (AMCF) has been developed as a free to use digitally enabled product that allows UK Highway Authorities to identify and address competence gaps to support better asset management practices. The Highway Inspector Competence Framework (HICF) complements the AMCF providing specific competence guidance for the highway inspectors, aligned to a risk-based approach advocated in the latest release of the sector's code of practice.

The development of both frameworks has involved extensive consultation with professional bodies and allows the development of appropriate qualifications/training for practitioners, helping to professionalise the role and support career progression. They are both publicly available to the highways sector enabling good practice to be shared across over 200 authorities in a cost effective and accessible manner.

AMCF and HICF





Level of Competence		Description
Proficiency	P	Able to manage, supervise and advise others
Experience	E	Capable of undertaking the competence independently
Knowledge	K	Capable of contributing to the work of others but not of undertaking the competence independently
Awareness	A	Is aware of the competence but has not practiced it
Not Applicable	NA	No experience, knowledge or training

Benefits and outcomes

The AMCF has been developed to address the varying needs and organisational structures across the full range of UK Highway Authorities, from national road operators to small local authorities. It also covers the full scope of roles within a highway authority which contribute to asset management – not just specialist roles. This includes senior decision makers, on-the-ground operatives and risk/ legal/ insurance colleagues, and thus supports true embedding of asset management principles and a joined-up approach to delivery throughout each organisation.

The HICF enables LAs to undertake quick and consistent evaluation of staff competences and training needs and address gaps, better defend against compensation claims for network defects and use risk-based inspections to make efficient use of funds.

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Department for Transport

C29 Investment and Re-investment in Improved Plant and Machinery

Self assessment/challenge fund alignment: SAQ Q18

Local Authority/Organisation: RSTA

Why

- Improved plant and machinery requires less risk exposure for operatives
- Older plant and machinery is unreliable, can be inefficient and expensive to run and generates more carbon that is detrimental to the environment
- Newer plant and machinery has improved quality control built in for longer lasting roads
- More plant and equipment is required to give the capacity to deliver increased client requirements

What and how

- Contractors are taking risks investing large sums into improved plant and equipment, taking those risks in readiness for potential required increases in funding for highway asset management
- Although contractors are engaging with clients, unfortunately clients have no certainty of funding and are therefore unable to effectively plan medium and long term forward programmes
- Larger specialised plant and machinery has to be ordered many months and sometimes years in advance of when it is required for use

Deep Road Recycling Machine

Benefits and outcomes

- Improved health and safety
- Improved sustainability and efficiency
- Improved quality control for finished products or treatments
- Improved capacity to deliver increased client requirements
- Greater use of preventative and service life extending treatments
- Reduction in the number of potholes and unplanned expensive maintenance

Supports

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C30 Innovations, Standards and Sector Schemes

Self assessment/challenge fund alignment: SAQ Q18

Local Authority/Organisation: RSTA

Why

- Existing highway products and treatments all began as inventions or what is more generally termed innovations
- When an innovation has been tested and proved to be successful a 'Standard' for the treatment is created and this is applied in accordance with National Highway Sector Scheme (NHSS) requirements
- The publishing of a standard and the laying of a treatment in accordance with that standard and by a company registered with the appropriate NHSS gives an assurance of quality and completed works that will reach their intended life

What and how

- BSI is the British Standards Institute and is the national body responsible for managing and maintaining British standards
- British Standards (BS) are developed and maintained by drawing experts in the industry together and agreeing the standards and / or updates to them
- National Highway Sector Schemes (NHSS) cover all types of highway maintenance. They are a requirement for working on the Highways England network and also used by local highway authorities
- Registered contractors are audited by Certification Bodies

British Standards and Sector Schemes

bsi.

BRITISH STANDARDS

NHSS national highway sector schemes

Benefits and outcomes

- Products and treatments are manufactured in accordance with the agreed and published British Standards (BS)
- Products and treatments are laid or used on the highway in accordance with the requirements of the appropriate Sector Scheme
- Using products that conform to the relevant BS and using contractors registered with the appropriate National Highway Sector Scheme ensures the highest quality and efficient products and treatments that will last for their intended life

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RSTA

C31 Product Quality Management Systems and Control

Self assessment/challenge fund alignment: SAQ Q8 and Q18

Local Authority/Organisation: RSTA

Why

- Highway processes and treatments need to be delivered in a controlled manner to ensure they do not fail early and not reach there intended life
- Whilst road and other maintenance treatments may look fine and perform well for a number of years, if not correctly stored and laid on suitable surfaces at the right temperatures and humidity, their useful life can be shortened substantially making them inefficient and leading to the requirement for unplanned reactive maintenance as a result of their premature failure

What and how

- To ensure products are correctly stored and treatments applied in the correct manner and at the right temperatures, Product Assurance Schemes (PAS) schemes are approved by Highways England and other client organisations
- Contractors are required to have approved processes for laying each type of treatment and these must be in accordance with the authorised PAS
- The PAS organisations regularly audit works to ensure they are being completed in accordance with the relevant PAS
- Companies have their PAS certification removed if they fail

Product Assurance Schemes

BBA

pts

Benefits and outcomes

- Highway authorities have the confidence in the product and treatment they are investing into their highway networks
- The completed maintenance treatments will reach their intended life and therefore be cost effective and efficient for the highway authority
- Highway authorities are able to plan their forward works and finance requirements with a greater degree of certainty
- Contractors who use inferior products and treatments or who do not apply them in accordance with the PAS are not able to undertake works that would likely fail prematurely

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RSTA

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C32 Filling the Gap – Consultation & Stakeholder Support

Self assessment/challenge fund alignment: SAQ 13

Local Authority/Organisation: House of Commons: Transport Committee

Why

The consequences of a deteriorating local road network are significant. It undermines local economic performance and affects all road users – motorists, cyclists, passengers and pedestrians. The *Local roads funding and maintenance: filling the gap* report looked at these issues in detail and made recommendations to address the problems and put them right.

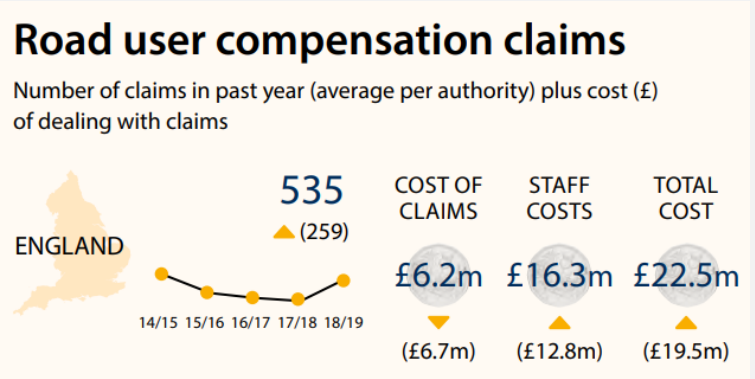
The report concludes that the current short-term approach to funding local road maintenance is not fit for purpose.

What and how

Local government revenue funding has fallen by about 25% since 2010. This lack of funding certainty has caused many councils to take short-term, reactive decisions on road maintenance, which is more expensive and less effective than proactive maintenance that can be planned well in advance and the cost spread out over a number of years.

To tackle this problem DfT should propose a front-loaded, long-term funding settlement to HMT so that local authorities can address the historic road maintenance backlog and plan confidently for the future.

Road user compensation claims England, 2018/19



Benefits and outcomes

This report is a good example of widespread support for increased levels of investment in local highway maintenance.

The Committee received over 90 sources of written evidences that were used in the report from organisations such as:

- Asphalt Industry Alliance (AIA)
- Automobile Association
- Cycling UK
- Department for Transport and other Local Authorities
- Federation of Small Businesses
- Freight Transport Association
- Living Streets

Supports

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HOUSE OF COMMONS

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C33 UKRLG / ADEPT Asset Management Board

Self assessment/challenge fund alignment: SAQ Q21

Local Authority/Organisation: UKRLG & ADEPT

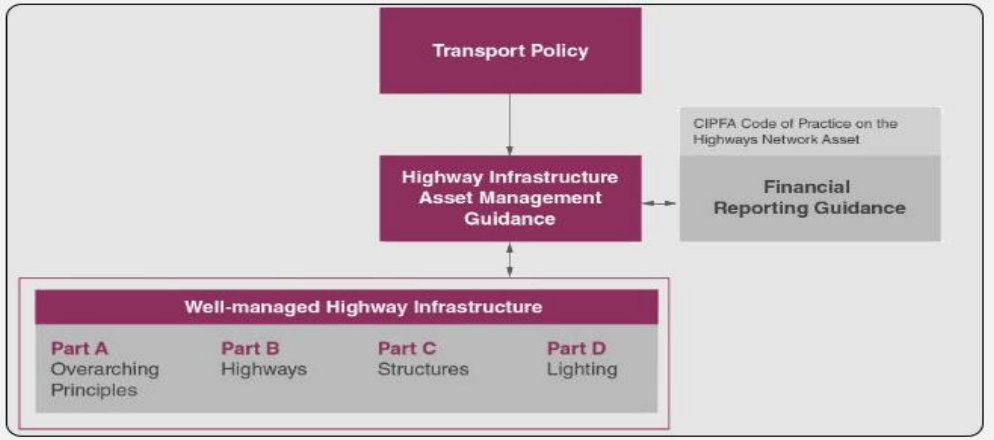
Why

- There was a need to bring leaders from regional local authority highways best value collaborative groups and other industry leaders together to discuss and review how highway asset management can be consistently improved.
- Guidance documents, Codes of Practice, useful tools and templates etc need to be developed to assist authorities to improve their management of their highway asset in an efficient and sustainable manner.
- Smaller local highway authorities in particular do not have the specialised resources required to manage this on their own.

What and how

- The UK Asset Management Board (UKAMB) and other specialist national highway Boards work under the UK Roads Liaison Group (UKRLG) for the benefit of all highways authorities and Highways England.
- Each specialist Board including those for Roads, Structures and Lighting are led by a Chair and Vice-Chair and have a Secretary.
- Meetings are held at least 3 times per year with task and finish groups meeting monthly to progress and deliver specialised guidance and other documents as required by the sector.

UKRLG Boards Working Together



Benefits and outcomes

- Published documents include the Well Managed Highway Infrastructure Code of Practice, Asset Management Guidance, Transport Infrastructure Assets Code of Practice, Asset Management Competency Framework, Highway Inspector Competency framework and Economic Appraisal Tool.
- The UKAMB has been assisting the DfT to develop the business case this case study forms part of.
- Future projects include the review of the Self-assessment incentivised funding questionnaire and process, including the introduction of scorable sustainability questions and evidence.

Supports

Build Back:

Healthier

Fairer

Safer

Stronger

Greener

Better

ADEPT

Association of Directors of Environment, Economy, Planning & Transport

Produced by the UKRLG Asset Management Board to provide evidence for DfT's consideration. The content within does not necessarily reflect the views of DfT

C34 Asphalt Industry Alliance ALARM Survey and Report

Self assessment/challenge fund alignment: SAQ Q4 and Q15

Local Authority/Organisation: AIA

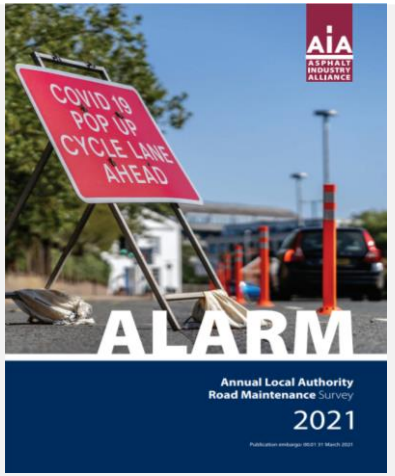
Why

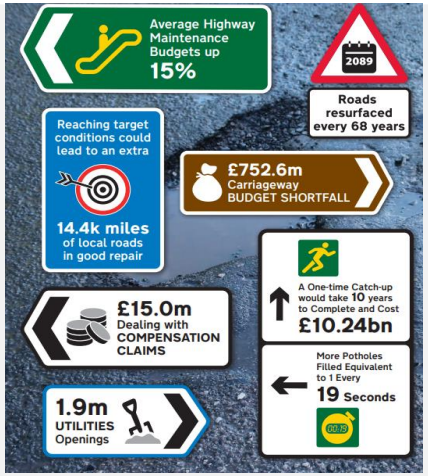
- The Asphalt Industry Alliance (AIA) is a partnership between the Mineral Products Association (MPA) and Eurobitume UK. They draw on the knowledge and experience of both organisations to increase awareness of the asphalt industry and to promote the uses and benefits of asphalt to specifiers, policymakers and the general public
- The AIA produces an Annual Local Authority Road Maintenance Survey report and publicise the findings throughout sector groups and in the media, receiving good coverage throughout radio and television channels

What and how

- Each year the Asphalt Industry Alliance (AIA) commissions an independent survey of local authority highways departments in England (including London) and Wales.
- The survey is now in its 26th year and provides detailed insight into the funding and conditions of the local road network, based on information provided directly by those responsible for its maintenance. Its findings are used by stakeholders across the sector for tracking, benchmarking and planning purposes.
- The UKRLG / ADEPT Asset Management Board encourages all local highway authorities to participate in the survey

Annual ALARM Survey Report





Benefits and outcomes

- The ALARM 2021 reports that, despite a 15% increase in highway maintenance budgets, maintaining local roads to target conditions is still out of reach for local authorities. If they had enough funds to meet their own target conditions, there could be an additional 14,400 miles of local roads in a good state of repair
- Local highway authorities can use the reports to highlight the state of the local road network to road users and elected members (Councilors) and encourage support for funding of highway maintenance at a national and local level

Supports

Build Back:

Healthier

Fairer

Safer

Stronger

Greener

Better

C35 Regional Best Value Collaboration

Self assessment/challenge fund alignment: SAQ Q15 and Q21

Local Authority/Organisation: Midlands Highway Alliance

Why

- Local highway authorities all have the same challenges to safely maintain their roads and other highway assets
- They do not have the capacity to tackle the issues alone
- Different local authorities have strengths in certain areas and weaknesses in others
- There is a need to demonstrate good practice and achieve required outcomes for reporting internally to Councillors and the public, and to the Department for Transport
- Additional 'Incentive' funding is linked to evidencing good and excellent management of the highway asset at a local level

What and how

- Authorities meet together on a regional basis to discuss their challenges and benchmark their respective performances
- Guidance documents and tools to assist all authorities are developed by those with the strengths in certain areas to assist those who have weaknesses and vice versa
- Everything needed is held on the regional groups respective websites
- There are best value collaboration groups all over the country, including the Midlands Highway Alliance who also let contracts that can be used by all their members

Midlands Highways Alliance

Benefits and outcomes

- All local highway authorities benefit from the exchange of information and guidance documents and are able to deliver good or excellent highway asset management in their geographical area
- Guidance documents and tools developed by the regional groups are usually shared nationally for the benefit of all local highway authorities throughout the country
- Millions of hours and pounds are saved by local highway authorities being members of regional groups and collaborating in this way

Supports

Build Back:

Healthier

Fairer

Safer

Stronger

Greener

Better

MHA Midlands Highway Alliance Driving Collaboration

C36 ADEPT Live Labs – Transforming Local Places

Self assessment/challenge fund alignment: SAQ Q17, Q18 and Q21

Local Authority/Organisation: ADEPT

Why

The advances made in digital technology have transformed how we live and work and will continue to have far-reaching impacts for some time to come. As Place Directors, ADEPT members need to be at the forefront of this rapid change: supporting communities, business and innovation in their areas.

In 2017, ADEPT created the SMART Places Research Programme to examine the opportunities and challenges facing the adoption of digital technology across the local highway network.

What and how

Collaboration was a central tenant of the Live Labs programme, and we are now positively encouraging our cohort to be open to sharing and asking for help. With emerging innovation, our Live Lab leaders are now collaborating and sharing knowledge thus reducing effort, eliminating repeated work and streamlining approaches.

At the heart of Live Labs is accelerating the adoption of new solutions and technologies to deliver improved outcomes for the local roads sector, both here in the UK and further afield. We expect Live Lab partners and their suppliers to focus not only on delivery and associated benefits, but also on the underlying commercial factors that enable success – vital for achieving a wider step change. We expect our Live Labs to be collecting the technical, commercial and other supporting data to allow others to construct future business cases for their geographies.

Examples of Live Labs

Buckinghamshire Council

- 10 e-bikes installed and in service; 20 gulley sensors now installed to provide real time drainage data; 2400 sensors, 170 composite modular lampposts, 10 wind and solar turbines and 20 energy harvesters being manufactured; in-depth business and use cases being developed; last mile service solutions desk study underway

Central Bedfordshire Council

- Five geothermal probes extending 150m into the ground are being designed to deliver a de-icing and heating solution; 216 modules of solar carriageway surfacing will deliver an annual production estimated at a maximum of 17,400kWh/year; two kinetic walkway arrays will be used to deliver power to two smart benches and a digital advertising and information screen

Cumbria County Council

- Five highways surfacing trials and three quarry trials are planned; the team is working with several testing companies and laboratories to assess the performance of materials; a total area of 3000m2 of surfacing laid; 940L of binder and 1019m2 surface course containing the MacRebur additive was laid with figures suggesting that the equivalent of 238,958 single use plastic bags were used in the scheme alone

Kent County Council

- 86 innovation opportunities identified and explored, resulting in 30 projects across all workstreams; 11 data integration innovations have deployed on HADMS digital platform; 20 asset detection sensors have been installed to date with four gully sensor manufacturers pitted against each other to drive innovation; over £600k+ of further funding drawn into Kent's Live Lab

Supports

Build Back:

Healthier

Fairer

Safer

Stronger

Greener

Better

C37 AI Based Carriageway Condition Surveys

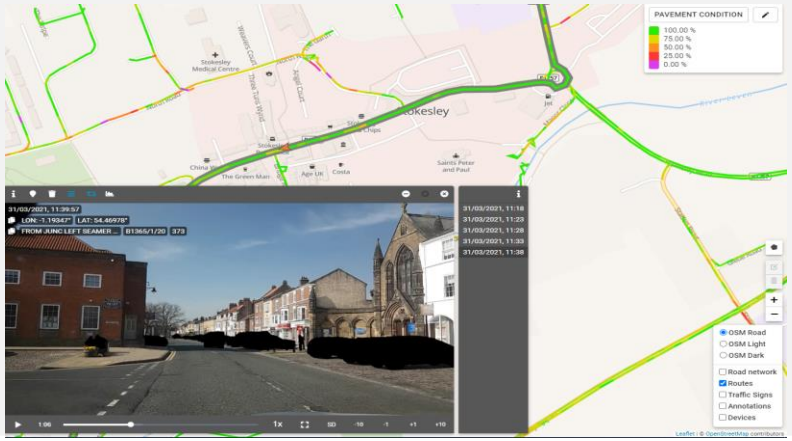
Self assessment/challenge fund alignment: SAQ Q4 and Q10

Local Authority/Organisation: North Yorkshire Council

Why

- Extensive minor road network (in excess of 6000km)
- Completing manual Coarse Visual Inspections (CVIs) was a significant task each year
- CVIs accounted for up to 75% of workload for surveying team.
- Need to reallocate surveyor time to other asset types
- Require accurate and up to date information on carriageway network condition to assist with investment decisions.

Road AI User Interface



What and how

- Road AI – automated carriageway condition surveys.
- Mobile phone in windscreen collects video data
- Data uploaded to central system where AI technology is used to identify carriageway defects and condition
- Data available to view on secure web platform within 4hrs of upload:
  - Captured video data
  - Carriageway Condition data

Benefits and outcomes

- Full network can be surveyed in 4 months instead of 9months.
- Broader range of information on carriageway condition including associated video footage
- Video can be used to assist in scheme design
- Annual data collection assist in asset management and life cycle planning.
- System also collects traffic sign inventory and road lining and marking location and condition data.
- Surveying resources can be deployed elsewhere
- Reduction in vehicle mileage and associated emissions

Supports

Build Back: Fairer

Safer

Greener

Better

North Yorkshire County Council

C38 Digital Intelligent Brokerage

Self assessment/challenge fund alignment: Q18 and Q21

Local Authority/Organisation: DfT / Wiltshire Council

Why

The primary aim of the Digital Innovation Hub is to encourage technological and product innovation, and especially from SMEs to help define and address the most complex challenges in any sector. It develops on an approach previously proven in the Water industry.

The Digital Intelligent Brokerage is at the core of the Digital Innovation Hub.

What and how

Delivering a low-cost project to test the Digital Intelligent Brokerage (DIB) concept. The technology at the heart of the Hub is highly automated and specifically designed to lower the barriers to entry for SMEs across a wide range of industries, using sophisticated problem re-definition and an innovative online gateway.

We launched the initiative, introducing a new and innovative approach to accelerate research and development by encouraging SME involvement in the highways sector. Its design successfully delivered the outcomes as predicted and would also be highly resilient during the pandemic lockdowns.

Benefits and outcomes

- Accessing innovation from across the UK, supporting the levelling up agenda. Providing an efficient engagement for participants to access all aspects of the pothole challenge.
- Demonstrating access to UKPLC innovation, bringing cross-sector experience and efficiencies, and increasing the value of cross-sector investment.
- Inspired engagement by SMEs and organisations that traditionally find it difficult to access the market. Respondent organisations also presented a diversity of solutions.
- SME support and collaboration.
- Outputs accessible and adaptable to support local authorities to select the most appropriate solutions.
- Sector support and strengthening
- Interdepartmental efficiencies: The Hub has created interest and efficiencies across departments, supporting the communication and promotion of the Hub.

Supports

Build Back:

Healthier

Fairer

Safer

Stronger

Greener

Better

C39 Markyate Footbridge Refurbishment

Self assessment/challenge fund alignment: Q5 and Q21

Local Authority/Organisation: Hertfordshire Council

Why

Markyate Footbridge, on the de-trunked A5 in Hertfordshire, is a concrete footbridge built in the 1950s. It was in very poor condition, a danger to pedestrian traffic and at risk of impact from vehicles. Preliminary plan was for demolition and replacement with an at-grade crossing.

Consultation identified local interest in the history and heritage, and a strong desire to keep the footbridge. On this basis a refurbishment and safety improvement scheme was adopted

Before and after – Heritage Maintained

What and how

Initial consultation by Hertfordshire County Council with the community identified the priorities – bridge refurbishment, improved footway approaches – and opportunities such as a community planting scheme.

Design of a refurbishment solution, and a management plan, to protect the asset for years to come. Construction through a framework Contractor who maintained the collaborative approach with the community and the local elected members

Benefits and outcomes

- Extended the life of a valuable heritage asset
- Community benefits, strong community involvement and support
- Collaboration and Early Contractor Involvement (ECI)
- Design improvements in durability, water management, risk management, pedestrian and road user safety
- Collaboration during construction, innovative in materials
- Environmental improvements in local connectivity, and visually through bulb planting
- Low carbon sustainable solution

Supports

Build Back:

Healthier

Fairer

Safer

Better

Hertfordshire

C40 Scheme: Benefits of capital maintenance - Street Lighting

Self assessment/challenge fund alignment: Q5

Local Authority/Organisation: Lancashire County Council

Scope

The scheme involves upgrading 67,000 energy inefficient street lighting lanterns with modern LED equivalents, replacing up to 4,000 lighting columns that have reached the end of their service life and the provision of approximately 150 charging points to encourage a greater uptake of Ultra Low Emission Vehicles (ULEV) in Lancashire.

The scheme will enable LCC to complete its energy efficiency programme, which started in 2009 but was terminated in 2012 due to the challenging budgetary conditions.

Solution

Several alternatives were considered previously to tackle this issue – including a 'do nothing' scenario which was rejected as the proportion of the stock over 40 years old would continue to increase making catastrophic failure more likely.

A large-scale lantern and column replacement was the preferred option to enable LCC to achieve economies of scale with regards the purchasing and fitting lanterns. It also enabled LCC to make real progress with the removal of most of its highest risk columns.

This scheme will enable LCC to develop a two-phase approach towards maintaining its street lighting stock over the foreseeable future.

Return on Investment

The scheme will enable LCC to reduce its revenue expenditure annually by £3.1M through:

- Energy savings: £ 2.7M
- Carbon Reduction Commitment Energy Efficiency savings: £191,000
- Reduced maintenance costs: £ 210,000

The savings will provide LCC with an opportunity to reinvest some of these money into other asset related issues.

Other benefits and outcomes

The scheme will also enable LCC to replace up to 4,000 of its columns which are currently greater than 40 years old and install 150 electricity charging points suitable for use by ULEV. The charging points will be installed in strategic locations across Lancashire in consultation with district council partners.

The scheme:

- Contributes towards the authority's wider carbon reduction measures
- Supports the 15-year Transport Asset Management Plan (TAMP)
- Enables energy consumption to be reduced by 21,834,000 kWhs per annum
- Saves the region 12,000 tonnes of CO2 per annum

DfT Funding
£ 14,800

LA Funding
£ 5,000

Other Funding
na

Total Cost
£ 19,800

BCR
3.79

C41 Scheme: Addressing Greater Norwich Flooding Issues

Self assessment/challenge fund alignment: Q9 and Q11

Local Authority/Organisation: Norfolk County Council

Scope

The scheme upgrades key drainage infrastructure, addressing long standing flooding issues across a wide residential and growth area. The works will complement and support economic growth proposals for north Norwich as set out in the Greater Norwich Joint Core Strategy & New Anglia LEP Strategic Economic Plan.

Solution

The existing surface water drainage systems are reaching the end of their useful lives and require improving and replacement. The systems cannot cope with surface water flows during heavy rainfall events, with problems occurring typically in the road gullies and catch pits.

The issues and solutions were identified as major housing schemes were built. However, fluctuations in capital funding and the need to prioritise Integrated Transport schemes resulted in delay to further implementation of the required improvements.

There is a do-nothing option, but with the expected long-term trend to be for more frequent heavy rainfall events, more regular flooding would be expected. Therefore, the costs in terms of economic loss and disruption to the highway network would increase.

Impact of the scheme

The expected benefits would be an effective surface water drainage system with estimated benefits from a reduction in flood risk to residential and commercial/public buildings is outlined below:

- 51 residential properties: £4.3 million
- 28 commercial/public buildings: £89.2 million

Other benefits and outcomes

An effective surface water drainage system will:

- Offer enhanced resilience and bring a far improved level of protection to a large number of properties and the highway network.
- Reduce disruption and damage and the health and safety issues associated with flood events.
- Minimise the longer-term detrimental health and economic effects of flooding. Studies have shown the incidence of physical and mental health, this puts further strain on public health services and a knock-on negative effect on the economy.
- In addition to the direct financial costs and socio-economic costs of flooding the potential health risks which arise from floodwater affecting the local sewage network and the associated clear-up costs from flood events also should be considered.

DfT Funding	LA Funding	Other Funding	Total Cost	BCR
£ 9,123	£ 1,200	na	£ 10,323	6.6

Benefits & Return on Investment (scheme level examples)

- Challenge Fund bids

Local Authority	Asset Class	DfT Funding	LA Funding	Other Funding	Total	Benefit/Cost Ratio
Lancashire	Lighting	£ 14,800	£5,000	-	£ 19,800	3.79 to 4.91
Norfolk	Drainage	£ 9,123	£ 1,200	-	£ 10,323	6.6
South Gloucestershire	Carriageways, drainage and structures	£ 3,200	£ 150	£ 350	£ 3,700	242.5
Warwickshire	Historic bridges	£ 4,980	£ 1,320	-	£ 6, 300	10-100+
West Midlands	Carriageways	£ 39,900	£ 4,935	-	£ 44,835	6.21 to 6.51
Portsmouth	Bridges	£ 11,100	£ 1,500	-	£ 12,600	Original 114

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Analysis

Background - Condition Levels

Very Good

Good

Fair

Poor

Very Poor

Background - Good State of Repair

Good State of Repair

- No structural issues
- Minor deterioration
- May require patching and/or surfacing

Backlog / Annual Need comparisons

Not all Backlogs / Annual Needs are the same

- Service Level
  - Others – 'As New' – Gold Standard
    - Large periodic investments
    - Higher 60-year projected maintenance costs (discounted)
    - Backlog calculated and provided by each individual Highway Authority
  - UKRLG – 'State of Good repair' – Bronze Standard
    - Slight sustained increase in annual funding
    - Lower 60-year projected maintenance costs (discounted)
    - Transparency of funding
    - Improved planning
    - Consistency of data, assumptions and analytical approach across England
      - Industry recognised tools and techniques

Backlog Calculation

- The investment required to achieve a network Service Level of 'State of Good Repair' (SoGR)
- 2019 UKRLG State of the Nation Report provides the calculation methodology
- Utilises Nationally recognised tools developed by HMEP, UKRLG and the Highway Sector
  - HMEP/UKRLG Lifecycle Planning tools
  - Structures Lifecycle Toolkit
- Approach and assumptions have been assessed, reviewed and approved by industry experts (UKRLG AM Board)
- Figures have not been inflated
- Indicative 2021 analysis indicates the England (excl. London) backlog has increased by c. £1 billion since 2019 backlog calculation due to subsequent investment levels, inflation, deterioration and short-term funding strategies

Backlog Calculation

- The investment required to achieve a network Service Level of 'State of Good Repair' (SoGR)
- 2019 UKRLG State of the Nation Report provides the calculation methodology
- Utilises Nationally recognised tools developed by HMEP, UKRLG and the Highway Sector
  - HMEP/UKRLG Lifecycle Planning tools
  - Structures Lifecycle Toolkit
- Approach and assumptions have been assessed, reviewed and approved by industry experts (UKRLG AM Board)
- Figures have not been inflated
- Indicative 2021 analysis indicates the England (excl. London) backlog has increased by c. £1 billion since 2019 backlog calculation due to subsequent investment levels, inflation, deterioration and short-term funding strategies

Annual Need Calculation (1/4)

- Utilises approach aligned with CIPFA Code of Practice on the Highways Network Asset
  - Annual Need = Replacement Cost / Useful Life

Asset Type	Sub-asset type	Treatment	Useful Life (Years)*	Replacement Cost (£/quantity)*	Quantity Units
Carriageway	A Roads	Resurface (incl. localised structural works)	20	£ 30.00	m^2
	B Roads		25	£ 25.00	
	C Roads		30	£ 20.00	
	Unclassified		50	£ 15.00	
Footways & Cycleways	Bituminous	Reconstruct and replace with Bituminous	30	£ 45.00	m^2
	Block Paved		40	£ 75.00	
	Concrete		60	£ 80.00	
	Flagged		40	£ 60.00	

Annual Need Calculation (2/4)

- Utilises approach aligned with CIPFA Code of Practice on the Highways Network Asset
  - Annual Need = Replacement Cost / Useful Life

Asset Type	Sub-asset type	Treatment	Useful Life (Years)*	Replacement Cost (£/quantity)*	Quantity Units
Carriageway – Linear Assets (e.g. drainage)	LA Motorways	Replace assets	120	£ 715.13	m
	A Urban			£ 604.60	
	A Rural			£ 457.98	
	B Urban			£ 400.00	
	B Rural			£ 40.00	
	C Urban			£ 200.00	
	C Rural			£ 20.00	
	U Urban			£ 100.00	
	U Rural			£ 10.00	

Annual Need Calculation (3/4)

- Utilises approach aligned with CIPFA Code of Practice on the Highways Network Asset
  - Annual Need = Replacement Cost / Useful Life

Asset Type	Sub-asset type	Treatment	Useful Life (Years)*	Replacement Cost (£/quantity)*	Quantity Units
Structures	Bridges	Waterproofing	20	£ 250.00	Bridge deck area (m^2)
		Drainage / Bearing Shelf Cleaning	5	£ 1.50	
		Parapet Maintenance	15	£ 55.00	
		Expansion Joints	20	£ 200.00	
		Bearing renewals	30	£ 170.00	
		General repairs	30	£ 1,000.00	
	Other Structures	Limited data – estimated to be an additional 50% of Bridges Annual need			

Annual Need Calculation (4/4)

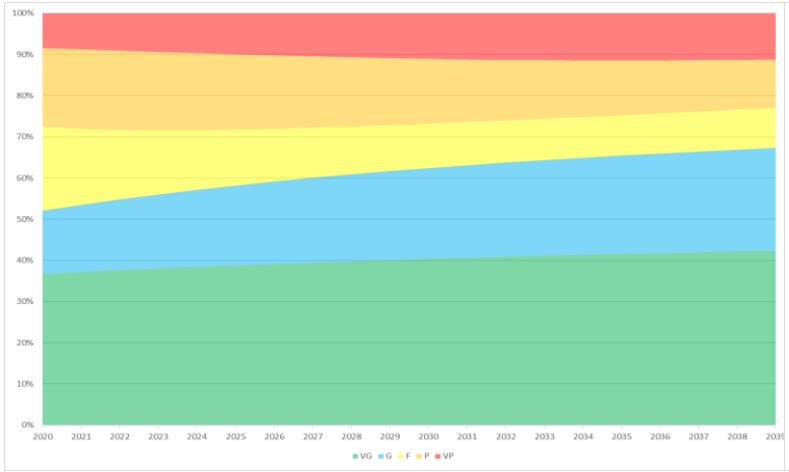
- Utilises approach aligned with CIPFA Code of Practice on the Highways Network Asset
  - Annual Need = Replacement Cost / Useful Life

Asset Type	Sub-asset type	Treatment	Useful Life (Years)*	Replacement Cost (£/quantity)*	Quantity Units
Street Lighting	Lighting Column	Replace Lighting point	40	£ 1,308.29**	Unit
Traffic Signals	Junction	Replace signals and equipment	25	£ 99,692.31**	Unit
	Pedestrian Crossing			£ 51,938.10**	

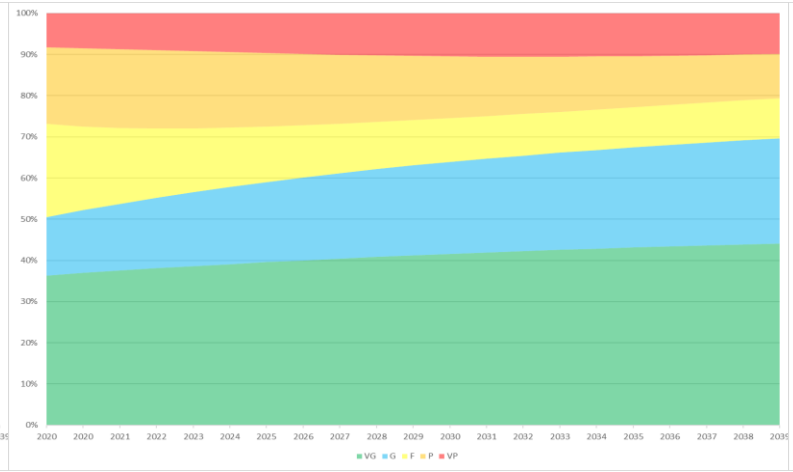
* Based on Engineering Experience
** Average costs extracted from data supplied in Asset Valuations provide by Local Authorities as part of the 'State of the Nation' report

Carriageway Scenario Analysis – Condition

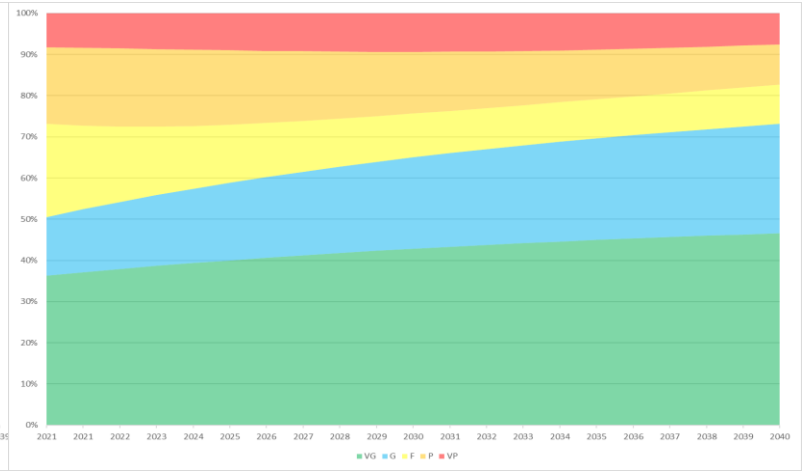
Scenario 1 - Decline



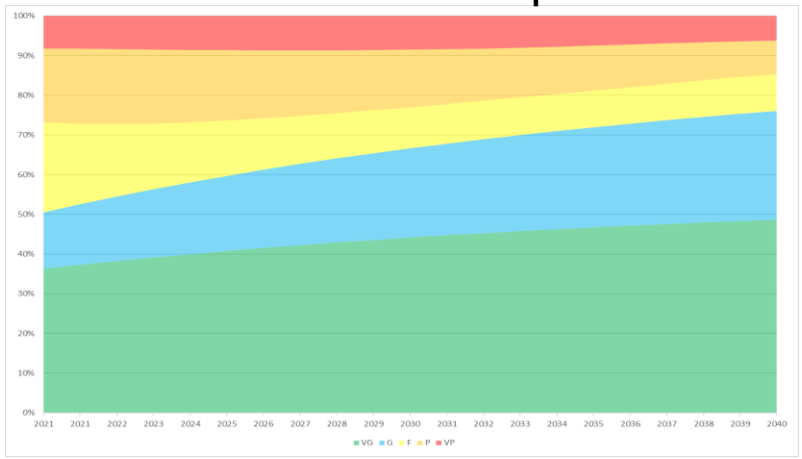
Scenario 2 – Managed Decline



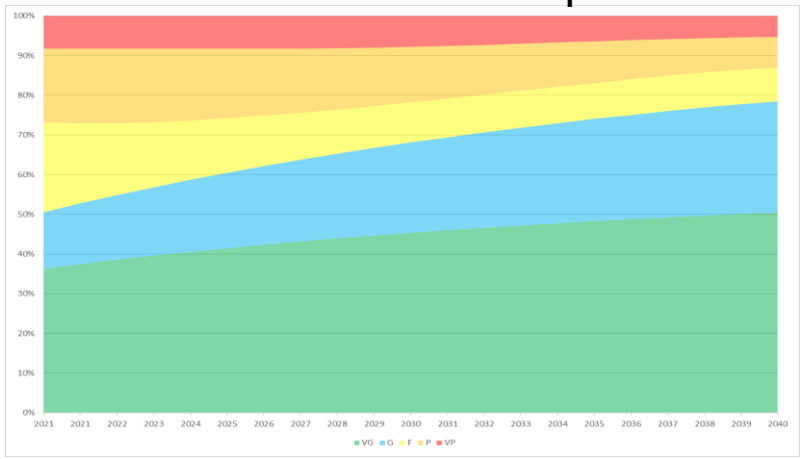
Scenario 3 – Maintain



Scenario 4 – Gradual Improvement



Scenario 5 – Accelerated Improvement



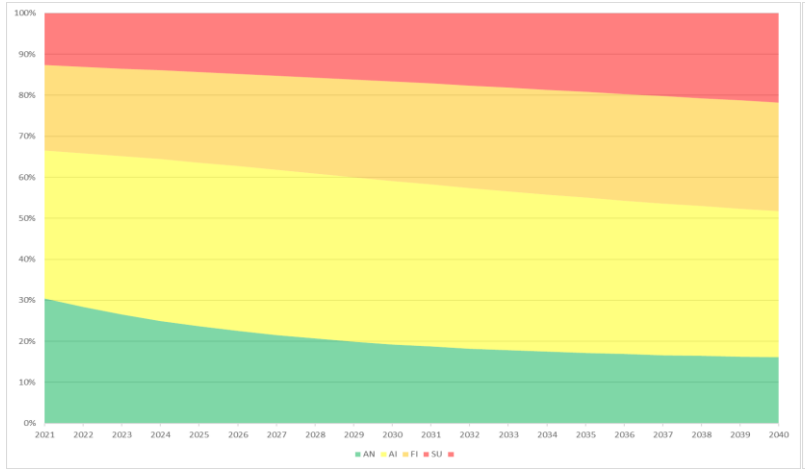
Analysis based on indicative allocations (Slide 19)

Scenarios focused on proactive works

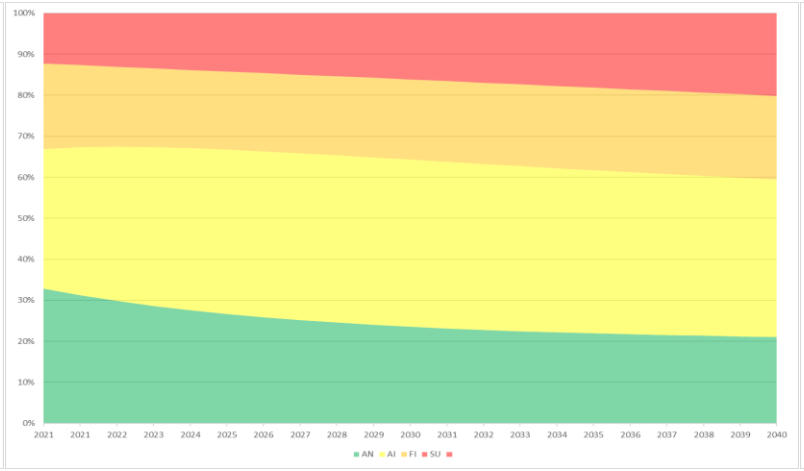
1% = c. 2,832km or c. 1,760 miles

Footway / Cycleway Scenario Analysis – Condition

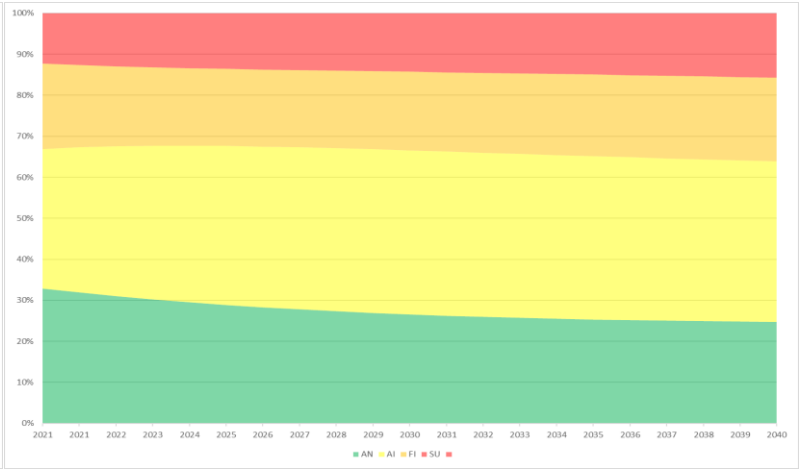
Scenario 1 - Decline



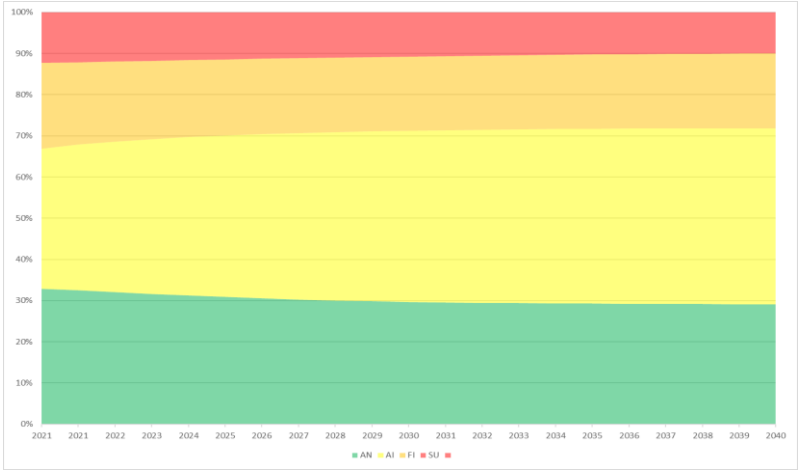
Scenario 2 – Managed Decline



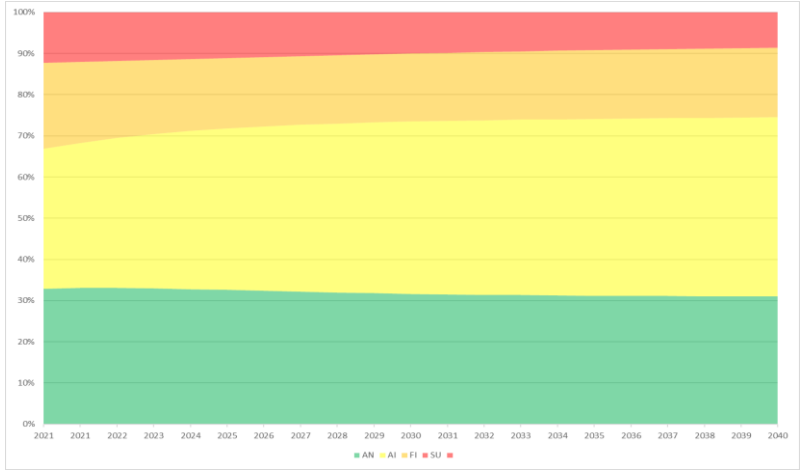
Scenario 3 – Maintain



Scenario 4 – Gradual Improvement



Scenario 5 – Accelerated Improvement

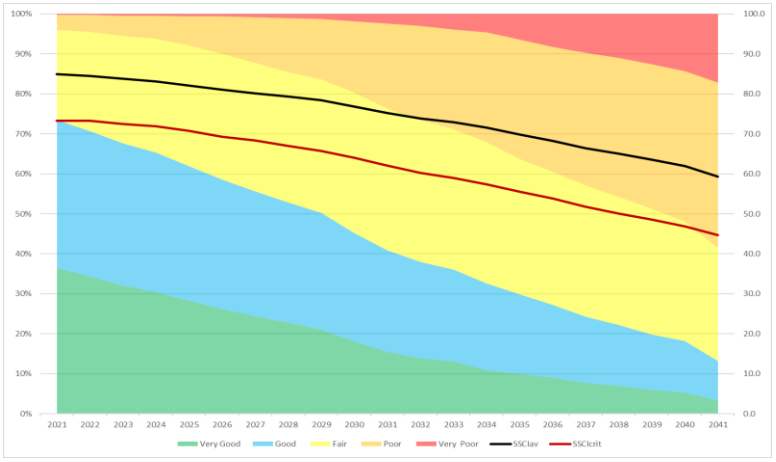


Analysis based on indicative allocations (Slide 19)

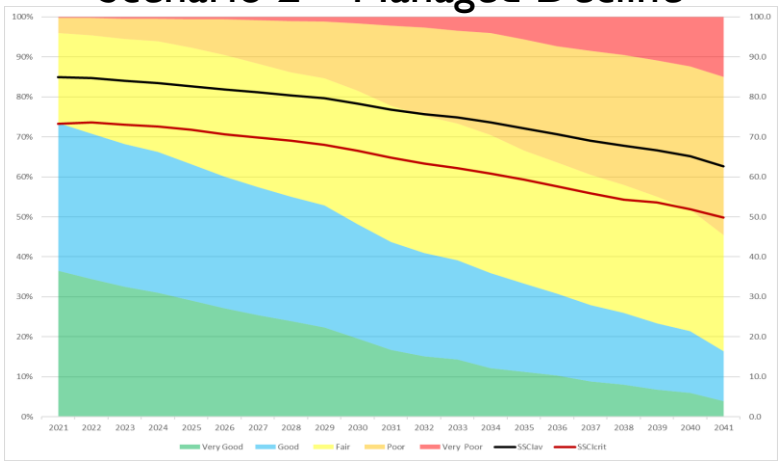
1% = c. 2,164km or c. 1,345miles

Structures Scenario Analysis – Condition

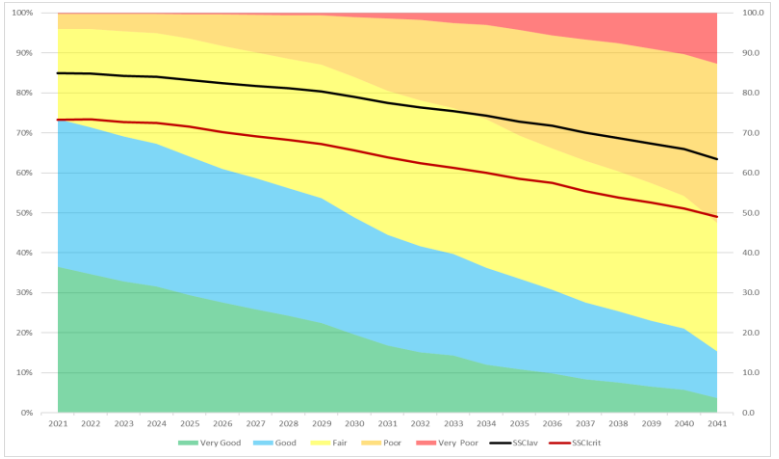
Scenario 1 - Decline



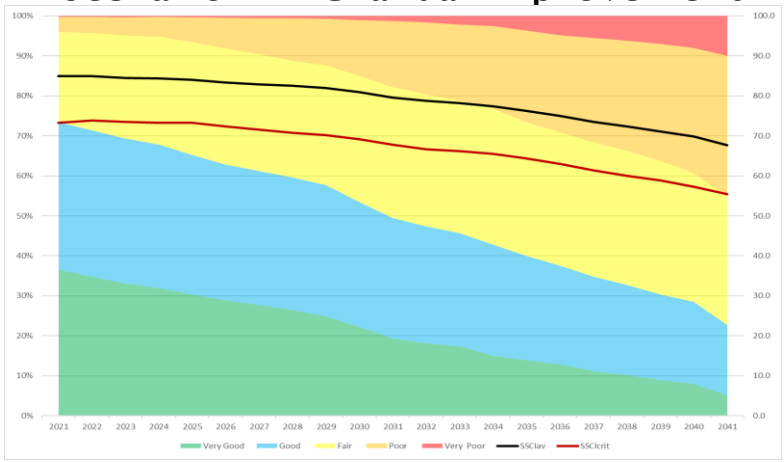
Scenario 2 – Managed Decline



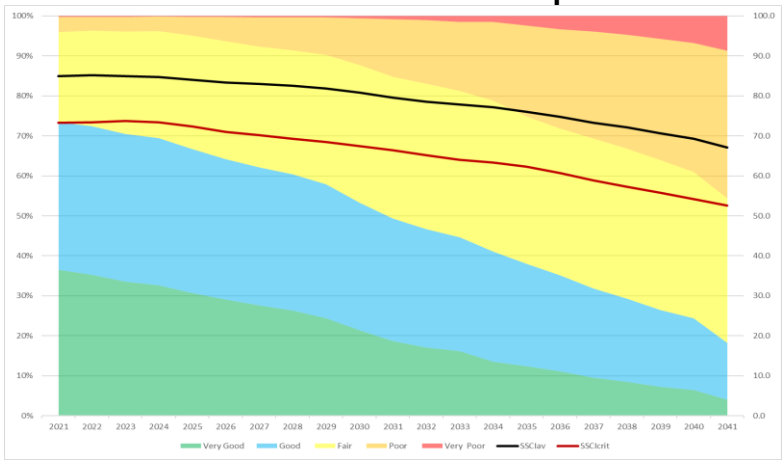
Scenario 3 – Maintain



Scenario 4 – Gradual Improvement



Scenario 5 – Accelerated Improvement



Analysis based on indicative allocations (Slide 19)

1% = c. 500 Bridges and an estimated 250 retaining walls