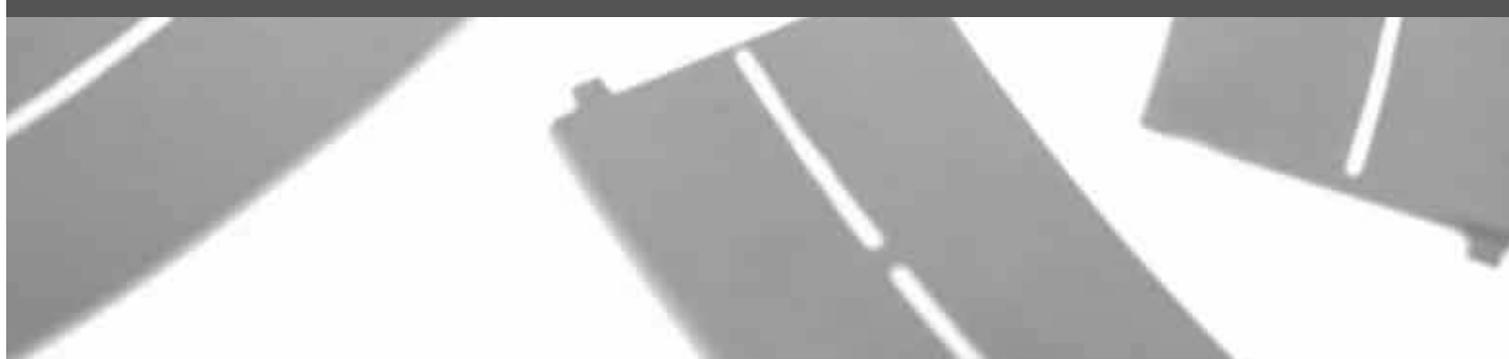


Maintaining Scotland's roads

A follow-up report



Prepared for the Auditor General for Scotland and the Accounts Commission
February 2011



Auditor General for Scotland

The Auditor General for Scotland is the Parliament's watchdog for ensuring propriety and value for money in the spending of public funds.

He is responsible for investigating whether public spending bodies achieve the best possible value for money and adhere to the highest standards of financial management.

He is independent and not subject to the control of any member of the Scottish Government or the Parliament.

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The following bodies fall within the remit of the Auditor General:

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- government agencies, eg the Scottish Prison Service, Historic Scotland
- NHS bodies
- further education colleges
- Scottish Water
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The Accounts Commission is a statutory, independent body which, through the audit process, assists local authorities in Scotland to achieve the highest standards of financial stewardship and the economic, efficient and effective use of their resources. The Commission has four main responsibilities:

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- following up issues of concern identified through the audit, to ensure satisfactory resolutions
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Audit Scotland is a statutory body set up in April 2000 under the Public Finance and Accountability (Scotland) Act 2000. It provides services to the Auditor General for Scotland and the Accounts Commission. Together they ensure that the Scottish Government and public sector bodies in Scotland are held to account for the proper, efficient and effective use of public funds.

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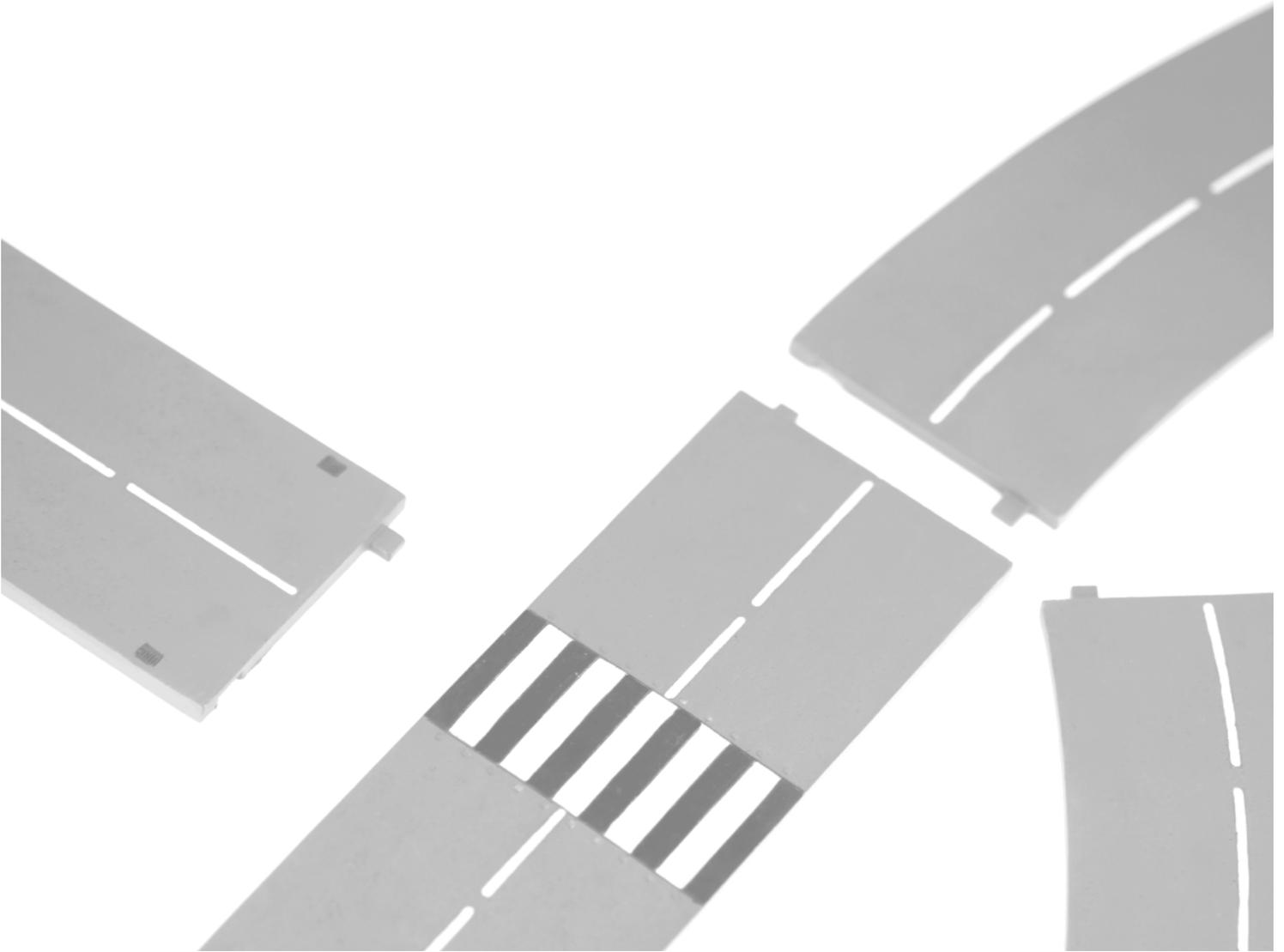
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Summary



Scotland's roads are important for economic prosperity and for the quality of life of its people.



Background

1. This follow-up audit examined progress on implementing the recommendations contained in *Maintaining Scotland's roads* published by the Accounts Commission and the Auditor General for Scotland in November 2004. In particular, it examined changes in the condition of the road network since the original report was published; what is currently being spent on road maintenance; and how road maintenance is being managed. The severe winter weather of 2009/10 and, in particular, its impact on road surfaces and road budgets makes the timing of this follow-up performance audit especially significant.

2. The Scottish Government's draft budget for 2011/12 indicates that Scotland's public sector will have £1.3 billion less to spend than in 2010/11. Scotland's revenue budget will be around £500 million lower and the capital budget £800 million lower. The proposed budget for trunk road maintenance will fall by 20 per cent, from £133 million to £107 million, and there will be a reduction of almost four per cent in funding for local government, from £12 billion to £11.55 billion.¹ The Scottish Government and councils face difficult decisions in determining the relative prioritisation given to road maintenance compared to other services such as education or social care.

3. The provision of safe, well-maintained transport links has a key role to play in delivering the Scottish Government's purpose of 'creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth'.² Many businesses will only be attracted to Scotland if they know that the transport network, including roads,

enables them to distribute goods and services quickly and economically.

4. Scotland's road network consists of almost 56,000 kilometres of road. Transport Scotland is responsible for 3,400 kilometres of motorways and trunk roads. Councils are responsible for 26,000 kilometres of classified roads and 26,400 kilometres of unclassified roads.

About the audit

5. The overall aim of the audit was to review the extent to which the recommendations in *Maintaining Scotland's roads* have been implemented and what has changed as a result. The key objectives were to assess the extent to which:

- road condition and the size of the maintenance backlog have changed since 2004/05
- recommendations aimed at improving value for money have been implemented
- recommendations aimed at improving the reporting of road condition and maintenance backlog information have been implemented.

6. The audit involved:

- a questionnaire survey of 32 councils
- interviews with the Society of Chief Officers of Transportation in Scotland (SCOTS),³ Transport Scotland and the Institute of Advanced Motoring
- desk research, including analysis of data from the annual *Scottish Road Maintenance Condition Survey* (SRMCS).

The information reported in this audit was collected between March and October 2010. We did not examine the impact of winter 2010/11 on road condition or road maintenance budgets.

7. Details of the recommendations from our 2004 report and what we have found are summarised in Exhibit 1 (page 5) and provided in more detail at Appendix 1.

Key messages

- 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. For example, less than half of councils report their maintenance backlog to elected members and a third have still to develop road asset management plans. Appendix 1 provides a detailed summary of progress against our 2004 recommendations.
- Despite public spending in Scotland rising by around 25 per cent since our last report, the condition of Scotland's roads has worsened and only 63 per cent are now in an acceptable condition. Trunk roads are in the best condition (78 per cent are in acceptable condition) while council-maintained unclassified roads are in the worst condition (only 58 per cent are in acceptable condition). Members of the public are increasingly dissatisfied with the way in which the road network is maintained.

¹ *Scotland's spending plans and draft budget 2011/12*, Scottish Government, November 2010.

² *Scottish Budget Spending Review 2007*, <http://www.scotland.gov.uk/Publications/2007/11/13092240/0>

³ SCOTS is a Scotland-wide organisation with members from all councils and regional transport partnerships. It gives policy advice on a national basis and is a forum for professional advice and interchange of information on all transportation matters.

- There is scope to achieve greater value for money from existing expenditure. While a project exists to develop a suite of comprehensive performance indicators for use by all councils, this is still under development and councils do not routinely compare their costs and performance with other councils or the private sector to identify potential improvement. There is also no detailed costed model which would allow councils to measure the benefits of sharing services. While councils can point to several examples of joint or collaborative working taking place, Tayside Contracts remains the only example of a multi-council consortium being established to undertake road maintenance.
- SCOTS considers that present levels of spending are insufficient to maintain Scotland's roads, even in their current condition. After adjusting figures to take general inflation into account, the estimated cost of removing all network defects in Scotland, no matter how slight, has risen from £1.24 billion in 2004 to £2.25 billion in 2010. Moreover, the figures for the council-maintained road network do not include the cost of removing all defects in bridges, lighting and footways.
- Transport Scotland estimates it would initially need to spend £275 million to achieve a 'steady state' for its roads, whereby a fixed percentage of the network requires structural maintenance each year. Councils estimate that to maintain roads in their current condition, they would need to spend £45 million more each year for the next ten years on long-term structural maintenance.

- During 2009/10, a total of £654 million was spent on road maintenance in Scotland; £162 million on trunk road maintenance; and £492 million on council-maintained roads. While this represents an increase in expenditure of five per cent compared to 2004/05 after taking account of general inflation, road construction inflation was considerably higher than general inflation over this time. This means that in purchasing terms, councils spent 13 per cent less and Transport Scotland spent 32 per cent less on road maintenance in 2009/10 than they did in 2004/05.
- This pattern of spending and scale of backlog means that the value of these public assets is not being sustained. By deferring essential expenditure on infrastructure, public bodies are storing up problems for the future and passing a greater burden on to generations to come.

Recommendations

- The Scottish Government should consider a national review on 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.
- Transport Scotland and councils should:
 - review their road maintenance strategies and plans to confirm that adequate prioritisation is given to those routes which are likely to contribute greatest to economic growth and improved quality of life
 - work together to consider all opportunities for achieving more with the resources

- currently available, by exploring new ways of working, such as service reconfiguration, pooling and flexible use of resources (including staff and machinery) and partnerships between councils and with the private sector
- ensure that information on maintenance backlog and road condition is reported regularly to elected members and the public.
- Councils should:
 - ensure they can demonstrate that the best use is being made of resources currently available, through benchmarking and improved performance management and reporting
 - respond fully, as a matter of urgency, to the recommendations made in our 2004 report, and in particular ensure that:
 - all information is available to allow effective asset management to take place
 - a consistent way of costing total road maintenance backlog is used across all councils
 - they fully support SCOTS' road asset management project and have a road asset management plan in place no later than the end of 2011, with those councils that have still to develop adequate inventory and information systems doing so quickly in order to comply with this deadline
 - they adopt the suite of performance indicators being developed by SCOTS as an important

Exhibit 1**Findings in response to the recommendations from our 2004 *Maintaining Scotland's roads* report**

Not all of our recommendations have been implemented.

2004 report recommendation	2010 report finding
Councils should:	
<ul style="list-style-type: none"> develop better information and systems to manage and monitor road maintenance 	There has been some improvement in the development of electronic inventories but many councils still do not have sufficient data on the condition of a number of common items.
<ul style="list-style-type: none"> calculate the size of their maintenance backlog using a commonly accepted methodology 	Backlog for road repairs is calculated on a consistent basis. A number of initiatives are currently under way to develop more consistent methodologies for footways, lighting, etc.
<ul style="list-style-type: none"> review their budget-setting processes for road maintenance to ensure an appropriate balance of expenditure between routine, winter, emergency and structural maintenance is achieved 	Half of councils stated they had reviewed their budget-setting processes within the last five years. Three-quarters reported they have changed the way in which budgets are allocated.
<ul style="list-style-type: none"> ensure their capital expenditure on structural maintenance achieves value for money 	There has been a shift to funding structural maintenance from capital rather than revenue budgets.
<ul style="list-style-type: none"> consider entering into consortium arrangements to achieve economies of scale in road maintenance. 	Although councils can point to several examples of working jointly or collaboratively, since 2004 no councils have radically changed the way in which they deliver road maintenance services.
Councils and Transport Scotland should:	
<ul style="list-style-type: none"> monitor and report publicly on the condition of their road network and their road maintenance backlog on an annual basis 	All councils report condition but only half report backlog. Transport Scotland partially reports condition and does not report backlog.
<ul style="list-style-type: none"> ensure that their road maintenance activities contribute to the environment. 	Councils and Transport Scotland acknowledge the impact of road maintenance on the environment. Transport Scotland has made more progress in encouraging sustainability in its road maintenance activities.

Source: Audit Scotland

first step in allowing the relative performance of councils' road maintenance activities to be measured consistently

- they make greater efforts to benchmark road maintenance activities with other councils and the private sector in order to drive out cost inefficiencies
- they seek to develop a costed model for shared services.

Part 1. The condition of Scotland's roads in 2010



The condition of Scotland's roads has worsened over the last six years.



Key messages

- The condition of Scotland's roads is worsening and only 63 per cent are now in acceptable condition.
- The cost of removing all Scotland's road defects is estimated to be £2.25 billion. Transport Scotland estimates its road maintenance backlog at £713 million (£480 million more than in 2004) while councils estimate it would cost £1.54 billion to fix all carriageway defects (£640 million more than in 2004).
- All councils and Transport Scotland have a road maintenance backlog.

Proper maintenance of the road network is vital to Scotland's economic prosperity and for the quality of life of its people

8. Scotland's roads are vital for economic prosperity and for the quality of life of its people. They play a significant part in everyday life, be it travelling to work, delivering goods, accessing services, going to school or enabling us to make the most of our free time. They are used daily by the majority of people and help shape the character and quality of the areas they serve.

9. The road network is the largest and most valuable community asset for which Transport Scotland and councils are responsible, estimated at more than £38 billion.⁴ This includes not just carriageways and footways, but also bridges, street lighting, signage and much else besides.

10. The volume of traffic on Scotland's roads has increased by 27 per cent overall in the last 15 years. The volume

Exhibit 2

Description of common road maintenance tasks

Road maintenance task	Definition	Example
Structural maintenance	The replacement of major life-expired elements of the road	Resurfacing of roads
Environmental maintenance	Work to ensure preservation of sight lines	Cutting back trees and hedges
Weather and winter maintenance	Maintenance to ensure the road network remains open and safe in all weather	Keeping roads and footways free from snow and ice by applying salt and grit
Lighting	Inspection and maintenance of lighting	Fixing broken street lighting
Safety maintenance	Maintenance and replacement of road markings and studs	Re-painting road markings
Emergency patching	Emergency repairs	Repair of potholes and patching
Routine repairs	Drainage and gully emptying	Cleaning of drains, gullies, ditches and carriageway drainage systems

Source: *Best Value Accounting Code of Practice, 2010/11*, CIPFA

of traffic on trunk roads has increased by 37 per cent, while on council-maintained roads it has increased by 22 per cent.⁵ The continuing growth in traffic has an impact on the level of road maintenance required as the higher the volume of traffic, the more frequently roads will require to be maintained to achieve their expected lifespan.

11. Road maintenance covers all work on roads other than major new-build or reconstruction work. It includes structural, environmental, weather and winter maintenance, lighting, safety

maintenance, emergency patching and routine repairs (Exhibit 2).

12. Scotland's road network consists of almost 56,000 kilometres of road. Transport Scotland is responsible for 3,400 kilometres of motorways and trunk roads. Councils are responsible for 26,000 kilometres of classified roads and 26,400 kilometres of unclassified roads. Motorways and trunk roads make up only six per cent of the road length but carry over a third of the traffic.

⁴ The cost of replacing an asset to its current condition is known as the depreciated replacement cost (DRC). The estimated DRC of the trunk road network (ie, carriageways, lighting, footways, bridges etc) is £15.4 billion (Transport Scotland's annual accounts, 2009/10). The DRC of council-maintained carriageways is estimated at £22.2 billion (figure from *State of the Scottish Local Roads Network 2010*, SCOTS, April 2010). Reliable figures for other assets in the council-maintained road network, such as bridges and lighting, are not available. Therefore, the DRC for the council-maintained road network is an under-estimate.

⁵ *Scottish Transport Statistics 2010*, Scottish Government, December 2010.

The condition of Scotland's roads is worsening

13. The *Scottish Road Maintenance Condition Survey* (SRMCS) began in 2002.⁶ The results of the survey are used to classify the road network into one of three measures:

- Green – roads are in an acceptable condition.
- Amber – roads where some deterioration is apparent and which should be investigated to determine the optimum time for planned maintenance treatment.
- Red – roads are in poor condition and are likely to require repairs within one year.⁷

14. The latest SRMCS results indicate that 63 per cent of Scotland's roads were in acceptable condition in 2010 (Exhibit 3). The length of road requiring immediate repair or showing some deterioration stands at 20,500 kilometres (4,500 kilometres requiring immediate repair and 16,000 showing some deterioration).

Council-maintained unclassified roads are in the worst condition

15. All classifications of council-maintained roads have deteriorated in condition over the last five years (Exhibit 4). In 2010, the road condition survey indicated that 66 per cent of Scotland's council-maintained classified roads were in acceptable condition compared to 70 per cent in 2005.

16. Unclassified roads, typically those in built-up areas, make up nearly half of the road network. They were in the poorest condition in 2008 (the first year in which comparable information is available) and remain in the poorest condition in 2010. The condition of unclassified roads declined from 63 per cent in acceptable condition in 2008 to 58 per cent in 2010. This deterioration equates to around 1,300 kilometres of road.

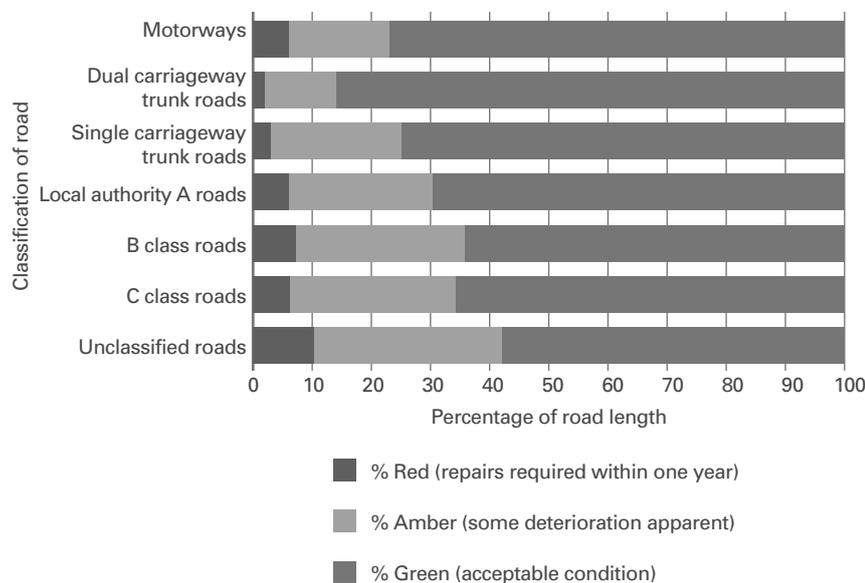
Trunk roads are in better condition than council-maintained roads

17. Transport Scotland maintained trunk roads tend to be in better condition overall than council-maintained roads. Motorways and trunk roads carry higher volumes of traffic at higher speeds and therefore are maintained to a higher standard

Exhibit 3

The condition of Scotland's roads in 2010^{1,2}

Roads classified as red or amber require maintenance; red within one year; amber on a less immediate basis. Higher classifications of road tend to be in better condition.



Notes:

1. The road condition survey data for trunk roads is based upon standards for UK trunk roads set out in the Department of Transport's *Design Manual for Roads and Bridges*. Standards for single carriageway trunk roads are higher than for council-maintained roads, reflecting their strategic importance.
 2. The road condition survey data is derived from the results of the two most recent surveys, ie 2009 and 2010. Rather than simply averaging the results from each year, the data collected over the two years is analysed as a single set. Effectively the sample, therefore, covers 100 per cent of all trunk roads and A roads in both directions, 100 per cent of B and C roads in a single direction, together with a 20 per cent sample of unclassified roads in a single direction.
- Source: SCOTS, Transport Scotland

6 The SRMCS uses specialised vehicles travelling at normal speed to assess the condition of the entire Scottish local authority road network. This data is then analysed using specialist software. A more sophisticated method of analysing data was used for the first time in 2007/08 and was applied to previous survey results back to 2004/05 (except for unclassified roads).

7 *SCANNER Road Condition Indicator definition*, WDM Ltd, 2007.

to allow the safe movement of traffic. Even so, the percentage of trunk roads in acceptable condition fell from 84 per cent in 2006 (when the first comparable figures were available) to 78 per cent in 2010 (Exhibit 5). This is equivalent to a decline in condition of 200 kilometres of road. All classifications of roads in Scotland except for motorways have deteriorated in condition over the last five years.

The severe weather during the 2009/10 winter had most effect on those stretches of road that already required maintenance

18. The severe weather during the 2009/10 winter was expected to have an impact on the results of the annual SRMCS, but due to the way the condition of roads is categorised, the impact was minimal. While the 2009/10 winter did cause more damage to the road network than during a normal winter, this tended to affect those roads already categorised as in the worst condition, so their deterioration did not register in the survey. Well-sealed lengths of carriageway which make up nearly two-thirds of the network were more likely to resist the effects of the weather.⁸ Poor weather is, however, likely to hasten the decline in roads whose condition is beginning to deteriorate.

User satisfaction in the condition of Scotland's roads is decreasing

19. Two separate surveys conducted recently indicate that user satisfaction with the condition and maintenance of Scotland's roads has decreased over the last ten years. In 2008, a survey of 17,500 Automobile Association members found that 55 per cent of members in Scotland believed that road condition was worse than a decade ago. In 2010, a similar survey by the RAC Foundation found that 52 per cent of users were dissatisfied with road maintenance in their area,

Exhibit 4

The change in condition of Scotland's council-maintained classified roads: 2005–10¹

The condition of B roads has declined the most since 2005.

Classification of road	Definition	Percentage of roads in acceptable condition (green)		Additional length of road requiring maintenance in 2010 compared to 2005 (km)
		2005	2010	
A	Major roads which deliver the basic road links to certain areas or communities	73	70	115
B	Roads which serve a local purpose and connect to strategic routes	68	64	150
C	Mainly rural inter-connecting roads	69	66	650
All classified council-maintained roads		70	66	915

Note: 1. The road condition survey data is derived from the results of the two most recent surveys, ie 2009 and 2010. Rather than simply averaging the results from each year, the data collected over the two years is analysed as a single set. Effectively the sample, therefore, covers 100 per cent of A roads in both directions, 100 per cent of B and C roads in a single direction, together with a 20 per cent sample of unclassified roads in a single direction.
Source: SCOTS

Exhibit 5

The change in condition of Scotland's trunk roads: 2006–10¹

The percentage of trunk roads in acceptable condition fell from 84 per cent in 2006 to 78 per cent in 2010.

Classification of road	Percentage of roads in acceptable condition (green)		Additional length of road requiring maintenance in 2010 compared to 2006 (km)
	2006	2010	
Motorway	77	77	0
Dual carriageway	91	86	25
A	84	75	175
All trunk roads	84	78	200

Note: 1. The road condition survey data is derived from the results of the two most recent surveys, ie 2009 and 2010. Rather than simply averaging the results from each year, the data collected over the two years is analysed as a single set. Effectively the sample, therefore, covers 100 per cent of all trunk roads in both directions.
Source: Transport Scotland

the highest level of dissatisfaction since 2001.^{9, 10}

20. Transport Scotland has commissioned regular surveys to gauge trunk road users' levels of satisfaction.¹¹ The survey results suggest that levels of satisfaction are decreasing. In 2010, 37 per cent of respondents were satisfied with the general condition of trunk road surfaces in comparison with 46 per cent in 2009 and 52 per cent in 2007. The two most common defects experienced in 2010 which made users feel unsafe were potholes (73 per cent) and uneven or bumpy surfaces (12 per cent).

21. Over three-quarters of councils report that they collect information about residents' satisfaction with their road maintenance service, most often as part of council-wide surveys. Councils mostly ask residents about their satisfaction with a range of services, including road maintenance, or to indicate what services are most important to them. In 2008, the roads department of South Lanarkshire Council used its survey results to help inform a business case to elected members for an eight-year investment programme in the local road network (Case study 1). Many councils also distribute a questionnaire to local residents after a specific piece of work has been conducted in a localised site, for example the resurfacing of a road, to measure their satisfaction with the overall results. SCOTS is in the process of developing a customer satisfaction survey for use by all councils.

Car repairs are being attributed to poor road condition

22. Poor road condition can result in motorists incurring expensive repair bills, and councils face claims

Case study 1

South Lanarkshire Council's use of user survey results to bid for resources

South Lanarkshire Council's roads department used user survey results to help inform a business case to elected members for an eight-year, £126 million investment programme in its roads.

In 2006, South Lanarkshire Council was ranked 22 out of 32 councils for the condition of its roads. In the same year, a survey of South Lanarkshire households revealed that only 28 per cent of households rated the local road network as good. In 2008, a customer satisfaction survey showed that maintenance of roads and pavements in South Lanarkshire held the lowest level of satisfaction of all council services at just over 24 per cent.

In response to these findings, South Lanarkshire Council's executive committee committed to investing in roads, implementing an enhanced programme of road maintenance at a cost of £126 million over eight years (2008–16). Funding sources for the £126 million investment have included the phased disposal of assets over a three-year period with further funding to be raised through prudential borrowing.

In 2009/10, South Lanarkshire Council's road condition ranking improved to 16 out of 32.¹ In order to monitor customer satisfaction with the work funded by the investment programme, households and commercial premises situated close to ten per cent of schemes from the annual works programme are randomly sampled by questionnaire. User satisfaction surveys carried out on road and footway resurfacing schemes in 2009/10 show an upward trend with a ten per cent increase in user satisfaction compared to figures produced in 2008/09. South Lanarkshire is one of only two councils that reported their backlog was decreasing in our survey.

Note: 1. South Lanarkshire Single Outcome Agreement Annual Report 2009-10.
Source: South Lanarkshire Council

from road users who have had their vehicles damaged by potholes and similar defects. They tend to manage these through their liability insurance and compensation is often paid. Over the last five years, councils have spent around £5 million on compensation payments relating to over 7,000 claims. Within the confines of this audit, we were unable to identify any clear pattern or trend to allow us to draw conclusions about the levels of compensation paid or the impact of road defects in relation to the costs of car repairs.

23. However, some information is available from surveys conducted by commercial organisations active in the motor trade. In 2010, a survey estimated that over a third of Scottish motorists have suffered car damage because of potholes.¹² The average cost of repairing the damage to their vehicles is thought to be £133 per driver. Another survey of 3,000 drivers estimated that an average of £220 per motorist was being spent each year on pothole-related car repairs such as suspension problems, burst tyres, chipped windscreens and paintwork damage.¹³

9 *Automobile Association Populus Survey*, June 2008.

10 IPSOS Mori Poll conducted for the RAC Foundation, April 2010.

11 *Perceptions of the Trunk Road Network in Scotland*, IPSOS Mori Scotland, March 2008, July 2009 and August 2010.

12 Survey of 1,800 Scottish motorists conducted by Continental Tyres, June 2010.

13 Survey conducted by Autoglass, July 2010.

24. Road safety is also affected by poor road condition. A recent survey estimated that over 30,000 Scottish drivers had experienced a near miss with another vehicle or pedestrian due to either hitting a pothole or swerving to avoid one, while one in four reported tyre damage caused by potholes, itself a risk to road safety.¹⁴ Cyclists are also at risk of serious injury to themselves and damage to their bikes from hitting potholes. This has prompted a national cycling organisation to campaign for all road users to report potholes to a central website. This information is passed directly to the council or operating company responsible and their progress in filling each pothole is publicly reported.¹⁵

The cost of removing all road defects is estimated at £2.25 billion

25. Transport Scotland and councils estimate that the cost of removing all road defects in Scotland, no matter how slight, is £2.25 billion. This is known as the 'headline' backlog. In 2004, we reported a trunk road maintenance backlog of £232 million (£254 million taking general inflation into account) but this has now risen to £713 million. This comprises £275 million for structural road maintenance, £372 million for bridges and £66 million to repair individual defects.¹⁶

26. Similarly for councils, we reported that councils' backlog for road repairs was £900 million in 2004 (£986 million taking general inflation into account) but this has now risen to £1.54 billion.¹⁷ The council backlog figure is an underestimate as it uses 2008 road condition data and does not include the cost of removing all defects in bridges, lighting

Exhibit 6

Road maintenance backlog in 2010: Comparing Scotland with England and Wales

The headline backlog cost per kilometre is higher in Scotland than in England and Wales.

	Total cost of backlog (£ billion)	Kilometres of road (kms)	Cost per kilometre (£/km)
Scotland	2.25	56,000	40,000
England & Wales	9.50	335,000	28,000

Source: SCOTS, Asphalt Industry Alliance, *Scottish Transport Statistics 2009*, *Transport Statistics 2010: Great Britain edition*, Audit Scotland

and footways. SCOTS intends to publish an updated council backlog figure in March 2011 and a number of initiatives are currently under way to develop more consistent methodologies for costing the total backlog.

27. Across Scotland, the headline backlog cost equates to £40,000 per kilometre of road which is higher than the equivalent figure in England and Wales of £28,000 per kilometre of road. A survey by the Asphalt Industry Alliance, which represent the suppliers of the raw materials used to produce asphalt and asphalt producers, estimates the headline backlog figure in England and Wales at £9.5 billion (Exhibit 6).¹⁸

Transport Scotland and half of councils still do not publicly report road maintenance backlog

28. In our 2004 report, we recommended that councils and Transport Scotland should monitor and report publicly on the condition of their road network and their road maintenance backlog on an annual basis.

29. All councils report road condition to elected members and the public at least once a year but road maintenance backlog is annually reported to elected members in less than half of councils. Where councils have indicated that they report backlog information to the public (around a third), it tends to be included in committee papers which are available on the council's website.

30. Transport Scotland and councils use similar road condition surveys although some additional surveys are undertaken on trunk roads. However, Transport Scotland does not report results publicly in the same way as councils. Instead, Transport Scotland contributes to an annual transport statistics publication which reports the residual life of the trunk road network, along with the percentage of motorways and dual carriageways that require close monitoring.¹⁹ Transport Scotland does not routinely publish road maintenance backlog figures for trunk roads.

¹⁴ Survey of 1,800 Scottish motorists conducted by Continental Tyres, June 2010.

¹⁵ Cyclists Touring Club, www.fillthathole.org.uk

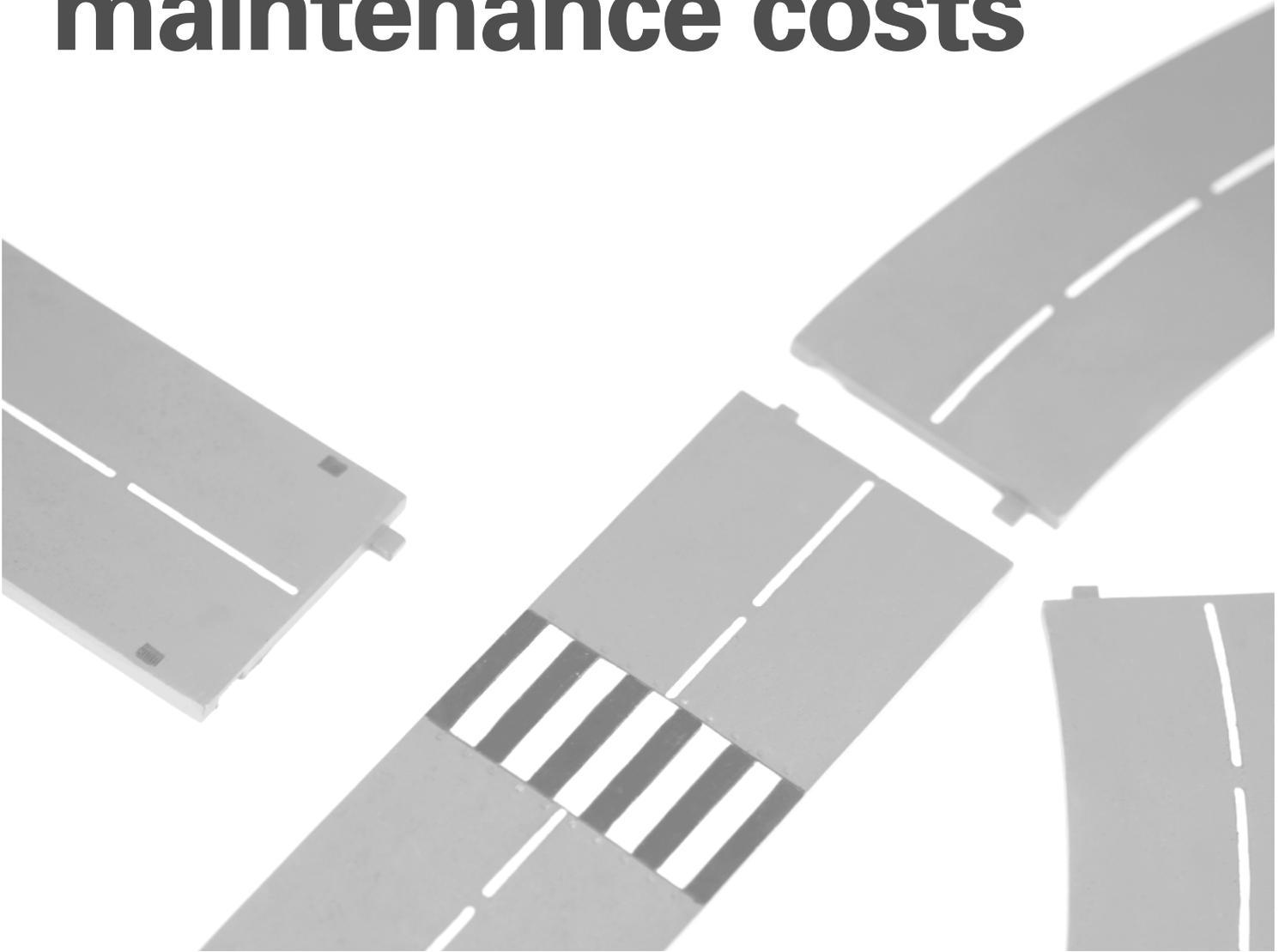
¹⁶ Transport Scotland.

¹⁷ *State of the Scottish Local Roads Network 2010*, SCOTS, April 2010.

¹⁸ *The Economic Impact of Local Road Condition*, Asphalt Industry Alliance, October 2010. Data is based on information supplied to the Asphalt Industry Alliance by 73 per cent of local authorities in England and Wales.

¹⁹ Scottish Transport Statistics, published annually by the Scottish Government in December.

Part 2. Road maintenance costs



Councils and Transport Scotland spent £654 million on road maintenance in 2009/10.



Key messages

- Councils and Transport Scotland spent £654 million on road maintenance in 2009/10. Council spending on local road maintenance in 2009/10, at £492 million, was £54 million (12 per cent) more than in 2004/05, after taking general inflation into account. Over the same period, trunk road maintenance expenditure declined by 12 per cent to £162 million in 2009/10. However, road construction inflation was considerably higher than general price inflation over this time. This means that in purchasing terms, councils spent 13 per cent less and Transport Scotland spent 32 per cent less on road maintenance in 2009/10 than they did in 2004/05.
- SCOTS considers present levels of spending are insufficient to maintain Scotland's roads in their current condition. It has estimated that for councils to maintain roads in their current condition, they would need to spend £45 million more each year for the next ten years on long-term structural maintenance.
- Councils are funding an increasing amount of structural maintenance from capital expenditure.

Overall, road maintenance expenditure has increased since 2004/05

31. Councils and Transport Scotland spent £654 million on road maintenance in 2009/10. Taking inflation into account this was an increase of £32 million (five per cent) on expenditure in 2004/05. There are, however, significant differences between councils and Transport Scotland in how this expenditure has kept pace with both general and road construction inflation and the increase in traffic volume.

Councils spent 12 per cent more on road maintenance in 2009/10 than in 2004/05 while Transport Scotland spent 12 per cent less

32. Councils spent £492 million on local road maintenance in 2009/10, equivalent to £9,400 per kilometre. This was some £54 million (12 per cent) more than in 2004/05 after taking general inflation into account. Over the same period, traffic volume increased by four per cent.

33. In 2009/10, Transport Scotland spent £162 million on trunk road maintenance. This equates to £47,500 per kilometre and is some £23 million (12 per cent) less than in 2004/05 after taking general inflation into account. During the same period, traffic volume on trunk roads grew by three per cent.

The effect of road construction inflation has outweighed the increase in expenditure

34. Road construction inflation, at around eight per cent per annum, was considerably higher than general price inflation over the last five years, meaning that the actual money available for road maintenance has fallen in purchasing terms.²⁰ After taking account of road construction inflation, councils' road maintenance expenditure has fallen by £76 million (13 per cent) while Transport Scotland's

spending has fallen by £78 million (32 per cent) in real terms.

Present levels of spending are insufficient to maintain Scotland's roads in their current condition

"If money is short – and it usually is – there's one rational course of action: maintain existing roads before funding new ones; make sure it is done today, and even every day. Because tomorrow, it will be much more expensive."²¹

35. The headline backlog of road maintenance is now estimated to be £2.25 billion. Councils and Transport Scotland consider it unlikely that they will ever have sufficient funds to remove all carriageway defects in one go. They have, therefore, developed alternative ways of calculating the cost of their road maintenance backlogs.

36. Transport Scotland estimates it would initially need to spend £275 million to achieve a 'steady state' for its roads, whereby a fixed percentage of the network requires structural maintenance each year. This is based on six per cent of motorways, eight per cent of dual carriageways and ten per cent of trunk A roads requiring maintenance each year.

37. SCOTS has commissioned consultants to estimate councils' road maintenance backlog. The consultants estimate that councils would need to spend on average £167.6 million on structural maintenance each year over the next ten years excluding inflation, to maintain the local road network in its current condition. This is £45.1 million a year more than was spent in 2009/10. The consequences of not spending at this level are forecast to result in a £1 billion decline in the value, and a ten per cent reduction in the condition, of the local road network.²²

²⁰ Construction Statistics Annual 2010, Office for National Statistics.

²¹ How to sell the message 'Road maintenance is necessary' to decision makers, Kjell Levik, 25th Baltic Road Association Conference, 2003.

²² State of the Scottish Local Roads Network 2010, SCOTS, April 2010.

38. All councils responded to our survey saying they have a road maintenance backlog with 27 stating their backlog is increasing; three stating their backlog is staying the same; and only two stating their backlog is decreasing (North Lanarkshire and South Lanarkshire).

39. Postponing road maintenance may result in higher direct and indirect costs in the future. If road defects are repaired promptly, the cost is usually modest. If defects are neglected, an entire road section may fail completely, requiring full reconstruction at an average cost of around three times that of maintenance. Indirect costs include neglected roads steadily becoming more difficult to use, resulting in increased vehicle operating costs (eg, more frequent repairs or more fuel use). By deferring essential expenditure on infrastructure, public bodies are storing up problems for the future and passing a greater burden on to generations to come.

An increasing amount of structural maintenance is now being funded from capital expenditure

40. In 2004, we reported that the way in which councils' budget-setting mechanisms operated meant that when more spending on routine, emergency or winter maintenance was needed than had been allowed for in the budget, this was often funded from the structural maintenance budget rather than from a contingency. We recommended that councils review their budget-setting processes for road maintenance to ensure that an appropriate and cost-effective balance of expenditure between routine, winter, emergency and structural maintenance was being achieved. For this follow-up audit we did not examine how individual structural maintenance projects were funded.

41. Councils need to decide whether to fund road maintenance from revenue or capital expenditure. Most road maintenance is funded from revenue expenditure as its purpose is to maintain the value of the asset. However, structural maintenance projects can justifiably be funded from capital expenditure if these projects are intended to increase the value of the road asset and reduce the need for maintenance expenditure for some time. An important issue for councils in considering value for money should be whether the interest charges on any capital borrowed for structural maintenance capital schemes are greater or less than the savings generated in routine and emergency maintenance.

42. In 2010, half of councils stated they had reviewed their budget-setting processes within the last five years. Three-quarters of councils also reported that the way in which the roads and transportation service allocates budgets to the various categories of road maintenance activity changed in the last five years.

43. The main change reported by councils in relation to budget allocation was a shift to funding structural maintenance from capital rather than revenue budgets. This is likely to be because of constraints on revenue budgets together with new rules allowing councils more freedom in determining their capital spending.²³ A number of councils made a policy decision to treat all planned maintenance, including structural maintenance, as capital expenditure. In these councils, revenue budgets are only used to fund response repairs, for example the repair of potholes. Similarly, Transport Scotland treats all structural maintenance as capital expenditure.

44. According to figures provided by councils, after adjusting for general inflation, revenue expenditure on structural maintenance fell from £102 million in 2002/03 to £65 million in 2009/10 (Exhibit 7). This was more than made up for by an increase in capital expenditure from £50 million (after adjusting for general inflation) to £110 million over the same period. Councils' and Transport Scotland's overall spending (both revenue and capital) on structural maintenance as a percentage of total road maintenance expenditure remained unchanged between 2002/03 and 2009/10 (around 40 per cent and 50 per cent respectively).

45. The Scottish Government's draft budget for 2011/12 indicates that Scotland's public sector will have £1.3 billion less to spend than in 2010/11.²⁴ Transport Scotland's overall budget for trunk road maintenance is set to fall by around 20 per cent with its revenue budget for routine repairs and winter maintenance remaining the same and its capital budget for structural maintenance falling by 37 per cent (£26 million). Transport Scotland is now considering the implications of this on its long-term structural maintenance plans. The Scottish Government's budget also indicates that the amount of funding made available to local government will fall by nearly £450 million (almost four per cent). Councils have yet to set their 2011/12 budgets but the funding reduction suggests they will also face severe challenges in the future to maintain current levels of structural maintenance funded from capital.

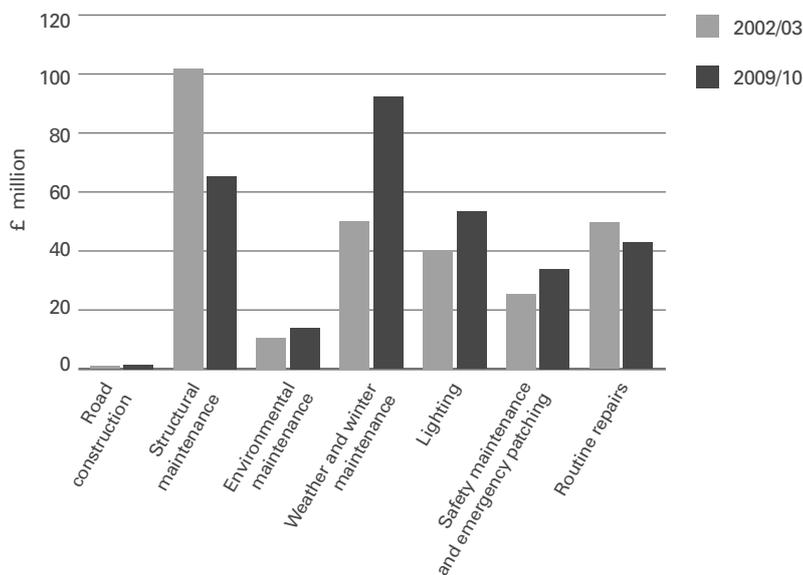
²³ Central government used to be able to decide how much debt a local authority could have. In 2004, CIPFA's Prudential Code was introduced giving councils much more freedom to decide how much they can afford to borrow.

²⁴ *Scotland's spending plans and draft budget 2011/12*, Scottish Government, November 2010.

Exhibit 7

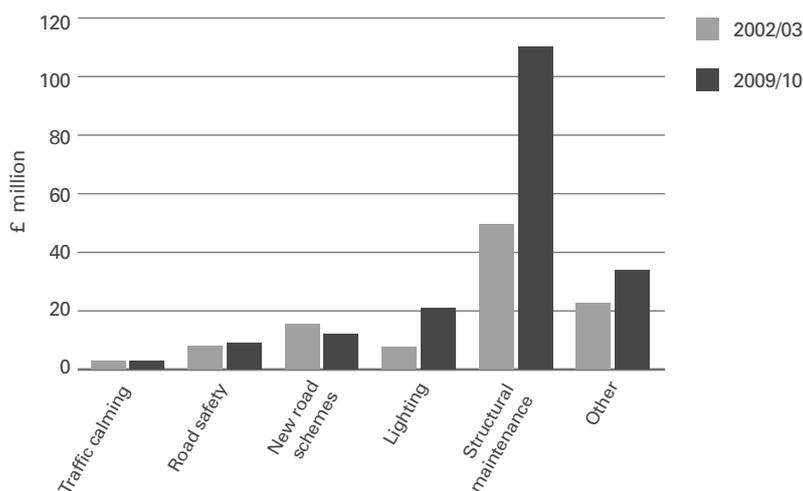
Revenue expenditure on roads maintained by Scottish councils, 2002/03 and 2009/10

Compared to 2002/03, after adjusting for general inflation, revenue expenditure on structural maintenance in 2009/10 has fallen by £37 million.



Capital expenditure on roads maintained by Scottish councils, 2002/03 and 2009/10

Compared to 2002/03, after adjusting for general inflation, capital expenditure on structural maintenance in 2009/10 has increased by £60 million.



Source: Audit Scotland surveys 2004 and 2010

The unexpectedly severe winter of 2009/10 led to councils spending £35 million more than budget

46. The winter of 2009/10 was one of the coldest on record in Scotland with only 1962/63 being colder.²⁵ Significant snowfalls occurred widely from mid-December until the end of February, including falls of over 30 centimetres in central and northern Scotland. Further significant snowfalls occurred during late March and April.

47. The unexpectedly severe winter of 2009/10 led to spending of £100 million on winter maintenance by councils and Transport Scotland. Councils spent £92 million against a budget of £57 million. Councils in the north of Scotland tended to spend more on winter maintenance than those in the south (Exhibit 8, overleaf). All councils overspent their winter maintenance budget with overspends ranging from 14 per cent in Clackmannanshire to 166 per cent in Glasgow. While budget overspends were funded from reserves and savings in other services, they were also funded by reduced spending on planned maintenance projects.

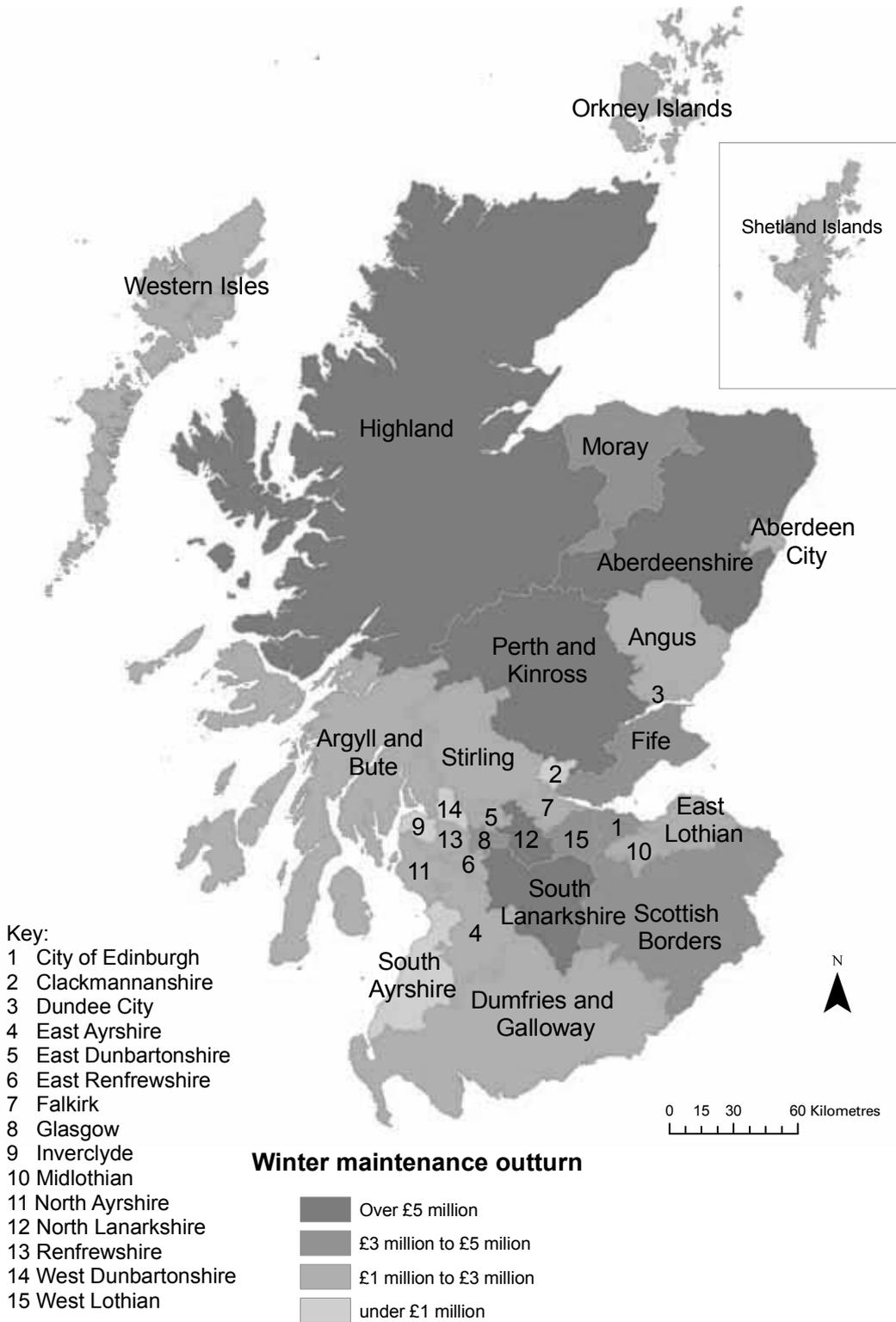
48. All councils also overspent their winter maintenance budgets in 2008/09, resulting in a Scotland-level overspend of some 30 per cent (£17 million). However, only 15 councils increased their budgets for the following year, 11 councils reduced their budgets and the remaining six left their budget unchanged.

49. In 2009/10, under its contracts for trunk road maintenance, Transport Scotland provided £8.1 million for winter maintenance activities. Transport Scotland pay trunk road operating companies a fixed sum for winter maintenance based on their tendered rates, although this is not necessarily the cost to the trunk road operating companies in any one year.

Exhibit 8

Council expenditure on winter maintenance, 2009/10

Councils in the north of Scotland tended to spend more on winter maintenance than those in the south.



50. The consequences of the severe winter of 2009/10 have yet to be fully assessed. The total estimated damage to council-maintained roads and trunk roads is not evident from the 2009/10 expenditure figures as these only capture spending on emergency repairs up until the end of March 2010. Many road defects may become apparent after this time resulting in future budgetary pressures due to the continuing need to carry out emergency repairs such as pothole-filling. It has been reported that the very worst-affected roads will be resurfaced in 2010/11, meaning that many others in need of urgent resurfacing will either be surface-dressed (a shorter-term form of maintenance) or left untreated due to insufficient funding.²⁶

51. In January 2010, the AA reported that most people in Scotland were satisfied with the gritting and salting of A roads but less so with minor roads and pavements. Eighty per cent of respondents were satisfied with the gritting and salting of A roads, while 71 per cent were dissatisfied with minor roads and 83 per cent with pavements.²⁷

52. At the instigation of the Scottish Government, the Scottish Salt Group was formed in January 2010 to manage reduced salt stocks as the severity and length of the severe winter weather was forecast to continue. Its membership includes Transport Scotland, the Society of Local Authority Chief Executives (SOLACE), SCOTS and the Convention of Scottish Local Authorities (COSLA). In August 2010, the group published its findings from the events of winter 2009/10. Its main recommendations included:

- better communication with the public to ensure that consistent advice is issued about the condition of roads and footways

- the establishment of an emergency strategic salt stock in Scotland – to make arrangements for the location, usage and management of salt
- re-stocking salt and grit earlier than late autumn to avoid a supply delay at the start of the winter season
- monitoring re-stocking of salt and grit from the summer onwards²⁸
- the advance scoping of arrangements to enable salt to be transferred between local authorities, trunk road operating companies and NHS boards to where it is most needed.

53. The Scottish Salt Group is monitoring salt stockpiles across Scotland on a monthly basis to avoid the shortages experienced in the winter of 2009/10. At the end of November 2010, there were around 360,000 tonnes of salt stockpiled in Scotland, generally in line with the level councils have estimated they require. This information has only been collected from January 2010 so an equivalent figure for 2009 is not available.

54. The impact of further severe weather conditions in the winter of 2010/11 has yet to be determined but media coverage has indicated that many councils are likely to significantly exceed their winter maintenance budgets. Some councils and trunk road operating companies are taking immediate action to conduct emergency repairs, such as pothole-filling, but the impact of the severe weather on road condition and the subsequent cost of these repairs will not be known until later on in the year. In January 2011, the Scottish Government announced that an additional £15 million was being

made available to councils in 2010/11 to cover the exceptional cost of extra winter maintenance and to help deal with necessary road repairs.

²⁶ *Scottish road network: Lessons learned and recommendations following the events of winter 2009/10*, Scottish Salt Group, August 2010.

²⁷ *Automobile Association Populus Survey*, January 2010.

²⁸ Salt never loses its ability to melt snow or ice no matter how long it is stored as long as it is stored properly. A permanent under-roof storage facility is best for protecting salt from loss through rain and from salt-laden run off which could damage the environment. <http://www.saltinstitute.org/Uses-benefits/Winter-road-safety/Salt-storage>

Part 3. Improving the management of road maintenance



Councils could further improve their management of road maintenance.



Key messages

- Councils have made limited progress in responding to our previous recommendations to improve the management of road maintenance. Some councils still lack the basic inventory and information systems necessary to support effective asset management.
- Councils have developed a wide range of different local performance indicators for their own use but lack of consistency means they seldom compare their performance with other councils to assess value for money and to identify potential improvement. Only seven councils reported using indicators related to user experiences.
- There has been limited progress in partnership working on road maintenance issues. Working together with other councils or the private sector to achieve economies of scale will become increasingly necessary if councils are to maintain service levels with reduced funding.

55. In our 2004 *Maintaining Scotland's roads* report, we recommended that councils improve their management of road maintenance by:

- developing road maintenance strategies
- collecting better inventory information
- having up-to-date information on the condition of assets
- developing a framework of performance indicators.

56. We also recommended that councils and Transport Scotland ensure their road maintenance activities contribute to the environment, and that councils consider whether road maintenance services could be improved by entering into consortium arrangements to achieve economies of scale.

Further progress is needed on road asset management planning

57. All councils in Scotland have a duty of Best Value, and legislation requires them to have regard to guides or codes of practice which are generally accepted within Scotland as constituting proper arrangements for securing Best Value. The accepted code of practice for road maintenance is *Well-maintained Highways: Code of Practice for Highway Management*.²⁹ It is endorsed by all the main UK public bodies involved in road maintenance including Transport Scotland, COSLA and SCOTS and provides best practice guidance on road maintenance.

58. The code sets out that the foundation of a longer-term road maintenance strategy or plan is having a detailed inventory of all components to be maintained, a defined hierarchy for all elements of the network and a robust framework of levels of service.

59. All councils reported having in place plans or policies setting out their road maintenance activities. About half reported they have stand-alone longer-term road maintenance strategies or plans but these varied widely in quality, currency and titles given. The remainder incorporated their road maintenance strategy into a wider local transport strategy. However, half of local transport strategies provide only limited information on road maintenance.

60. A longer-term road maintenance strategy or plan should be an

important component of a more broadly-based road asset management plan. In 2008, SCOTS embarked on a four-year road asset management planning project. One of the drivers for this was to prepare councils for the introduction of a new CIPFA *Code of Practice* providing guidance on how to value transport infrastructure assets.³⁰

61. SCOTS is helping councils prepare road asset management plans through the use of a number of guides and templates. The template includes sections on asset description, community requirements, future demands, levels of service, lifecycle planning, a financial summary and risk management (Exhibit 9, overleaf). It also includes an improvement plan. Appendices include a summary of performance and a customer satisfaction report.

62. Three years into the four-year project, it is disappointing that only around a third of councils have completed draft road asset management plans. SCOTS has told us that another third of councils are close to completing their draft plans but the remaining third still have much to do. Although participation in the road asset management planning project is voluntary, a number of the tasks councils are being asked to complete directly address recommendations from our previous report. These include the reporting of basic inventory and condition information on the assets they are managing, and developing performance indicators.

Some councils still lack the basic inventory and information systems necessary to support effective road asset management

63. Without knowing what assets the council owns and their condition, it is difficult to set priorities for road maintenance. In 2004, we found that

²⁹ *Well-maintained Highways*, UK Roads Board, July 2005.

³⁰ In 2010, CIPFA published *Code of Practice on Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting*. This new *Code of Practice* provides guidance on the development and use of financial information to support asset management, financial management and reporting of local transport infrastructure assets.

Exhibit 9**Minimum content of a road asset management plan – the information councils need to know to effectively manage their road assets**

A third of councils in Scotland have a draft asset management plan.

Road asset management plan section	Key questions councils need to be able to answer
Asset description	<ul style="list-style-type: none"> • What assets are covered by this plan? What are the quantities? • Are these lengths and numbers known to be correct? • What assets are NOT covered by this plan? • Is the asset growing in size or complexity? If yes, why?
Community requirements	<ul style="list-style-type: none"> • How does the council assess customer expectations of the road network? • What do the results of these activities tell the council about customer expectations of the road network? • How is this information used?
Future demands	<ul style="list-style-type: none"> • What future demands will affect the future cost of managing the road network (eg traffic growth, utilities)? • What demands are there for new assets?
Levels of service	<ul style="list-style-type: none"> • How does the council establish and measure the levels of service? • How is performance against targeted levels of service reported? • How is performance evaluated? • What is the current and target level of service?
Lifecycle planning (the long-term prediction of the cost of the continued management and operation of the asset)	<ul style="list-style-type: none"> • Has the council completed a lifecycle template for each major asset? • Does it include details of condition, age, historical investment levels, valuation, planned future investment, forward works programme and level of service?
Financial summary	<ul style="list-style-type: none"> • How does the council obtain funding for works on the asset? • How are budgets established/allocated? • What has historical expenditure been on the asset? • What are the predicted long-term funding requirements and availability? • What is the current value of the asset?
Risk management	<ul style="list-style-type: none"> • How is the council's corporate risk strategy applied to the management of the road asset? • How are the risks associated with roads identified? • How are the identified risks categorised and controlled? • When are risks reviewed and to who are the results reported? • What are the major risks currently relating to the road asset?

many councils had still to develop up-to-date electronic inventories to support asset management. In 2010, there has been a moderate improvement but many councils still do not have sufficient data on the condition of a number of common items required for asset management. For example:

- Two councils have insufficient information on the condition of their bridges (although this position has improved significantly since 2004 when 25 councils reported this).
- Eighteen councils have insufficient information on either the number and location of their footways, or their condition.
- Twenty-five councils have insufficient information on the number and location of non-illuminated signs.

64. Transport Scotland published its first road asset management plan for the trunk road network in November 2007. The plan includes a description of Transport Scotland's trunk road assets; their condition in terms of residual life; current and expected future demand; work and financial plans and a performance management framework. To inform its road asset management plan, Transport Scotland also undertook a survey of 1,000 users and their views are reflected throughout the plan. An updated plan is currently being reviewed to take account of Scotland's draft budget for 2011/12.

65. As part of its 2007–10 asset management improvement programme, Transport Scotland reviewed its road maintenance strategies and plans and developed an asset management route hierarchy; a system for prioritising its asset management activities. The asset management route hierarchy was

developed taking into account a range of weighted economic, social and integrated transport criteria. It is intended to support the identification of appropriate levels of service for each route on the trunk road network and the annual prioritisation of competing maintenance schemes. Further developments are under way and the system has yet to be formally adopted.

66. As part of the 2008–11 efficient government programme, Transport Scotland has reported achieving over £15 million per year in cash-releasing efficiencies through its road maintenance procurement practices and over £3 million per year through improved asset management practices.

Councils have developed a wide range of performance indicators but their ability to benchmark has been limited

67. In 2004, we recommended that councils develop a framework of performance indicators and outcome targets against which to measure the performance of the entire road maintenance system covering customer service; value for money; effective management; financial performance; and impact on the environment. We recognised that local circumstances might require councils to use local indicators but some consistency was also important to allow comparisons with other councils.

68. Since then, councils have developed around 80 local performance indicators but different ones are used by different councils and there is a lack of comprehensive indicators used by all councils. This lack of consistency means they seldom compare their costs and performance with other councils or the private sector to assess value for money and to identify potential improvement. The main

performance indicator used for comparative purposes is the Accounts Commission's statutory performance indicator on road condition which we have reported in Part 2. Councils also use Association for Public Service Excellence (APSE) indicators but because they are not defined, councils do not calculate these consistently and this means that the benefits of comparison between councils cannot be achieved.

69. The vast majority of indicators used by councils relate to the promptness of response, for example the number of repairs completed within a specified timescale. Only seven councils reported using indicators relating to customer service, such as satisfaction levels or third party liability claims received.

70. As part of the road asset management project, SCOTS has been developing a suite of performance indicators for councils to use. This work aims to create more consistency to allow benchmarking to take place. Guidance was issued at the end of 2010 including the use of core and secondary indicators, and statistical measures in areas such as customer service, network condition and finance (Exhibit 10, overleaf). SCOTS plans to collect this information annually but recognises that not all councils currently have systems in place to support the compilation of all indicators. However, as a minimum, councils are expected to complete information relating to the core performance indicators.

71. Transport Scotland continues to use its well-established arrangements for monitoring the performance of trunk road maintenance. PAGplus was appointed for a third seven-year term in December 2009 to audit, monitor and report on the performance of the operating companies who maintain the Scottish trunk road network.³¹ PAGplus publishes detailed annual

31 PAGplus is Halcrow in association with PriceWaterhouseCoopers, Scott Wilson and Transport Research Laboratory (TRL). It is the multi-disciplinary team which audits, monitors and reports on the performance of the operating companies which maintain Scotland's trunk road network.

reports commenting on all aspects of the performance of the trunk road operating companies covering network management, network maintenance (including cyclic, reactive and planned maintenance), network improvement, quality of service and value of service.

Councils and Transport Scotland acknowledge the impact of road maintenance on the environment but formal monitoring is limited

72. In 2004, we recommended that councils and Transport Scotland should ensure that their road maintenance activities contribute to the environment. In 2010, we found that 17 councils always recycle roadside litter; 16 councils use low-noise running surfaces where appropriate when roads are being resurfaced; 24 sometimes reuse excavated materials from road maintenance; and 30 sometimes use recycled materials in road maintenance. However, only two councils use performance indicators to monitor the impact of their road maintenance activities on the environment.

73. Transport Scotland's current trunk road maintenance contracts with the operating companies do not include performance indicators covering the environment and sustainability. However, all operating companies have undertaken activities relating to the environment and sustainability including investigating the use of alternative materials, increasing staff awareness and engaging with stakeholders.

74. Transport Scotland has undertaken a sustainability review of all its activities, including road maintenance. Its tender documents for the next round of trunk road maintenance contracts include a number of performance indicators aimed at reducing carbon emissions, encouraging sustainability and measuring waste. In addition,

Exhibit 10

Core performance indicators relating to carriageways and footways set out by SCOTS' road asset management project

SCOTS has developed performance indicators for road maintenance for the use of all Scottish councils to create more consistency to allow benchmarking to take place.

Customer service:

- Percentage of customer enquiries/requests for service closed off within the council's own identified response times.

Carriageways and footways:

- Percentage of the most serious road defects (Category 1) made safe within identified response times.
- Percentage of carriageway/footway length to be considered for maintenance.
- Percentage of carriageway/footway length treated.

Availability:

- Percentage of the network which has road works on any given day.

Financial:

- Total carriageway/footway maintenance expenditure by carriageway/footway length.
- Total cost for carriageway/footway winter maintenance treatment over the entire winter period divided by the total road/footway network length.
- Actual investment as a percentage of the steady state figure/planned expenditure.

Source: SCOTS

implementation of a new carbon management system and a process for implementing new sustainability innovations has been developed. One example of a sustainability innovation, 'crack and seat', is set out in Case study 2.

75. In addition, Transport Scotland is currently trialling a process for prioritising road maintenance schemes whereby each proposed scheme is scored against four criteria: safety, journey time reliability, value for money and environmental sustainability. The environmental sustainability criterion assesses the impact of a scheme using ten sub-criteria that reflect the various aspects of concern: air quality, biodiversity, construction waste, energy use, landscape, noise and vibration,

reduce, reuse, recycle and water environment.

There is scope for more partnership working on road maintenance issues

76. In 2004, we recommended that councils should consider whether their road maintenance service could be improved by entering into consortium arrangements to achieve economies of scale in road maintenance.

77. In 2009, the Arbutnott report considered that road maintenance could be adapted to a shared service model between the eight councils in the Clyde Valley area.³² Potential benefits of this approach include improved forward planning, a more efficient use of labour and the

ability to purchase more specialised equipment (Exhibit 11).

78. While Arbuthnott identified the benefits of a shared services approach, there is no detailed costed model available which would allow councils to consider how much detailed cost savings and other benefits a shared services approach could deliver. Councils can point to several examples of joint or collaborative working taking place (Exhibit 12, overleaf). However, since 2004 no councils have radically changed the way in which they deliver road maintenance services. As was the case in 2004, the only council consortium existing is Tayside Contracts, which provides road maintenance services for Angus, Dundee City and Perth & Kinross councils. This arrangement existed prior to local government reorganisation in 1996.

79. However, a small number of councils are currently exploring alternative models of provision. For example, in December 2008 Glasgow City Council agreed to introduce what it terms 'area integration' to its Land and Environmental Services. This approach involves bringing together staff involved in road maintenance, grounds maintenance, street cleansing and refuse collection to create a more flexible operational team. The benefits expected include a reduction in employment costs (three per cent fewer staff), reduced overtime and reductions in the number of plant and vehicles required. Perth & Kinross Council is exploring a similar model.

80. City of Edinburgh, East Lothian, Midlothian, West Lothian, Fife and Scottish Borders councils discuss common issues through a joint forum. In June 2010, the forum identified five specific areas that offered greatest potential for shared services and long-term savings. These were payroll, procurement, road maintenance, mobile/flexible working and integrated audit functions. Scottish Borders Council is leading

Case study 2

Transport Scotland's sustainable reconstruction technique, 'crack and seat'

The 'crack and seat' reconstruction technique involves breaking up existing road surfaces and using large quantities of this material to reconstruct the road.

The sustainable reconstruction technique, 'crack and seat', was used for the first time on the Scottish trunk road network in 2006/07. The technique involves the removal of the top road surface layers and the cracking and rolling (breaking up) of the remaining road construction layers (usually lean concrete) and then overlaying with a new asphalt surface. The benefit of this technique is that large quantities of material are recycled in situ with reduced dependence on new materials and less waste sent to landfill sites. The technique also means that up to twice as much carriageway can be reconstructed for the same level of investment.

Transport Scotland has completed a number of 'crack and seat' schemes since 2006 including A9 Bankfoot, A9 Carrbridge and A9 Aberuthven. Transport Scotland reports that £3.6 million savings have been made in addition to the environmental benefits without material detriment to the quality or quantity of service provided.

Source: Transport Scotland

Exhibit 11

Benefits of a shared local road maintenance service

Potential benefits of a shared local road maintenance service include improved forward planning, a more efficient use of labour and the ability to purchase more specialised equipment.

- Improved demand forecasting, and enhanced forward planning and programming of works and services.
- Better supply chain management, with greater use of frameworks and call-off contracts to achieve economies of scale, including joint contracts and shared roads services.
- An improved understanding of road maintenance and construction costs and improved strategic decision-making.
- Reduced maintenance costs – newer plant will incur a reduced level of maintenance and operating costs.
- Efficient use of labour – consolidating works programmes throughout a region should enhance the ability to fully utilise labour.
- Expanded plant and equipment – conducting regional works programmes should enable the purchase of more specialised production plant and equipment that is not justifiable for individual councils.

Source: *Clyde Valley Review 09*, Sir John Arbuthnott on behalf of Clyde Valley Community Planning Partnership, December 2009

on road maintenance. Development is at an early stage but proposals include sharing best practice, sharing equipment, and providing staff to cover shortages in other areas.

81. SCOTS is also currently investigating opportunities for sharing services between councils and Transport Scotland. Potential areas being examined include back office systems, flood management, asset management and road safety.

82. There has, however, been limited progress in the area of partnership working on road maintenance issues. Given the current financial climate, working together with other public bodies and the private sector to achieve economies of scale is likely to become increasingly necessary for councils to maintain levels of service.

Councils and Transport Scotland work with utility companies to improve the planning, coordination and quality of road works

83. Many demands are put on Scotland's roads. Beneath many of our streets and footways, utility pipes and cables convey water, waste, energy and information. A wide range of organisations need to obtain access to these pipes and cables, and together they impose additional strains on the road infrastructure. Once a road has been dug up, even if it has been reinstated (ie, refilled and resurfaced) in line with legislative specifications, the integrity of the road will have been negatively affected. As owners of the asset, Transport Scotland and councils are responsible for coordinating works, and for ensuring that the road continues to be safe and available for users.

84. It is important that Transport Scotland and councils work with utility companies to minimise the impact of road works on road users. They do this through membership of local and national roads authorities and utility committees (RAUCs) which aim to

Exhibit 12

Examples of councils working jointly or collaboratively

Most Scottish councils are involved in bulk purchasing arrangements or procurement of specialist services for road maintenance.

Type of joint/collaborative working	Examples	Benefits
Bulk purchase	Purchase of salt and power via Scotland Excel	Savings from economies of scale
Joint procurement	Winter forecasting services, consultancy services for the road condition survey and road asset management project	Access to specialist services which councils could not access individually. Also, savings from economies of scale
Sharing specialist equipment and personnel	Sharing of a jet-patcher (specialised equipment for filling in potholes)	Access to specialist equipment which smaller councils could not afford individually on cost grounds. Also, savings from economies of scale

Source: Audit Scotland survey

improve the planning, coordination and quality of road works. One good example of how a council has embraced this role is West Lothian's considerate contractor scheme (Case study 3).

85. The role of the Scottish Road Works Commissioner was established under the Transport (Scotland) Act 2005 with the aim of improving the planning, coordination and quality of road works throughout Scotland. The first Commissioner was appointed in 2007. The Commissioner monitors the performance of utility companies and roads authorities, and promotes and encourages good practice and compliance with statutory regulations. He also has the power to impose financial penalties on roads authorities who systematically fail in their duty to coordinate, and on utility companies who systematically fail to co-operate when undertaking road works.

86. One of the key outcomes the Commissioner considers the public are looking for in relation to road works is better reinstatements by utility companies. In 2008/09, over a third of these reinstatements were not undertaken to the specified requirements. At the Commissioner's request, each of the major utility companies operating in Scotland was required to submit an action plan setting out how it planned to improve the quality of its reinstatements.

87. Every two years a review of the quality of completed reinstatements throughout Scotland is undertaken. The most recent review was undertaken in autumn 2010 with the results to be published in early summer 2011. The Scottish Road Works Commissioner plans to comment on these results in his 2010/11 annual report.³³

Case study 3**West Lothian Council's 'considerate contractor' scheme**

To assist in the maintenance of West Lothian's roads, West Lothian Council Road Services established a 'considerate contractor' scheme in 2007 to work in partnership with all public utility companies and contractors. The Considerate Contractor Road Works Scheme aims to reduce inconvenience, frustration and in some cases unnecessary danger to road users and pedestrians, which can be caused by work on roads and footpaths.

All main utilities, for example British Telecom, Scottish Power, Scottish Water, signed up to the principle of working together. No contractor can work for West Lothian Council without adhering to the scheme's demands for quality and customer consideration. The Voluntary Code of Practice aims to ensure that inconvenience and disruption to residents, businesses and road users are kept to an absolute minimum. It also aims to improve the coordination of all kinds of works and events on the public road network, and more importantly, to improve public safety.

Inspectors for the Roads Services department and trained members of the public (lay assessors) carry out routine inspections of road works sites throughout the region and results are reported on a monthly basis. At the end of each year, the top contractors are rewarded for their efforts and dedication to the scheme at the annual Considerate Contractor Awards Ceremony.

Source: <http://www.westlothian.gov.uk/1523/1284/Consideratecontractor>

Appendix 1.

Findings in response to our 2004 report

This table details our findings in response to the recommendations contained in *Maintaining Scotland's roads* published by the Accounts Commission and the Auditor General for Scotland in November 2004.

2004 report recommendations	2010 report findings
<p>Councils should use the information from the <i>Scottish Road Maintenance Condition Survey</i> (SRMCS) to calculate the size of the structural maintenance backlog in their area using a commonly accepted methodology.</p>	<p>Using the results of the SRMCS, SCOTS commissioned consultants to estimate how much it would cost to remove all road defects (the 'headline' backlog). The cost, £1.54 billion, is an underestimate as it is based on 2008 condition data and only includes carriageways. It does not include other parts of the road network such as bridges, lighting and footways. A number of initiatives are currently under way to develop more consistent methodologies for costing the total backlog.</p> <p style="text-align: right;">(report paragraphs 25–27 and 35–39)</p>
<p>Transport Scotland and councils should monitor and report publicly on the condition of their road network and their road maintenance backlog on an annual basis.</p>	<p>Transport Scotland partially reports condition in the Scottish Transport Statistics but does not report SCANNER¹ road condition survey results or backlog. All councils report road condition to elected members and the public at least once a year but less than half report their road maintenance backlog.</p> <p style="text-align: right;">(report paragraphs 28–30)</p>
<p>Councils should review their budget-setting process for road maintenance to ensure that an appropriate and cost-effective balance of expenditure between routine, winter and structural maintenance is achieved.</p> <p>Councils should review their capital expenditure on structural maintenance to ensure that it achieves value for money and meets the key principles of the Prudential Code. In particular, councils should conduct an option appraisal to fund road maintenance services.</p>	<p>Half of councils stated they had reviewed their budget-setting processes within the last five years and three-quarters reported they have changed the way in which budgets are allocated to the various categories of road maintenance activity.</p> <p>The main change reported by councils in relation to budget allocation was a shift to funding structural maintenance from capital rather than revenue budgets. This is likely to be because of constraints on revenue budgets together with new rules allowing councils more freedom in determining their capital spending and Prudential borrowing requirements.</p> <p>Taking inflation into account, revenue expenditure on structural maintenance fell from £102 million in 2002/03 to £65 million in 2009/10. This was more than made up for by an increase in capital expenditure from £50 million to £110 million over the same period.</p> <p style="text-align: right;">(report paragraphs 40–45)</p>
<p>Councils should consider whether their road maintenance service could be improved by entering into consortium arrangements to achieve economies of scale in road maintenance.</p>	<p>Although councils can point to several good examples of joint or collaborative working taking place, no more councils have entered into consortium arrangements with other councils. As was the case in 2004, the only council consortium arrangement existing is Tayside Contracts. However, a small number of councils are currently exploring alternative models of provision.</p> <p style="text-align: right;">(report paragraphs 76–82)</p>

1 Surface condition assessment of the national network of roads.

2004 report recommendations	2010 report findings
<p>All councils should review their performance against the Code of Practice for maintenance management in <i>Delivering Best Value in Highway Maintenance – Code of Practice for maintenance management</i> and take action to ensure they are complying fully with the Code.</p> <p>Councils should develop road maintenance strategies in the context of their transportation and roads asset management strategies. Councils should take into account the views of road users and the wider community in the development of road maintenance strategies.</p> <p>Councils should collect better inventory information about the assets they are managing including roads, bridges and street lighting.</p> <p>Councils should ensure that they have up-to-date IT systems and asset management systems and take into account the recommendations and good practice contained in the <i>Framework for Highway Asset Management</i>, in particular:</p> <ul style="list-style-type: none"> • up-to-date information on the condition of the assets they are managing including roads, bridges and street lighting • asset management systems linked to GIS and financial systems • pavement management systems to minimise whole life costs of road maintenance • electronic recording of safety inspections. 	<p>All councils reported having in place plans or policies setting out their road maintenance activities. About half reported they have stand-alone longer-term road maintenance strategies or plans but these varied widely in quality, currency and titles given. The remainder incorporated their road maintenance strategy into a wider local transport strategy. However, half of local transport strategies provide only limited information on road maintenance.</p> <p>In 2008, SCOTS embarked on a four-year project to assist councils to prepare road asset management plans. SCOTS has reported that to date, around a third of councils have completed draft road asset management plans with another third being close to completing their plans. The remaining third of councils still have much to do.</p> <p>There has been some improvement in the development of up-to-date electronic inventories but many councils still do not have data on the condition of a number of common items required for asset management. Two councils report they have insufficient information on the condition of their bridges and 18 councils have insufficient information on either the number and location of their footways, or their condition. In addition, 25 councils have insufficient information on the number and location of non-illuminated signs.</p> <p style="text-align: right;">(report paragraphs 55–63)</p>
<p>Councils should develop a framework of performance indicators and outcome targets against which to measure the performance of the road maintenance system.</p> <p>Councils whose unit costs are above average should examine whether cost savings are possible.</p>	<p>Councils have developed around 80 different local performance indicators for their own use but lack of consistency means they seldom compare their performance with other councils or the private sector to identify potential improvement. SCOTS has recently developed a suite of performance indicators aimed at creating more consistency to allow benchmarking to take place.</p> <p style="text-align: right;">(report paragraphs 67–70)</p>

2004 report recommendations	2010 report findings
<p>Councils and the Scottish Executive should ensure that their road maintenance activities contribute to the environment and to sustainability.</p>	<p>We found that 17 councils always recycle roadside litter; 16 councils use low-noise running surfaces where appropriate when roads are being resurfaced; 24 sometimes reuse excavated materials from road maintenance; and 30 sometimes use recycled materials in road maintenance. However, only two councils use performance indicators to monitor the impact of their road maintenance activities on the environment.</p> <p>Transport Scotland's current contracts with the operating companies do not include performance indicators covering the environment and sustainability. However, all operating companies have undertaken activities relating to the environment and sustainability including investigating the use of alternative materials, increasing staff awareness and engaging with stakeholders.</p> <p>Transport Scotland's tender documents for the next round of trunk road maintenance contracts include a number of performance indicators aimed at reducing carbon emissions, encouraging sustainability and measuring waste. In addition, implementation of a new carbon management system and a process for implementing new sustainability innovations has been developed.</p> <p>Transport Scotland is currently trialling a process for prioritising road maintenance schemes whereby each proposed scheme is scored against four criteria, one of which is environmental sustainability.</p> <p style="text-align: right;">(report paragraphs 72–75)</p>

Maintaining Scotland's roads

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