

National Roads Maintenance Review

Stakeholder Event

Briefing Paper

Halcrow Group Limited



THE OFFICE OF
THE SCOTTISH
ROAD WORKS
COMMISSIONER



National Roads Maintenance Review

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Contents

1	Introduction	1
1.1	<i>Context</i>	1
1.2	<i>Purpose of the National Roads Maintenance Review</i>	5
1.3	<i>Approach/ Methodology</i>	6
2	Emerging Findings	7
2.1	<i>Effective Asset Management</i>	7
2.2	<i>Prioritisation</i>	8
2.3	<i>Benchmarking and Monitoring</i>	8
2.4	<i>Delivery models</i>	9
2.5	<i>Incentivising Innovation</i>	10
2.6	<i>Enabling faster change</i>	10
2.7	<i>Communication</i>	11
3	Facilitated Sessions	12
3.1	<i>Standards and Asset Management</i>	12
3.2	<i>Technology & Productivity Innovation</i>	13
3.3	<i>Resourcing</i>	14
3.4	<i>Wider Economic Issues, Impacts, Costs and Benefits</i>	15

1 Introduction

1.1 Context

Scotland's road network, at 55,427km, is one of the country's largest community assets, encompassing all the roads, footways, bridges, street lighting and road signage. It plays a vital role in supporting Scotland's economy by facilitating the movement of people, goods and services and connecting people with economic opportunities. On a local level, the road network is essential for the long-term sustainability and development of Scotland's communities and the well-being of its residents.

Although accounting for less than 10% of Scotland's roads network, motorways and trunk roads carry over 30% of all traffic movements. In the last 15 years, total road usage has increased by almost 30%, with trunk roads experiencing a rise of almost 40%. Over the same period, the increase in the use of Scotland's local authority roads rose by around 20%¹.

Given the pivotal role the road network plays in assisting economic growth, timely and effective maintenance is essential. In 2009/10, £654² million was spent on Scotland's trunk (£162m) and local authority roads (£492m), amounting to around 2.5% of the Scottish Government's total discretionary budget in that year.

The recent Audit Scotland report³ highlights, that despite these levels of investment, (see Table 1) in 2010 Scotland's road network was deteriorating. In 2005, 70% of Scotland's local authority roads were viewed as being in an acceptable condition but, by 2010, this has fallen to 66%. The current condition on trunk roads is marginally better, but also deteriorating. In 2006 the percentage of trunk roads in acceptable condition stood at 84% whereas, by 2010 this has fallen to 78%.

The cost of dealing with the backlog in maintenance is now estimated to amount to around some £2.25 billion:

- £1.54 billion relates to the maintenance backlog on local authority roads (excluding bridges and other assets such as lighting); and,
- £0.713 billion relates to trunk roads (including bridges).

¹ Source: Scottish Transport Statistics

² Audit Scotland, Maintaining Scotland's Roads report 2010

³ Audit Scotland, Maintaining Scotland's Roads report 2010

Table 1: Headline statistics from Audit Scotland's report

	Change in road maintenance spend	Equivalent change in purchasing power	Change in traffic volumes	Roads in acceptable condition	Headline Backlog
Local Authority Roads	+ 12% (2004/05 – 2009/10)	- 13% (due to road maintenance industry inflation)	+ 4% (since 2004/05) + 22 % (over last 15 years)	66% in 2010 70% in 2005	£1.54 billion (£640 million more than in 2004)
Trunk Roads	- 12% (2004/05 – 2009/10)	- 32% (due to road maintenance industry inflation)	+ 3% (since 2004/05) + 37% (over last 15 years)	78% in 2010 84% in 2006	£713 million (£480 million more than in 2004)
<ul style="list-style-type: none"> The condition of Scotland's roads is worsening All roads authorities have a growing road maintenance backlog Expenditure on Scotland's roads maintenance increased between 2004/05 and 2009/10 However, due to maintenance industry inflation, by 2009/10 ... <ul style="list-style-type: none"> local authorities had 13% less to spend in real terms Transport Scotland had 32% less to spend in real terms. 					

Source: Audit Scotland, 2011

The recent SCOTS⁴ backlog model⁵ report further illustrates the size of the growing challenge. SCOTS estimated that by spending an additional £45 million in both 2009 and 2010 the road backlog could have been kept at its 2008 levels.

By not funding the £45 million of additional investment in proactive maintenance each year, the backlog actually increased by up to £190 million⁶ over the two years since 2008. This would appear to indicate that the rate of deterioration of the local road network has increased.

The crucial point that this illustrates is that by investing £1 in proactive maintenance, the resultant saving could be around £2 in future treatment costs.

⁴ Society of Chief Officers of Transportation in Scotland (SCOTS), a strategic body representing Scotland's 32 local authorities and seven Regional Transport Partnerships

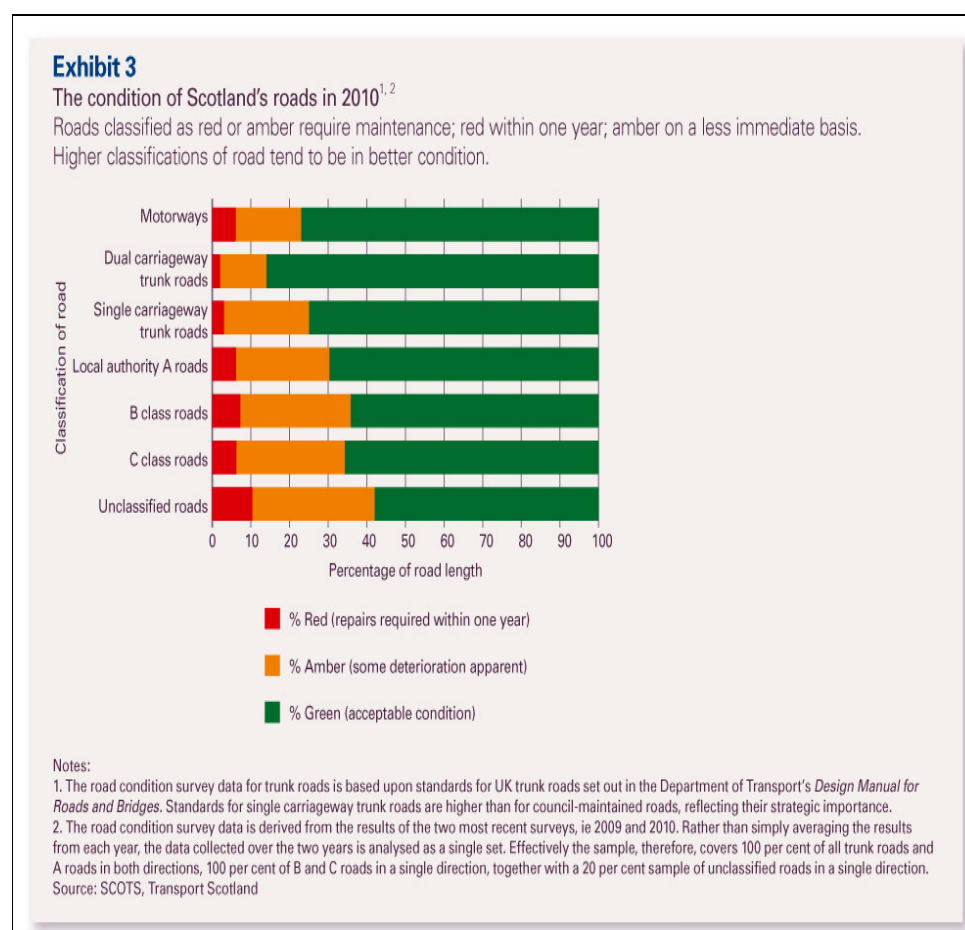
⁵ SCOTS Backlog Model Report, WDM Limited, February 2011

⁶ Care is needed here as the per unit cost estimates for each of the roads authorities varies significantly. This leaves open the potential for the overall cost to be less than £190 million, should lower per unit costs be more appropriate.

The total backlog is expected to be even larger once local authority bridges and other assets are included. Some 60% of Transport Scotland's reported backlog is due to bridges. If a similar ratio applies for local authority bridges, the total backlog cost could increase by a further £2 billion, taking the total to over £4 billion.⁷

Over half of the Scottish road network comprises unclassified roads and the 2010 road condition data in Figure 1 below show that less than 60% of these roads were deemed to be in an acceptable condition, with 10% needing attention within 12 months. These roads are surveyed less frequently than other road types; therefore there may be significant uncertainty in their overall contribution to the backlog.

Figure 1



Source: Audit Scotland, 2011

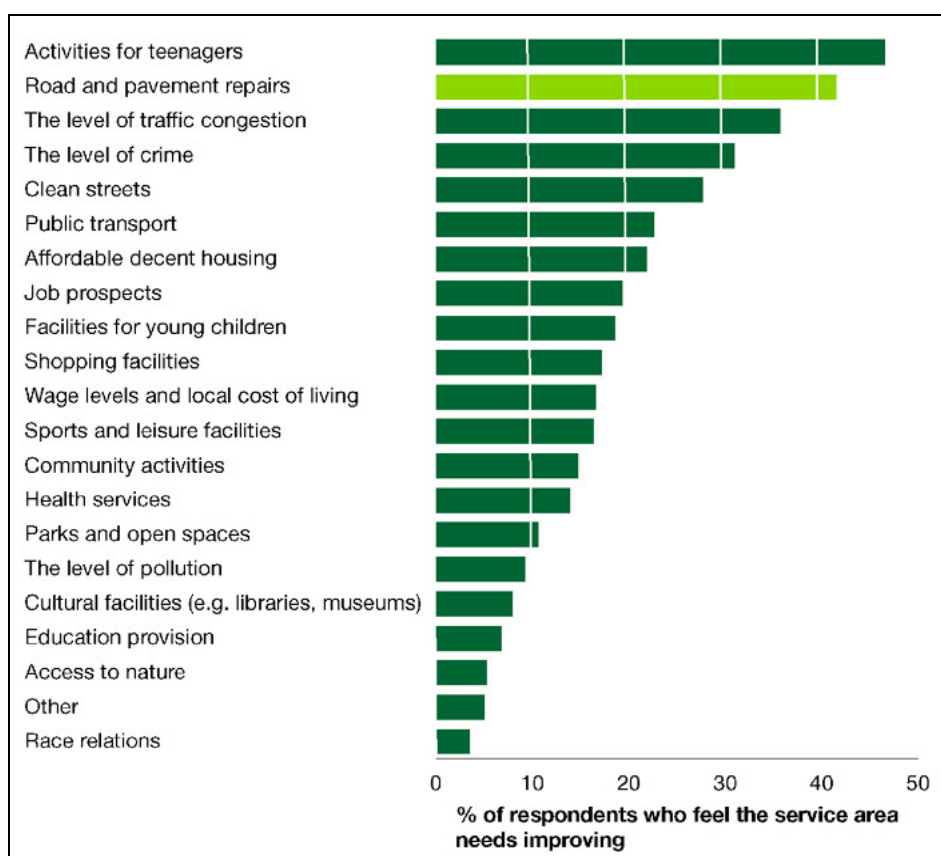
Similarly the backlog costs associated with footways are still being considered as part of the work by local authorities in their asset management plans.

⁷ This estimate takes no account of the different methods Transport Scotland and local authorities use to report their backlog.

Further future pressures on roads authorities may also arise from complying with the Disability Discrimination Act (Transport Scotland estimates its costs to be £40 million to 2025), and from the need to ensure the resilience and adaptation of our networks to meet climate change, sustainability and other challenges.

A deteriorating road network adds to business costs, personal commuting costs and impedes sustainable economic growth. It also has the potential to reduce environmental amenity and increase health and safety problems. The recent Audit Commission report⁸ highlights clearly the public's expectation (in England and Wales) on road and pavement (ie. footways) as to their priorities for local government action (see Figure 2).

Figure 2



Source: Audit Commission, 2011

Table 1 set out the significant challenge that industry inflation posed to available budgets in the period 2004 to 2010. This challenge will continue alongside the fact

⁸ Audit Commission, May 2011, Going the Distance, achieving better value for money in road maintenance

that public sector spending is set to fall in real terms by around 3% per annum⁹ between 2011/12 and 2014/15.

Whilst this review will certainly identify opportunities for efficiencies, the level of investment required even to maintain the asset in a steady state seems unlikely to be met by efficiency measures alone.

As with all of Scotland's public services, securing funding for roads maintenance at 2010/11 levels, let alone achieving a real term increase, will require strong, compelling evidence. To help secure funding, the benefits to be delivered will need to be clearly understood and robustly explained. The work undertaken by roads authorities on their asset management plans will help provide the evidence base upon which these benefits can be founded.

1.2 Purpose of the National Roads Maintenance Review

The Audit Scotland 2011 report made a number of recommendations that were accepted by the Scottish Minister for Transport and Infrastructure. A central recommendation, and the pretext for this event, was for the Scottish Government to take forward a national review of:

- *how the road network is managed and maintained, with a view to stimulating service redesign and increasing the pace of examining the potential for shared services.*

In addition, the Minister also advised that the review should consider...

- *...and recommend how local authorities can work better with one another and with the Scottish Government, and*
- *...what can be learned from international road management practice.*

The focus is to identify how those responsible for, and working in, Scotland's roads maintenance sector can deliver efficiently managed roads for all within the budgets available, and identify opportunities for innovation, collaborative working, and the sharing of services.

The review covers the whole of the road asset including the road carriageway (all the layers that make up a road) and adjoining footways, bridges, verges, signing and lighting. The analysis of options generated via the review will take into account potential impacts on all road users.¹⁰

⁹ Scottish Government, April 2010, Outlook for Scottish Government Expenditure

¹⁰ Transport Scotland and SCOTS are already working together to consider opportunities for shared services and collaboration; including on a number of areas that fall outwith the scope of this review such as safety, design services and flood risk management. This wider work will continue to be taken forward by Transport Scotland and SCOTS in consultation with CoSLA (Convention of Scottish Local Authorities) and SOLACE (Society of Local Authority Chief Executives).

1.3 *Approach/ Methodology*

In identifying options that would enable effective changes to maintenance delivery, a steering group was established to take forward the review in partnership. The steering group members are representatives from Transport Scotland, CoSLA, SOLACE, SCOTS and the Scottish Road Works Commissioner.

The steering group considered the following four key issues:

- how **standards and asset management** techniques influence the maintenance of assets including all roads, footways, lighting and structures;
- what opportunities exist for **technology and productivity innovation**, and whether there are strategic mechanisms to address potential barriers to innovation;
- where **resourcing** of maintenance could be improved, including consideration of current approaches to sharing services and collaboration between authorities; and,
- what **wider economic issues, impacts, costs and benefits** need to be considered, including the potential for different funding approaches.
(This work stream will consider the appraisal of options generated as a result of the first phase of the review and outputs from this stakeholder event).

Four working groups were established to identify operational changes that would benefit the sector, drawing on supportive, verifiable evidence and outlining what mechanisms may be required to facilitate these changes.

In particular, they assessed the current baseline conditions and highlighted examples of best practice in delivery and innovative approaches to ensure Scotland's roads maintenance community can rise to the challenges of severe financial pressures, deteriorating road quality, rising road usage and growing road user expectations.

The emerging themes from the first phase of the review, undertaken via the first three work streams, are highlighted in Section 2 and Section 3 sets out a number of questions for consideration by stakeholders at the event.

2 Emerging Findings

2.1 *Effective Asset Management*

"The proper maintenance of Scotland's roads is vital for economic prosperity and for the quality of life of its people. It is disappointing, therefore, that our findings show limited progress has been made to improve the situation since our report six years ago."

Audit Scotland, 2011

Budget priorities over recent years have left a legacy of under-investment in road maintenance and an asset management approach is expected to deliver a range of benefits. However, road maintenance requires investment in order to get best value out of a whole life asset management approach.

- Local authorities have been developing Road Asset Management Plans (RAMPs) based on a common framework developed by SCOTS.
- Transport Scotland and 30 of the 32 Scottish local authorities now have a RAMP in place.

The Audit Scotland report reaffirms the importance of effective asset management as a means of helping to improve the condition of Scotland's roads.

A recent CIPFA study¹¹, argues that the key to effective asset management planning lies in whether or not the development and implementation is given sufficient priority by the most senior levels in the organisation and whether it is viewed as a core activity or an 'add-on tool'.

CIPFA also argues that whilst the cost of developing better information and systems needed to set meaningful output and outcome targets may be perceived as high, the returns delivered in both the rail and water sectors are worthy of scrutiny.

Transport Scotland's RAMP costs approximately 1% of its annual maintenance budget (c. £1m) and has delivered savings of around 3 times that amount in Year 1. Similar investment in asset management by the 32 local authorities would require a tenfold increase¹² over the current allocation via the SCOTS project.

¹¹ CIPFA, 2008, Local Authority transport infrastructure assets.

¹² Estimate provided by SCOTS

2.2 ***Prioritisation***

SCOTS recommends that all authorities employ a carriageway and footway repair prioritisation methodology. The SCOTS RAMP programme has developed a consistent and transparent prioritisation method which allows local adaptations to meet local political and geographical priorities.

Emerging examples of best practice in Scotland can be seen where the movement is away from treating 'worst first' in preference of undertaking preventative spend, aimed at arresting further deterioration.

Whilst effective prioritisation of spend is achievable when determining which works take place on particular assets (eg. which works are given highest priority within a funded programme), none of the authorities have a well developed methodology for prioritising spend between asset types (eg. how much to prioritise between lighting, footway or road assets).

It is also important to note that annual affordability constraints, ie. cash available, may mean that lower value for money options need to be adopted, or that the standards or levels of service expectations might have to be lowered.

In effect, the reductions in available budgets could mean existing standards need to be reviewed to determine a more acceptable and affordable delivery level.

2.3 ***Benchmarking and Monitoring***

"The vast majority of indicators used by councils relate to the promptness of response...Only seven councils reported using indicators relating to customer service, such as satisfaction levels or third party liability claims."

Audit Scotland, 2011

The power of measuring and monitoring suitable outcome focused key performance indicators (KPIs) is their ability to encourage change. Collecting the right KPIs and ensuring the structures are in place to foster the necessary changes, suggested by these KPIs, can help deliver greater efficiencies without damaging quality.

SCOTS and the Association for Public Service Excellence (APSE)¹³ have developed and implemented a number of KPIs. There are seven key, and 15 secondary, indicators on roads maintenance and 10 key, and seven secondary, indicators for winter maintenance. Whilst few of these are outcome focused, each Local Authority has a single outcome agreement with Community Planning Partners. These set out high level outcomes to which road maintenance contributes.

¹³ The Association for Public Service Excellence (APSE) – a UK wide organisation promoting benchmarking and best practice across the public sector.

At a more operational level, work is ongoing by SCOTS to develop a wider suite of KPIs and unit cost benchmarks, and Transport Scotland's Operating Company contracts include a range of KPIs. However it is not clear if the current KPI regime is driving the necessary change as quickly and as effectively as is needed.

Whilst comparisons could be drawn on how the uses of specific KPIs have benefitted national agencies, there are differences in the Local Authority environment. Key issues include the level of authority that agencies have over the achievement of outcomes, wider public expectations as expressed in residents' surveys, and the allocation and monitoring of budgets.

2.4 *Delivery models*

There are five basic contracting models in operation across the Scottish roads network¹⁴:

1. In-house delivery with integrated services;
2. In-house delivery with client/ contractor split;
3. In-house delivery with horizontal integration with other services;
4. Shared delivery of works;
5. Externalisation.

Around 50% of local authority revenue spend on maintenance is subject to competitive tender and about half of this is won by in-house Direct Service Providers (DSPs). Therefore around 25% minimum is delivered via the private sector, which provides a benchmark for individual authority costs. Within the local authority delivery models above, there is a constant requirement to link to local communities and the democratic process.

Transport Scotland maintains budget and programme management in-house whilst contracting-out design and delivery to four Operating Companies, with monitoring and audit services outsourced to the Performance Audit Group (PAG).

Evidence gathered from across the sector at UK, European and international levels, suggests that there are a number of delivery model options, which offer varying degrees of benefits. Some of the lessons that are relevant when assessing how best to manage a performance based model, for example, include:

- When considering the use of outsourcing, contracts should be of a sufficient size and duration to provide more opportunities for the private sector to gain from economies of scale in their tender bid.

¹⁴ Alternative Delivery Models, SCOTS Executive Committee Report, March 2011

- Strong emphasis should be put on effective and appropriate data collection and management as they are critical to performance monitoring.¹⁵

This suggests that even if contracting-out is a preferred option, having the right in-house skills remains a critical factor to ensure effective management of any contract.

2.5 *Incentivising Innovation*

Innovation in roads maintenance - across all aspects of the roads maintenance sector - can be incentivised if the risk/reward structure is correct.

The Scottish roads maintenance sector is highly regulated by standards on safety, performance and design, etc. The more these drive what is to be delivered, the lower the opportunity to innovate. Many current standards are based on policy rather than legislative requirements. There is opportunity to review/ update these standards, to reflect the needs of Scotland's roads, without the need for legislation. This could encourage innovation and better value for money.

Evidence from other sectors indicate that allowing contractors to determine the 'how' to meet pre-defined and agreed outcome and output targets opens up the opportunity for innovation to deliver significant efficiency savings. Linking payments to performance means the contractor is incentivised and able to innovate whilst ensuring quality and safety are not at risk.

There is also no single, agreed method for seeking and gaining approval for new techniques and materials across road authorities in Scotland. Consequently, the approvals process requires the innovating organisation to approach each road authority individually to undertake trials and seek approval for use on each authority's road network. This can be costly and repetitive and could lead to a number of roads authorities simultaneously trialling the same product.

2.6 *Enabling faster change*

'...councils should respond fully, as a matter of urgency, to the recommendations made in our 2004 report and, in particular.....they seek to develop a costed model for shared services.'

Audit Scotland, 2011

The shared services agenda and collaboration are both options that local authorities have been assessing, across all their activities, for some years. All local authorities

¹⁵ See World Bank, PBC Resource Guide, 2009 http://www-esd.worldbank.org/pbc_resource_guide/Case-Australia.htm (June 2011)

and their key partners have made submissions to the Christie Commission on how they currently work collaboratively and their proposals for moving forward¹⁶.

Whilst the increased use of consortia to deliver services has not advanced significantly, individual local authorities have looked closely at their service delivery with various approaches emerging that have focussed on increased efficiency, balanced with flexibility at the local level.

There are examples of formalised shared services which can deliver economies of scale and efficiency savings, for example, between the Ayrshire local authorities, ELBF Forum, Clyde Valley, Forth Valley GIS and the Pan Lanarkshire Parking service.

There are also developments on sharing maintenance capabilities between local authorities and the trunk road Operating Companies, and Transport Scotland's new 4G contracts will encourage closer collaboration between the Operating Companies and local authorities.

The sector is beginning to adopt Lean techniques as a means of delivering more cost savings. Best practice in Lean management applies at both the strategic and operational levels. Further consideration of applying these Lean techniques, at a more strategic level, may assist better integration of effective asset management plans and their implementation.

The Audit Scotland report strongly indicates that the current speed of change is not sufficient given the rate of asset deterioration combined with the sharp decline in available budgets. Given this recommendation, there is a case for all roads authorities to examine how they can work together to deliver a better service.

2.7 *Communication*

The sector is facing two significant communication challenges. There is increased competition to retain a realistic share of the diminishing Scottish public sector budget, whilst it faces increasing frustration from road users affected by the impact of the deterioration of the roads.

This stakeholder event is a crucial element of the review, as it brings together a range of interest groups who will be able to assist the process and aid consideration of the challenges that face the road maintenance sector in Scotland.

¹⁶ Information supplied by SCOTS

3 Facilitated Sessions

3.1 *Standards and Asset Management*

Facilitator – Michael Bordiss, Independent Consultant

This work stream considers how **standards and asset management** techniques influence the maintenance of road assets including footways, structures, signals and lighting.

Preliminary Overview

- Current practice is driven by adherence to standards to minimise risk.
- Industry organisations are developing Codes of Practice on working methods for new materials/ treatment processes.
- Some long-standing standards and specifications may be slowing more widespread adoption of best practice and innovations.
- Asset Management Plans deliver value in this and other sectors – the sector needs to implement these. Transport Scotland and 30 of the 32 Scottish local authorities have a Road Asset Management Plan (RAMP) in place.
- Industry KPIs need to be outcome focused.
- The sector faces two significant communication challenges;
 1. Increasing competition to retain the current share of diminishing Scottish public sector budgets.
 2. Increasing frustration from road users affected by the impact of deterioration of the road.

Key Questions for this Session

- What factors are most important when prioritising spend on assets for the benefit of all road users?
- How should spend be apportioned between different elements of the asset?
 - Roads, footways, lighting, signals, etc.
- What, if any, reduction in standards or level of service is acceptable to deliver road maintenance services within reduced budgets?
- How can we better communicate issues and benefits with the public?
- What needs to be done to deliver transformational change?

3.2 *Technology & Productivity Innovation*

Facilitator – Professor Malcolm Horner, University of Dundee

This work stream considers what opportunities exist for **technology and productivity innovation**, and whether there are strategic mechanisms to address potential barriers to innovation.

Preliminary Overview

- Innovation, research and development is predominantly undertaken by the private sector.
- There are a number of examples of public sector organisations working together, and with their supply chains, to develop new materials, tools and techniques.
- New and innovative techniques are being used in Scotland, and new approaches are being developed, but new materials and techniques have to be trialled across all roads authorities.
- The use of Lean techniques and other productivity innovations is limited at present in Scotland. Where they have been used, there has been considerable success in improving the quality and efficiency of services.
- There is no apparent strategy or coordination within the sector on research and development.
- The development and use of new ideas, techniques and materials can be inconsistent.

Key Questions for this Session:

- Are there examples from other key sectors that we can learn from, where innovation is supported at the heart of the sector?
- What types of structures would be required to support greater access to innovation/ access to the market to deliver better outcomes for all road users?
- How do successful productivity improvements in the road maintenance sector become more widely adopted?
- What needs to be done to deliver transformational change?

3.3 *Resourcing*

Facilitator – Emma Langman, Progression Partnership

This work stream considers where maintenance **resourcing** could be improved, including consideration of current approaches to sharing services and collaboration between authorities.

Preliminary Overview

- Public sector procurement in Scotland is governed by European legislation, which underpins the procedures and rules for awarding contracts.
- The management arrangements for Scotland's roads broadly follow traditional lines – local or central government fund the work, which is carried out in-house, or put out to tender.
- There is a need to consider whether this is the optimum model to deliver road maintenance services.
- Sharing of road maintenance services between authorities is not widespread but is expanding.
- Given the Audit Scotland recommendations, there is a case for all roads authorities to examine who they can work together with to deliver a better service.

Key Questions for this Session:

- What scope is there for different delivery models to maximise efficiencies whilst maintaining quality maintenance services?
- How can we utilise procurement or contract mechanisms to drive savings and benefits for all road users?
- What are the barriers to more shared services and collaboration and how might these be overcome?
- Are there alternative, or new, funding models which could be applied in this area to either deliver access to new streams of funding or to create better value for money than traditional funding methods?
- What needs to be done to deliver transformational change?

3.4 *Wider Economic Issues, Impacts, Costs and Benefits*

Facilitator – Professor Iain Docherty, University of Glasgow

This work stream considers what **wider economic issues, impacts, costs and benefits** need to be considered, including the potential for different funding approaches.

Aim for this Work Stream:

To explore how we use available funding to optimise outcomes for all road users.

Scope:

- Current work centres on assessing potential economic and social impacts of changes in road maintenance spend, including risk assessment.
- Quantitative impacts include:
 - vehicle operating costs;
 - journey times, emissions and accidents.
- Other impacts include (amongst others):
 - amenity value of the road network as a key element of the public realm;
 - local authority liability payments;
 - impacts on community and transport accessibility; and
 - importance of road network quality to potential inward investors.
- Other potential sources of funding will be explored, drawing on the principle that those whose activities require greater maintenance spend should pay more.
- It is expected that the other work streams will generate a long list of options which will be sifted down to a shortlist following the event. These will then be appraised, where possible, using Scottish Transport Appraisal Guidance.

Key Questions for this Session:

- What is ‘road maintenance’ and why is it important?
- Who is it important to?
- Who suffers first and most when it goes wrong?
 - What is the rationale for the above and is there supporting evidence?
- What should we prioritise?
- Who are the different interest groups and how should we balance the needs of the different groups?

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