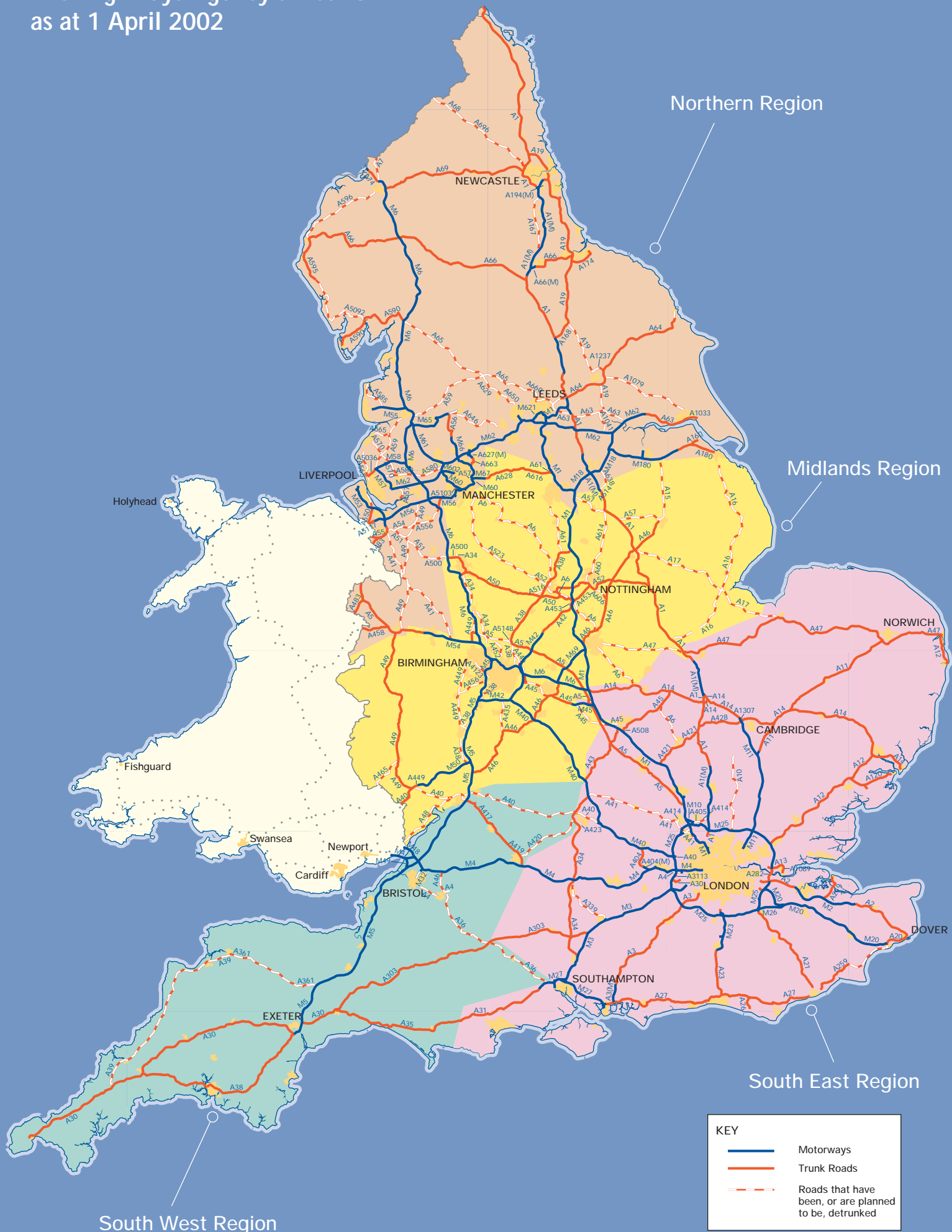


Maintaining England's Motorways and Trunk Roads



REPORT BY THE COMPTROLLER AND AUDITOR GENERAL
HC 431 Session 2002-2003: 5 March 2003

The Highways Agency's Network as at 1 April 2002



executive summary

- 1 This report examines the maintenance of motorways and trunk roads in England by the Highways Agency (the Agency), an executive agency of the Department for Transport (the Department). Road maintenance consists of routine maintenance, such as keeping roads clear of debris and cutting grass, and capital maintenance, involving the renewal of assets, for example resurfacing or reconstructing roads. There are 9,500 kilometres of motorways and trunk roads on the network, 8,900 of which the Agency manages¹. In 2001-02, the Agency spent £502 million on maintenance of the 8,900 kilometres that it manages directly, over £56,000 per kilometre. The Agency's aim is to maintain the network in a safe and serviceable condition, while minimising whole life costs, disruption to road users and others, and any adverse effect on the environment. Maintenance is contracted-out to third parties. Managing Agents investigate, design, manage and control repair work, while Term Maintenance Contractors actually carry out the work.

Main findings

- 2 In recent years, the Agency has improved the condition of the network and has also strengthened the management and delivery of its maintenance programme:

- ✓ **The condition of the network has improved.** Surface condition is good and fairly stable, stakeholders' views are generally favourable and payments for damages arising from poor road condition are low.
- ✓ The allocation of funds to Regions and capital maintenance projects has been strengthened so that **funding decisions more closely reflect need**.
- ✓ The Agency has introduced a new financial monitoring system and has also changed how it contracts for maintenance work, **allowing for improved cost control**.
- ✓ The Agency **assures the quality of maintenance work** by specifying the materials that can be used and the quality of finish, and by requiring completed work to be certified by Agents' engineers.
- ✓ The Agency has **reduced the impact of maintenance on the motorist**, in particular, by carrying out more work at night and at off-peak times of the day.

There is, however, scope for further improvement:

Measurement of network condition and the Agency's performance can be further improved

- 3 Roads need to be reconstructed when they reach the end of their natural lives and are deemed to have a 'zero residual life'. However, others require reconstruction when they have not been maintained on a timely basis. Our

¹ Some 600 kilometres of the network are managed by contractors who have designed, built, financed and now operate, as well as maintain, eight roads on the network.

earlier reports on road maintenance² found that, in the 1970s and 1980s, failure to maintain some roads in a timely fashion was resulting in damage to the roads' underlying structure. By 2001, around 5 per cent of the network had a zero residual life or less, down from 13 per cent of trunk roads and 14 per cent of motorways in the late 1980s. However, the Agency does not differentiate between roads requiring reconstruction because they have reached the end of their natural lives and those that require reconstruction due to untimely maintenance. Such information would allow the Agency to assess whether it had eliminated reconstruction work that could have been avoided if more timely maintenance had been carried out.

- 4 The Agency has a national target of ensuring that 7 to 8 per cent of the network requires maintenance in the following year. Although the Agency has met the target, performance varies significantly between regions, ranging from 5.2 per cent of the roads in the South West to 9.1 per cent in the North West as at March 2002. Three regions - the East Midlands, East of England and the North West - breached the 8 per cent upper limit. The Agency takes account of several factors to measure its performance against the target, including roads' residual life, skid resistance and rutting - where wheel tracks develop in the road under the weight of vehicles. For 2003-04, it intends to supplement these with information about cracking, texture and ride quality. It does not, however, take account of road users' experience of the network. Our survey of road users showed that some users were not completely satisfied with the condition of the network. Drainage systems need to be kept in good condition to prevent damage to the structure of roads. However, information on the condition of roadside assets, such as lights and drainage systems, is incomplete and inaccurate and the Agency's 'Technical Audits'³ raised doubt over the thoroughness and completeness of Agents' inspections of these roadside assets. The Agency is developing databases on the condition of roadside lights and telephones. It considers that drainage condition surveys using CCTV are the most effective way of compiling and maintaining a comprehensive inventory of drainage systems. Before committing to a comprehensive programme of such surveys, however, the Agency plans to assess the value for money of this approach and how often such surveys should be carried out.
- 5 Several targets in the Agency's Road Users Charter concern maintenance work. The Agency's performance against some of the targets could not be verified. There are also problems, more generally, in how the Agency reports against these targets, where targets are not clearly or consistently defined and performance data are not systematically validated.
- 6 In its 1991 report, *Management of Road Maintenance*, the Committee of Public Accounts noted the Department's assumption that the effects of increased traffic growth on the costs of delays from roadworks would be offset by more effective traffic management measures. However, it is difficult to evaluate the effectiveness of traffic management, and the Agency's measure of lane availability does not reflect the full impact of roadworks on the road user. Accident risks at roadworks increased from 1982 to 1993. The Agency has no more recent data. Since then, however, it has increased the use of speed cameras, and adopted other techniques to improve safety, at roadworks. The Agency expects these developments to have reduced the risk of accidents at roadworks and is currently working on a study to assess their impact.

The Agency would make better use of its resources by selecting the highest priority projects, where maintenance is most needed

- 7 Weaknesses remain in the Agency's approach to assessing proposals to spend £100,000 or more on major capital maintenance projects. Although safety is the most important concern, it is not assessed rigorously and safety benefits are not

² *Expenditure on Motorways and Trunk Roads (1985), Backlog of Maintenance of Motorways and Trunk Roads (1989), and Management of Road Maintenance (1991).*

³ *Technical Audits are carried out by external consultants on behalf of the Agency and examine the Agents' compliance with their contract, the Trunk Road Maintenance Manual and other relevant Agency procedures, standards and instructions. They were introduced by the Agency in 1997, and each Agent is audited once a year.*



quantified. Projects are not ranked against any quantitative measure of the financial savings that the Agency would make by carrying out a particular project now rather than in the future, reflecting the 'spend to save' principle. The Agency plans to use such ranking from April 2004. However, Agents' investigations and presentations of their proposals for major capital maintenance projects are often of poor quality, undermining the information on which such ranking would be based. The prioritisation of, and allocation of some £51 million a year to, small capital projects are also not based on evidence of need or urgency and there are no controls to prevent individual Agents over-bidding for such work.

The Agency could go further to strengthen cost control and improve its record in recovering sums due from people who damage the network

- 8 Unit costs of capital maintenance work have increased sharply in real terms over recent years, partly reflecting higher than general inflation in the construction industry but also the adoption of higher quality and more durable treatments, greater night time working and more expensive techniques. Controlling in-year spending on capital maintenance projects is a priority. We found that, in a sample of 9 of the 20 Areas, all but three Areas kept in-year capital maintenance spending close to or under budget in 2001-02. However, cost control was much less effective over projects' lifetimes, where we found an average overspend of 27 per cent and which involved the Agency delaying new projects in order to keep spending within in-year budgets. The Agency's focus on in-year cost control, therefore, hides the extent of overspending on individual projects over their lifetime. Poor budget estimation has been a key problem, reflecting insufficient design work carried out before projects are approved. The Agency has recognised that cost control needs to be improved and expects to have a new process in place for managing project costs, from April 2003.
- 9 The Agency is now merging the roles of its contractors, using lump sums and outcome targets for routine maintenance and setting target prices for major capital schemes up to £5 million and financial incentives for contractors to stay within them. It has also improved the quality and performance specifications in the new Agent contracts. While offering several advantages in terms of cost control, these changes also bring risks to value for money, by removing the independent supervision of the work of contractors on routine and small capital jobs, opening up the possibility of disputes over the achievement of outcomes, and presenting a risk of contractors overstating the amount or complexity of the work in order to justify a high target price.
- 10 The Agency does not recover all of the sums due when people damage the network. In 2001-02, the Agency was unable to recover, or abandoned claims for, some £6.2 million for damage to the network, because no culprit could be identified or pursued. The Agency's new contracting arrangements provide financial incentives for contractors to recover sums due for damage to the network, although the Agency will continue to deal with larger claims.

More attention needs to be given to assuring the quality of maintenance work, particularly over the longer term

- 11 Although Agents' engineers must certify work upon completion, they do not guarantee that the work will last a given lifetime. The Agency is monitoring how well maintenance work performs at a selection of sites. In its June 1991 report, the Committee of Public Accounts noted that the Department expected there to be reliable centrally collected data on the maintenance history of roads from April 1992. However, there is still inadequate information about maintenance histories and therefore about the performance of maintenance work over the longer term across the network as a whole.

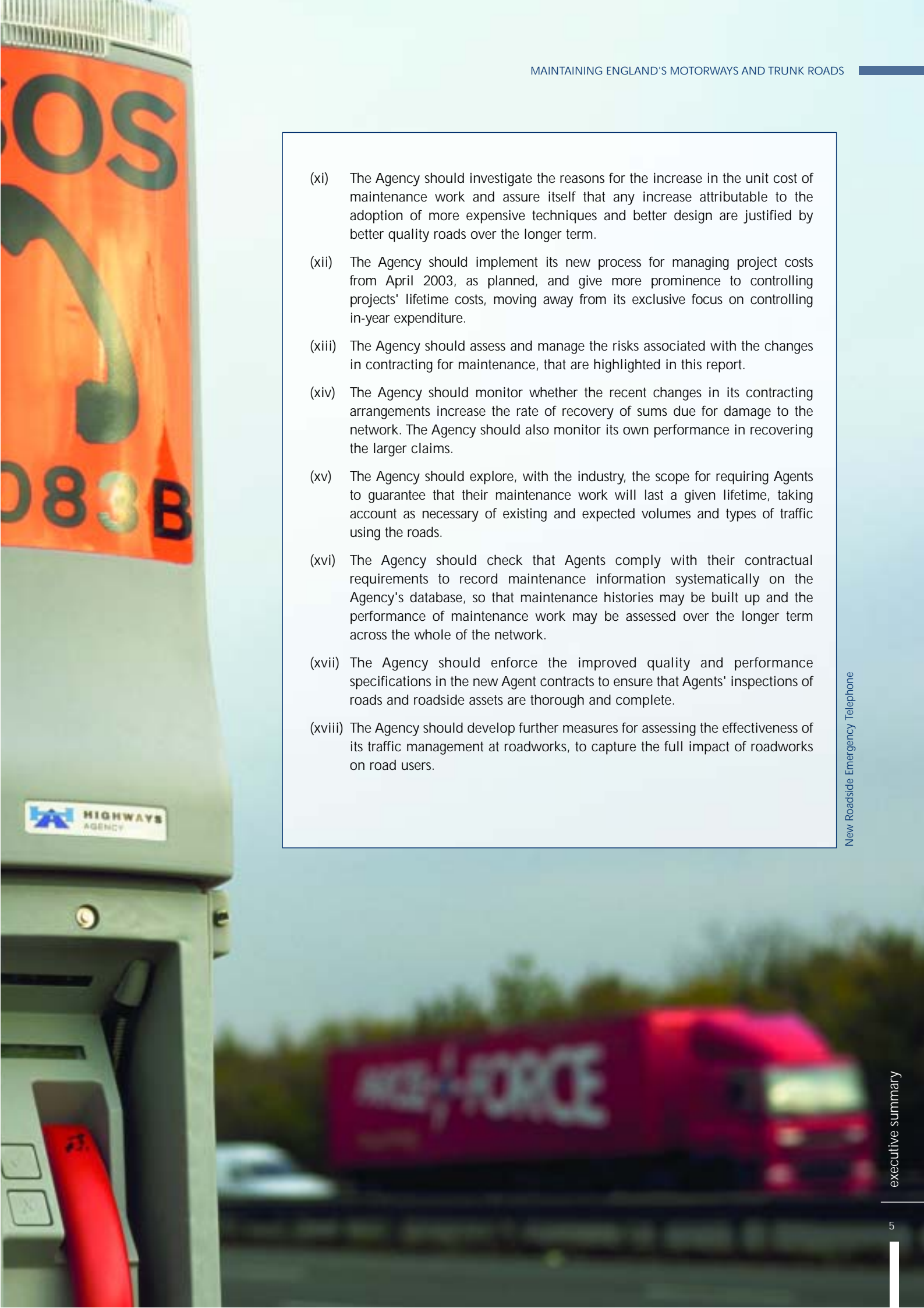


M1 Junction 28 contraflows and roadworks, October 2000

Recommendations

- (i) The Agency should assess whether it has eliminated reconstruction work that could have been avoided if more timely maintenance had been carried out.
- (ii) The Agency should introduce regional condition targets as soon as possible.
- (iii) The Agency should take user satisfaction into account in measuring its performance against its national target for maintaining the condition of the network.
- (iv) The Agency should implement, as soon as possible, a national database of roadside assets and their condition.
- (v) The Agency should put in place a cost-effective approach for assessing the condition of drainage systems across the network.
- (vi) The Agency should, in consultation with the Department, revise its Road Users Charter targets concerning maintenance so that they are clearly defined and that performance against them can be verified. The Agency should also require Agents to validate the performance data they submit to the Agency.
- (vii) The Agency should complete its study of safety and accident risks at roadworks as soon as possible, analyse the main causes of accidents and pursue further ways of reducing accident rates in conjunction with the police, the Driving Standards Agency and road user groups.
- (viii) The Agency should not accept Agents' proposals for major capital maintenance projects unless claimed benefits, such as safety, are clearly evidenced and quantified.
- (ix) The Agency should hold a series of training workshops with its Agents, and issue examples of project proposals that represent best practice, to improve the quality of Agents' proposals for major capital maintenance work, including the breadth of options considered as potential solutions.
- (x) The Agency should prioritise small capital projects based on evidence that the work is genuinely urgent and only approve funding for non-urgent work where there is clear evidence of need.



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- (xi) The Agency should investigate the reasons for the increase in the unit cost of maintenance work and assure itself that any increase attributable to the adoption of more expensive techniques and better design are justified by better quality roads over the longer term.
 - (xii) The Agency should implement its new process for managing project costs from April 2003, as planned, and give more prominence to controlling projects' lifetime costs, moving away from its exclusive focus on controlling in-year expenditure.
 - (xiii) The Agency should assess and manage the risks associated with the changes in contracting for maintenance, that are highlighted in this report.
 - (xiv) The Agency should monitor whether the recent changes in its contracting arrangements increase the rate of recovery of sums due for damage to the network. The Agency should also monitor its own performance in recovering the larger claims.
 - (xv) The Agency should explore, with the industry, the scope for requiring Agents to guarantee that their maintenance work will last a given lifetime, taking account as necessary of existing and expected volumes and types of traffic using the roads.
 - (xvi) The Agency should check that Agents comply with their contractual requirements to record maintenance information systematically on the Agency's database, so that maintenance histories may be built up and the performance of maintenance work may be assessed over the longer term across the whole of the network.
 - (xvii) The Agency should enforce the improved quality and performance specifications in the new Agent contracts to ensure that Agents' inspections of roads and roadside assets are thorough and complete.
 - (xviii) The Agency should develop further measures for assessing the effectiveness of its traffic management at roadworks, to capture the full impact of roadworks on road users.