SCOTTISH EXECUTIVE

Maintaining standards

September 2005

A public report on trunk road maintenance in 2004/05

Performance Audit Group

Halcrow in association with PricewaterhouseCoopers and

Figure 1 *The trunk road network in Scotland - 2004/05*

Foreword

The PAG team

Welcome to the Performance Audit Group's (PAG) report on trunk road maintenance in 2004/05.

Maintaining high standards on the trunk road network is vital for the economy of Scotland. The network spans the country, linking rural communities and ferry ports with urban centres, as well as providing cross-border access to the south. It forms a significant part of the transport framework that underpins the economic and social growth of the nation.

The Scottish Executive is committed to managing and maintaining the Scottish trunk road network:

> "...we will manage and maintain it in the most efficient and effective manner possible, investing money now to avoid storing up problems for the future... "
>
> (*Scotland's transport future*, Scottish Executive, 2004)

3,124km of the network are currently managed and maintained, on behalf of the Scottish Executive, by the operating companies (OCs). 91km of M74 are managed and maintained by a concession company under the terms of the M6 DBFO project. In addition, the network includes the 20km M77 DBFO project, opened in April 2005, but this is not within the remit of our report.

The current OC contracts were let by the Scottish Ministers in February 2001. OCs were appointed to manage and maintain each of four geographical Units: North East (NE), North West (NW), South East (SE), and South West (SW) for a period of five years, with the option of extending to seven years. The Units are operated by the companies shown below.

Unit	NE	NW	SE	SW
OC	BEAR	BEAR	Amey	Amey

The SW and NW contracts are currently being re-tendered.

PAG's role is to audit, monitor and report on the financial, technical and performance aspects of the OCs to ensure standards are being maintained. To do this job effectively, we spent over 10,000 person hours auditing and monitoring on the network and in the OCs' offices, and carried out 134 audits. This report summarises our reporting in the year April 2004 to March 2005 and comments on the performance of the OCs.

We hope you find our report informative. We consider it provides a comprehensive assessment of the important work carried out by the OCs on Scotland's trunk roads.

Donald Bell, Project Director,
Performance Audit Group, September 2005

In 2004/05 the scope of work by Amey and BEAR included:

- Over 13,000 site works.
- 631,000m^2 of resurfacing, the equivalent of nearly 105 football pitches.
- 426km of road marking renewal, equivalent to the distance from Edinburgh to Nottingham.
- Over 11,000 emergency call out responses.

Frequently asked questions

What is a trunk road?

A trunk road is a road considered by the Scottish Executive to be strategic to the national economy. All motorways and a significant number of A-roads are designated as trunk roads (see **figure 1**).

Are trunk roads managed and maintained in a different way to other roads?

Yes, trunk roads are the responsibility of and funded by the Scottish Executive. As such they are managed by the Department, maintained by the OCs and monitored by PAG. Local authorities are responsible for managing, maintaining and monitoring non-trunk roads.

What is the Department?

The Scottish Executive Enterprise, Transport and Lifelong Learning Department, and its components including the Transport Group, the Trunk Roads-Network Management Division, and Trunk Roads-Design and Construction Division.

What are the Department's responsibilities?

The Department is responsible to the Scottish Ministers for the management and maintenance of the trunk road network. To assist with this it employs OCs, works contractors and PAG.

What are OCs?

These companies are responsible for the management and maintenance of the trunk road network in each Unit, working under a contract to the Scottish Executive. These companies are:

- BEAR Scotland Ltd for NE and NW.
- Amey Infrastructure Services for SE and SW.

What do the OCs do on the network?

The OCs oversee, co-ordinate and undertake all cyclic, routine, and winter maintenance, and emergency response. In addition, they undertake discrete structural pavement maintenance, bridge strengthening and maintenance, structures inspection, road safety schemes, road marking, traffic sign and safety fence repairs, where schemes are valued at less than £150,000. The OCs are required to work to quality management systems consented to by the Department.

What else do the OCs do?

The OCs also oversee and co-ordinate maintenance works carried out by contractors on discrete contracts generally valued at more than £150,000 and works by utility companies (statutory undertakers). The OC undertakes day-to-day management of the Unit; provides professional and design services; carries out surveys, inspections and supervision; manages its allocated budget and reports to the Department.

What work is not done by the OCs?

Some maintenance and information management services carried out on the network are not the OCs' responsibility. These include: maintenance of M74 from junction 12 to the Scottish border, this is the responsibility of Autolink under the terms of the M6 DBFO project, see **section 5**; maintenance of M77 DBFO project, this is the responsibility of Connect; maintenance of NADICS equipment such as variable message signs, emergency telephones, permanent speed cameras and associated cabling; collection of data and maintenance of traffic counting equipment; and major trunk road improvements built by contractors appointed by the Department. Maintenance responsibility for these improvements is split between the contractor and the OC for a set period, up to five years, prior to full responsibility passing to the OCs. Apart from the M6DBFO, the scope of this report does not include these other maintenance organisations.

What is PAG?

Halcrow, working in association with PricewaterhouseCoopers and Scott Wilson, was re-appointed by the Department as PAG for a second seven year term from December 2002. Halcrow and PricewaterhouseCoopers monitor performance on the four Units. Scott Wilson's role in PAG is primarily for the monitoring of the M6 DBFO project. Further sub-consultants with a minor input include: TRL, Gillespies, Tony Ham Insurance Brokers and the University of Dundee.

What is PAG's role?

PAG audits, monitors and reports on the financial, technical and performance aspects of the OCs to a plan agreed with the Department. PAG also checks payment requests from the OCs and carries out inter-Unit comparisons and value for money investigations at the request of the Department.

PAG acts as the 'Scottish Ministers' Agent' (SMA) for the M6 DBFO project for which Autolink is the concession company.

Glossary of main terms

Budget

The amount of money allocated by the Department for management and maintenance activities to be carried out during a financial year.

Category 1 defects

A term described in the contract for serious road defects that should be repaired within specified timescales. Prompt repair of these defects improves the safety of road users.

Contract control and management system (CCMS)

A computer-based financial management and project control system operated by the OCs. The system gives everyone working on the contract, including the Department and PAG, access to real-time information.

Contract price fluctuation factor (CPF)

An inflation adjustment to the OCs' tendered rates and prices.

Default notice

A procedure under the contract where the Department can issue a notice when an OC commits a default. This is part of the performance management procedures and may lead to omitting amounts from payment.

Financial year

The period between 1 April 2004 and 31 March 2005.

Key performance indicators (KPIs)

The contract specifies a list of indicators to be provided by the OCs to give information on performance and allow inter-Unit comparison. These indicators do not set contractual obligations on OCs' performance.

Network

The system of motorways and trunk roads in Scotland. The network is 3,124 km long and varies from urban motorways to rural single carriageways. In addition, 91 km of motorway are covered by the M6 DBFO project.

Notification of emerging issue (NEI)

A process for flagging up potential occurrences of non-compliance with the OCs' contracts. The aim of the process is early intervention to prevent issues escalating to default notices.

Operations

Work carried out by the OCs.

Orders

The instructions issued from time to time by the Department to the OCs. These specify operations (not works contracts) to be undertaken under the contract by the OCs. Operations should not be carried out by the OCs unless a corresponding order has been issued.

Quality management system (QMS)

Quality management is a fundamental requirement under the contract. All of the activities by the OCs under the contract are covered by their QMS.

Routine maintenance management system (RMMS)

A specified computer-based system, operated by the OC, designed to record and report on details of the network, inspections carried out and routine maintenance activities. It also links to the CCMS, providing access for the Department and PAG.

Sector scheme

Sector scheme certification is given to suppliers and installers of materials by UKAS accredited certification bodies. This certifies that the holder operates a QMS complying with BS EN ISO 9001:2000 and the Sector Scheme document.

SERIS

The Scottish Executive's road information system contains data on the physical characteristics and condition of the trunk road network.

Spend

The value of work done, OC operations and works contracts, excluding contract price fluctuation and amounts omitted from payment.

The Road Ahead (TRA)

A consultation paper on the review of the management and maintenance arrangements on Scotland's trunk roads published by The Scottish Office in April 1999. This consultation led directly to the current second generation of contracts, with four OCs, which commenced on 1 April 2001. These contracts are due to run until March 2006 and can be extended until March 2008, if required by the Department.

Trunk road

The main strategic routes, including motorways (see **figure 1**).

Unit

The network is divided into four separate geographic Units for management and maintenance purposes. These are designated: North East (NE), North West (NW), South East (SE) and South West (SW).

Works contracts

Schemes usually with a value of over £150,000 put out to tender.

Contents

Surfacing works at A90 Laurencekirk in NE

Chapter 1

Overview

1.1 Executive summary

This year has seen continued major investment by the Department in the management and maintenance of the network. Amey and BEAR have risen to the challenge, successfully delivering the Department's record budget for these contracts. This has resulted in a total value of work done in 2004/05 of £161.9m.

Overall, work on the network has been carried out to a good standard, with a strong emphasis on safety. Where the Department and PAG have identified issues, the OCs have addressed these in a professional manner.

Last year PAG raised some concerns about the OCs' application of their management systems. Detailed investigations by PAG this year have shown Amey and BEAR have responded positively, improving the operation of their quality, routine maintenance and contract control management systems (QMS, RMMS and CCMS). This has improved their management control and contract compliance, as these systems have a major impact on how the OCs deliver their services.

BEAR and Amey continued to demonstrate an overall improvement in their services, reflecting the experience their respective teams have built up in managing the network. Evidence of this improvement can be seen in the continued reduction in default notices issued by the Department. 11 were issued in 2004/05, considerably less than the 24 issued in the previous year.

Performance of Amey and BEAR in the repair of category 1 defects continues to leave room for improvement. There has been a marginal improvement in Amey's performance, whilst BEAR's performance in this aspect of the contract has deteriorated. The Department and PAG will continue to seek improvements from the OCs in 2005/06.

Winter this year saw a marginal increase in precautionary salt spread across the network, with more severe conditions in the north than the south. The number of road closures reduced from 11 last year to four, comparable to the early years of the contracts. Three of the closures were in NW and one in NE. Amey and BEAR continued to broadly deliver their winter maintenance obligations.

BEAR responded well to the major landslips in NW, reacting promptly and professionally to these serious emergencies.

On the M6DBFO project, Autolink continued to deliver to a high standard, with a strong commitment to service delivery.

1.2 Background

The Scottish trunk road network

The network is divided into four geographical Units (see **figure 1**), each with its own contract. Each of the four Units, NE, NW, SE and SW, is managed and maintained by an OC. **Figure 2** outlines the structure of these arrangements.

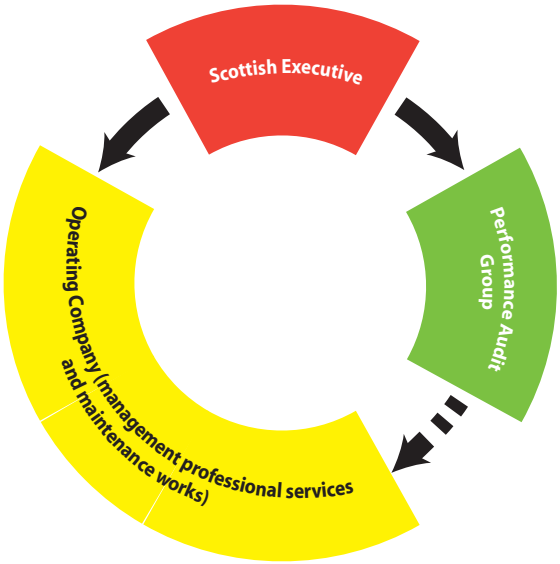


Figure 2 *Structure of arrangements with OCs*

The extent of the network

The length of the network in each Unit is shown below in **figure 3**.

Unit	Length of network (km)
	Total route
NE	640
NW	1,369
SE	472
SW	643
Total	3,124

Figure 3 *Details of network length for each Unit*

The network includes a total of 5,711 structures including 2,045 bridges and footbridges.

The contracts

The current 'The Road Ahead' (TRA) contracts for the management and maintenance of the network were awarded by the Scottish Executive. Work commenced on 1 April 2001.

The contracts are framed around the following three objectives:

Customer service – to enable a 'customer oriented' approach to be further developed in the way roads are managed and maintained.

Value for money – to achieve the maximum efficiency in the use of the substantial sums of money expended on the maintenance of the network.

Effective management – to encourage innovation and skilful management to maximise trunk road capacity and achieve the best use of the network.

In addition, the contracts aim to encourage:

Flexibility – to accommodate changes to the trunk road network.

Contracts for the NE and NW Units were awarded to BEAR Scotland Ltd, a consortium of Babtie Group Ltd, Ennstone Thistle Ltd and Ringway Group Ltd.

Contracts for the SE and SW Units were awarded to Amey Infrastructure Services. Amey is the sole party to these contracts.

Chapter 2

Customer service

The OC contracts seek as a key objective *"to enable a 'customer-oriented' approach to be further developed in the way roads are managed and maintained."*

Key points

Reliability and reducing delays
The Scottish trunk road network is vital to the economy. It links major centres of population and industry as well as providing access to ferry ports.

- The OCs continue to manage their work well to minimise disruption, with 99.67% of the network available for use throughout 2004/05.
- All OCs undertook measures to reduce the amount of time they occupied the road with road closures.

Managing traffic for safety
Traffic management at roadworks is designed to provide a safe environment for operatives and road users.

- There was an improvement in traffic management compliance by BEAR.
- Amey continued to provide good traffic management, particularly on the larger more complicated schemes in the central belt.
- Improvement is still required in the notification of lane closures to NADICS controllers.

Repair of the most serious road defects (category 1 defects)

Prompt repair of these defects is important in maintaining safety for the road user. It also reduces the Department's exposure to third party claims.

- The OCs have taken action to improve the accuracy of the data in their RMMS.
- There has been marginal improvement in Amey's prompt repair of category 1 defects.
- BEAR's performance in repairing category 1 defects has deteriorated.
- The Department and PAG will continue to seek improvement in repair performance from all OCs in 2005/06.

Customer contact
An effective customer contact service (CCS) allows road users to report trunk road defects or issues of concern.

- The total number of calls across all Units has increased by 54% from 2003/04.
- The use of CCS has increased annually, indicating its usefulness as a communication tool for the OCs and road users seeking to report and receive answers on issues relating to the network.

2.1 Reliability and reducing delays

A total of £161.9m was invested in maintaining Scotland's trunk roads through the OCs, on a variety of works, from routine activities such as grass cutting and pothole repairs, to more long-term carriageway reconstruction and resurfacing.

During 2004/05, some 13,000 individual work sites were managed and carried out by the OCs across the network, an equivalent of 35 sites per day.

To carry out this work safely, protecting the workforce and the road user, lane closures are often, but not always, required. The OCs must keep these lane closures to a minimum, by combining different work activities within one closure where possible and planning works to minimise disruption.

This year all OCs undertook measures to reduce the amount of time they occupied the road with lane closures. These included:

- BEAR programming a substantial amount of work to be carried out in the winter months, avoiding the busy summer tourist season.
- The OCs in the central belt, particularly SE and SW, programming works to be carried out at weekends and at night to avoid peak weekday periods.
- Lane rental contracts being used wherever possible to ensure early completion of works.

There were some limited road closures during the year due to winter conditions and landslides/flooding. These are covered in **sections 4.2.7** and **4.2.10**.

KPI 8, shown in **figure 4**, measures lane occupation in each of the Units over the year.

Unit	KPI 08 - road occupation (lane. km.hours over year)	% of network unavailable
NE	75,377	0.43
NW	24,582	0.10
SE	58,786	0.45
SW	79,105	0.47
Total	**237,850**	**0.33**

Figure 4 *KPI 08 – Road occupations*

Figure 4 shows the OCs continue to manage their work well to minimise disruption, with 99.67% of the network available for use throughout 2004/05. This shows a slight increase in road occupations from last year's 99.75%, reflecting the increased investment in the network and the amount of maintenance work completed.

2.2 Managing traffic for safety

2.2.1 Standards of operations

Traffic management allows the workforce to carry out maintenance and construction activities safely on the network. It is designed to protect the workforce and road users. Hence it is a highly important and essential element of the service provided by the OCs. **Figure 5** shows a typical traffic management arrangement.

In carrying out their operations, the OCs are required to ensure traffic management installations meet national standards. This includes signing, coning and traffic control.

Figure 5 *Convoy working during resurfacing on A77 Minishant to Hoggs Corner in SW*

It is encouraging to report that the OCs continue to provide a high standard of traffic management. Of the 1,300 sites visited by PAG, 92% complied with the required standards. 6% of sites visited had minor problems with traffic management, with only 2% having serious problems. This is approximately the same as last year, but still an improvement on the first years of the contracts. Not all traffic management is under the direct control of the OCs. Many sites are managed by works contractors and utilities.

Operations
In relation to the OCs' operations:

- There was an improvement in traffic management compliance in NE and NW. This was largely due to BEAR setting up a specialist division (Alba Ltd) within its organisation to deal solely with traffic management. However, there remain some site specific problems in NE, which the Department and PAG are monitoring.
- Amey continued to provide good traffic management, particularly on the larger more complicated schemes in the central belt.
- Some minor problems were identified in all NE and NW, particularly regarding the provision of motorway maintenance signs and flashing amber beacons on all OC site vehicles.
- The traffic management by third parties, particularly utility companies, was sometimes found to be poor. Despite not having direct control over these organisations, the OCs have taken action with them to improve standards, however further improvement is required by utilities.
- The ongoing use of 'convoy vehicles' throughout the network has provided additional safety to the workforce, and has minimised the number of road closures required to carry out maintenance activities in NW.
- The use of variable message signs operated by NADICS across the network continued to provide useful information to road users.

Despite Amey's high standards of traffic management, a site fatality occurred during the year on an M8 site in SW. Unfortunately an operative was killed when a drunk driver's car entered the working area. Clearly, there is a need for continuous vigilance to protect all parties.

2.2.2 Planning and programming

Proper planning and programming of work on the network is essential. This ensures delays to road users are minimised and road users are provided with accurate information on potential delays.

The contracts restrict the OCs to work at certain times of the day on the busier trunk road routes. The OCs are also required to report all lane closures to the NADICS operator. In 2004/05:

- Liaison and consultation by the OCs with local authorities, police, other emergency services, transport groups, other interested parties and the media was good in all Units.
- Operations were planned to cause minimal disruption to the road user.
- Weekly programmes and use of the NADICS roadworks diary could still be improved by all OCs, particularly in NE. Some information provided by the OCs was out of date and improvement is being sought under the notification of emerging issue (NEI) process.

2.2.3 Works contracts

Works by third party contractors tend to be larger schemes with dedicated traffic management crews providing a high standard of service. PAG's key observations were:

- The introduction of innovative mobile 'smart signs' in the NW and NE to warn drivers approaching roadworks at high speed has been successful and greater use should be encouraged.
- The introduction of contraflows with buffer zones in SW has improved access for emergency service vehicles (see **figure 6**).

Figure 6 *Contraflow with buffer zone on M73 in SW*

- As with the OCs' operations, continued use of convoy working systems has been beneficial.
- There was good programming to minimise delays, ensuring compliance with the Department's publication, *Code of practice for reduction of delays at roadworks.*
- Again, as with OCs' operations, improvement is still required in the notification of lane closures to the NADICS controller in all Units. The OCs have agreed to take this forward and this will be monitored by PAG.

2.3 Repair of the most serious road defects (category 1 defects)

Category 1 defects

Category 1 defects, the most serious defects, can include potholes, safety fence damage, parapet damage, sign damage and flooding. Defects are classified as category 1 when there is a concern for safety. The contracts have varying timescales for the repair of different types of category 1 defect ranging from to 24 hours to 28 days depending on the road type.

Where a repair requires a 24 or 48 hour response and this is not practicable, the OCs may carry out a temporary repair and defer the permanent repair to be carried out within 28 days of identification.

A category 1 defect - pothole on A92 Halbeath Interchange

To ensure the safety of the road user, the OCs are required to carry out safety inspections at regular intervals to identify category 1 defects. These defects require prompt repair to ensure the safety of the road user. Evidence of all inspections, defects and actions carried out must be recorded in the RMMS within 4 days. The inspection regime, prompt repair of identified defects and recording of action improves the safety of the network for road users and reduces the Department's exposure to third party claims.

The performance of the OCs is measured using data from the RMMS (KPI 01 - permanent repair of category 1 defects within 28 days see **figure 7**). Following previous years' concerns regarding the accuracy of RMMS data, the OCs have taken action to improve accuracy.

	NE	NW	SE	SW
2004/05	81%	71%	76%	88%
2003/04	89%	86%	72%	86%

Figure 7 *KPI 01 Permanent repair of category 1 defects*

The category 1 defect KPI data indicates:

Amey

- Repair performance is broadly similar to 2003/04, with only marginal improvement.
- In SW, repair performance is significantly better than in the other Units.
- Repair performance in SE started poorly, but improved towards the end of the year giving the average figure above. Therefore it is important that the late year performance is sustained.

BEAR

- Repair performance in NE has dropped from 2003/04, but performance has dropped significantly in NW.
- In NE, repair performance leaves room for improvement.
- In NW, there is much room for improvement in repair performance.

Section 4.3.4 shows long-term trends for this KPI.

During 2004/05, discussions have taken place between the Department, PAG and the OCs to implement an improved permanent repair standard for carriageway potholes as all OCs were not achieving the standard expected.

However, it is disappointing that the repair performance of all OCs has not improved significantly since 2003/04 and still requires attention, particularly in NW, where performance has worsened significantly this year. The Department and PAG will seek action from OCs in 2005/06 to resolve this issue.

2.4 Customer contact

Introduction

The contract requires the OCs to operate a CCS. All calls are logged in registers which can be audited. The OCs must also produce a monthly summary of the number of calls.

The CCS operates via an all Scotland trunk road fault reporting service telephone number. **Figure 9** shows the freephone number (0800 028 1414), which is displayed on signs throughout the network, advising road users of the number to call if they wish to report a trunk road defect.

Calls made to this number are diverted to the appropriate Unit via a menu selection service. Customers select one of the first four options on the menu when they are aware which Unit they are in. Option 5 is selected where the customer is unaware of the Unit and the call defaults to SW which operates 24 hours a day, 7 days a week. The other Units operate a manned service during office hours and an answering machine at other times.

CCS analysis

The number of calls received by each OC's CCS during 2004/05 are shown below in **figure 8**.

Unit	Calls received 2004/05	Calls received 2003/04	Calls received 2002/03
NE	1,293	1,637	1,603
NW	1,446	1,568	1,894
SE	1,136	1,489	1,332
SW	18,178	9,593	8,226
Total	**22,053**	**14,287**	**13,055**

Figure 8 *Number of calls received by the CCS*

The total number of calls across all Units has increased by 54% from 2003/04. This significant increase is due to SW, which has experienced an 89% increase. Other Units have experienced a general decrease since 2002/03. The higher number of calls to SW was due to:

- A doubling in the number of redirected calls including to other Units.
- A general increase in the number of calls across almost all defect categories.
- Amey employees working on the asset inventory collection excercise during 2004/05 reporting dangerous defects.
- A significant increase in the number of calls relating to flooding.
- Radio Scotland, Radio Clyde and Westsound Radio reporting incidents notified to them by callers. This is a two-way sharing of information with Amey providing information to the radio stations.
- Major landslips on A9 and A85 in NW during August/September.
- Closure of the non-trunk Forth Road bridge for works during the summer.
- Closure of the A898 Erskine Bridge in SW due to severe weather in January 2005.

The use of CCS has increased annually. This indicates its usefulness as a communication tool for the OCs and road users seeking to report and receive answers on issues relating to the network.

Figure 9 CCS sign on A95 in NE

M90 Craigend in NE

Chapter 3

Value for money

The OC contracts seek *"to achieve the maximum efficiency in the use of the substantial sums of money expended on the maintenance of the network"*

Key points

Cyclic maintenance
These are repetitive activities carried out as necessary to ensure the safe operation and amenity of the network, rather than at set intervals.

- Overall the OCs' performance in cyclic maintenance was generally to a reasonable standard, indicating value for money (VFM) was generally achieved.
- Litter control was good, with a noticeable improvement in SE.

Winter maintenance
Measuring response times, treatment times and salt spread rates on the network provides an insight into the OCs' winter maintenance performance and therefore weather-related road safety during the winter period.

- On the network as a whole, there was a 5% increase in the tonnage of precautionary salt used in 2004/05 by comparison with the previous year.
- By comparison with 2003/04, NE and NW spread significantly more precautionary salt, while SE, SW and M6DBFO spread significantly less, reflecting weather conditions across the network.
- The highest precautionary salting rates were on some routes in NE and NW.
- KPI results indicated that all OCs are close to achieving their contract targets. While there has been improvement in some areas there has been slippage in others.

Works contracts
The Department invested £56m in works contracts in 2004/05. It is therefore important to ensure that this delivery of major investment is achieving VFM.

- The number of tenderers was similar to previous years and continues to be a good basis for competition.
- The average percentage difference between lowest and highest tenderer has reduced across the Units by 7% per year. This indicates tendering has become increasingly competitive.
- VFM was achieved in delivery of works contracts.

OC quality systems
The OCs' QMSs are crucial to the smooth running of the contracts. Value for money is therefore achieved by ensuring the quality of the service provided is in accordance with the specified requirements.

- The number of findings raised by PAG and the time taken by the OCs to close these out has reduced each year.
- The OCs have improved the performance of their QMSs as the contracts have progressed.
- KPIs have improved and default notices have reduced.
- QMSs are delivering VFM.

3.1 Cyclic maintenance

3.1.1 Background

Cyclic maintenance was carried out throughout the year to ensure the safe working condition of the network and to maintain visual standards. It is undertaken, in line with contract requirements, as either:

- A measured requirement (e.g. a height limit) – litter picking and some grass cutting activities are examples.

or

- A planned programme of works as detailed in the contract – for example gully emptying and sign cleaning.

The OCs are paid for cyclic maintenance activities through monthly lump sum payments. The total spend in 2004/05 for this was 2% of overall spend on the network.

At the start of the contract, PAG identified between five and twelve control sites in each Unit to monitor the OCs' cyclic maintenance performance from April to October each year. PAG has continued to monitor these sites to examine the OCs' performance.

PAG's analysis of VFM for cyclic maintenance looked at the OCs' performance against the contract in the following activities:

- Grass cutting.
- Weed control.
- Road drainage.
- Road sign condition.
- Litter picking.

3.1.2. Findings

Grass cutting

The contract requirements for grass cutting are:

- Verge swathe and visibility areas shall be cut such that vegetation does not exceed 300mm.
- Amenity grassed areas shall, after the first cut of the season, be maintained to a height between 50 and 70mm.
- Full width verge shall have an annual cut between September and early October.
- Central reserves shall be cut twice during the season, in June and early September.

PAG's assessment of compliance with contract requirements was through visual inspections of grass height and, where practical, physical measurements of height. To produce the data for **figure 10**, an assessment was made at the control sites of the overall average grass height and the percentage that was within specification.

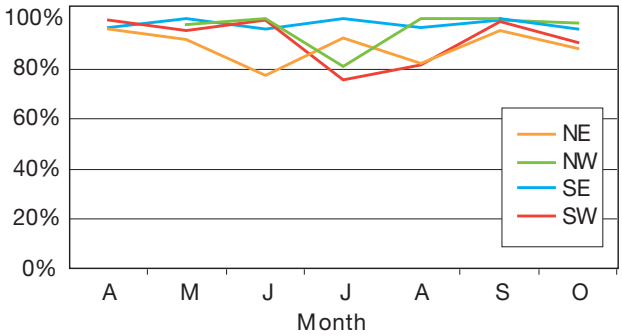


Figure 10 *Overall percentage of grass within specification*

Figure 10 shows SE was generally very good throughout the year and its performance was comparable with last year. Performance in SW, NE and NW dipped in the middle months of the monitoring period, but recovered to a better standard by the end of the period. Overall performance across the network was marginally better than last year.

Weed control

The contract requires the OCs to treat specified areas to stop weeds becoming a nuisance, and to prevent the infestation of injurious weeds.

PAG monitors the effectiveness of weed control by visual inspections of filter drains, verge and central reserves on a monthly basis. The results are shown in **figure 11**.

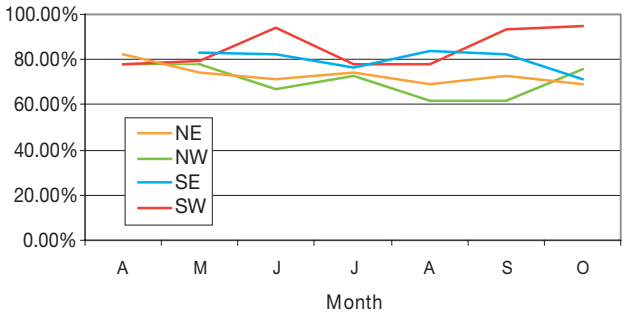


Figure 11 *Average percentage of weed-free areas*

The data collated during the monitoring period has been used to calculate an average compliance over the period for each OC. This information has been presented in **figure 12.**

Unit	Average compliance for 2004/05	2003/04
NE	73%	73%
NW	80%	86%
SE	71%	73%
SW	85%	75%
Average	82%	75%

Figure 12 *Average percentage compliance throughout the monitoring period*

Figures 11 and 12 reflect PAG's general observations of a continuing weed problem across much of the network, although there has been a noticeable improvement in SW when compared with last year's data. Injurious weeds including Ragwort were less evident across the network throughout the summer of 2004. In general, performance is similar to last year and there is still room for improvement.

Maintenance of filter drains was poorest in SE and NE, and SE also performed poorly in controlling weeds on the verges of the control sites.

Road drainage

The contract requires gullies and grips to be cleaned as necessary and gullies to be emptied at least once a year to ensure water can flow off the carriageway.

Throughout the monitoring period, PAG inspected the gullies, grips and channels at each control site to examine the OCs' performance. The results are shown in **figure 13**. As last year, the OCs have performed very well in maintaining gullies and grips but there is room for improvement in ensuring the channels are free from silt.

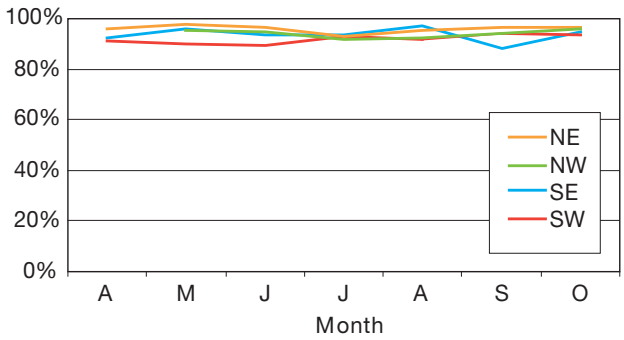


Figure 13 *Percentage of gullies, channels and grips clear*

Road sign condition

The contract requires the OCs to keep road signs in good condition, to carry out detailed inspection/ maintenance and to clean the signs every two years.

PAG carried out visual inspections of the signs located in the control sites and the results are shown in **figure 14**.

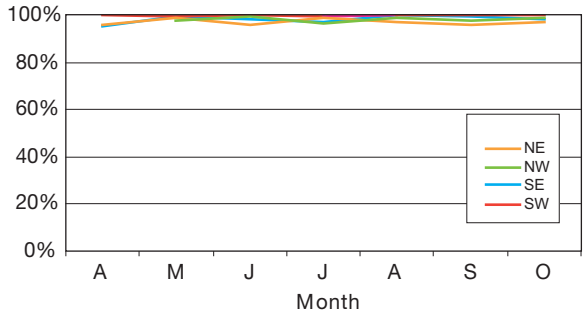


Figure 14 *Percentage of signs in good condition*

As in previous years, all the OCs performed very well in maintaining signs in a good condition during the monitoring period.

Litter picking

The OCs are only directly responsible for removing litter from motorways and special roads (certain dual carriageways). There are no motorways or special roads in NW. On all other roads on the network, the Local Cleansing Authority (LCA) is responsible for removing litter. Nevertheless, the OCs are still responsible for advising the LCAs of any litter problems requiring attention.

To monitor the level of litter on the network, PAG uses the *Environmental protection act* (EPA) classification system which grades litter levels into four categories A, B, C and D. EPA grade A represents the highest level of amenity, with minimal litter evident. EPA grade D is the lowest level of amenity, when there are large quantities of litter present.

The EPA specifies gradings for different types of area and a time limit within which the area should be returned to the appropriate grading if litter has accumulated. The EPA only requires action on roads if litter is at grades C or D.

Figures 15 and 16 show the overall performance in each Unit.

The OCs and LCAs performed very well, keeping almost all of their monitoring sites to EPA grade A throughout the year, with standards only occasionally dropping to EPA grade B. There was a noticeable improvement in SE, where in the previous year there had been a small percentage of sites at EPA grade C. Overall, standards were broadly comparable with last year.

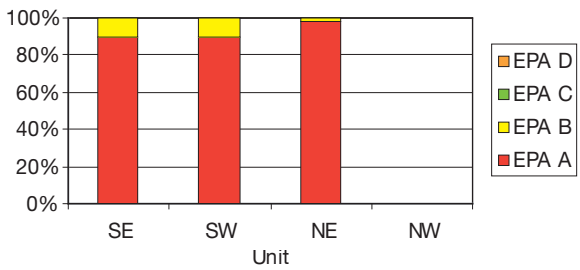


Figure 15 *Overall litter control performance by OCs on motorways and special roads (no motorways or special roads in NW)*

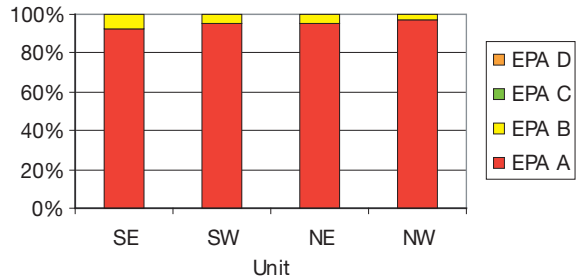


Figure 16 *Overall litter control performance by LCA on other roads*

As could be anticipated, litter tended to be more of a problem in the more densely populated and heavily used southern Units than the more rural north. There were some litter blackspots on the network, particularly on urban motorways, that were not in the monitoring sites. PAG brought these to the OCs' attention and monitored their performance.

Amey continued to demonstrate its commitment to litter control through its membership of the 'people and places programme' of Keep Scotland Beautiful.

3.1.3 Summary of findings

From a review of the data collated at the control sites throughout the monitoring period, PAG considers:

- Overall, the performance of the OCs generally was to a reasonable standard, indicating VFM was achieved.
- Grass cutting was generally good in all Units and a marginal improvement on last year, despite a dip in performance in SW, NW and NE in the middle of the period.
- Weed control was disappointing in SE, NE and NW where standards were similar to last year, but improvements were observed in SW.
- Maintenance of gullies and grips, as well as road signs, was very good.
- The OCs continued to perform well in managing litter levels at the control sites.

3.2 Winter maintenance

3.2.1 Background

Winter maintenance is an important part of the OCs' contract responsibilities. Their performance has a direct influence on the safety of road users and is an area of considerable public, media and political interest.

The OCs' prime activities are precautionary and reactive salting, as well as snow ploughing. Precautionary salting is applied to the road surface in advance of forecast low temperatures. Reactive salting covers salting in conjunction with snow ploughing and treatments to footpaths and cycleways when snow is laying or ice has formed. In addition, they are required to make decisions on necessary treatments to comply with the contract. The OCs are also required to gather information and maintain records of their winter maintenance activities.

Figure 17 *A96 North of Huntly in NE*

Winter maintenance is undertaken on a lump sum payment basis. As this comprises around 3% of the overall spend on the network, it is important to ensure VFM is achieved. To do this, PAG has investigated the following over the 2004/05 winter:

- Precautionary salt usage.
- Precautionary salt application rate per route.
- Salt usage on night time patrols.
- Winter maintenance KPIs.

3.2.2 Findings

Precautionary salt usage

PAG reviewed the OCs' gritting action records to identify how much precautionary salt was applied to the network. As could be expected, precautionary salting rates varied between the contract requirement limits of 10g/m^2 and 40g/m^2 depending on the weather. A 20g/m^2 spread rate was the most common coverage applied by all four OCs and Autolink on the M6 DBFO.

Figure 18 *Winter conditions on A985 near Limekilns Junction in NE*

Figure 19 *A gritter being loaded with salt at BEAR's Keith depot*

To allow wider analysis a comparison was made between the precautionary salt spread over the winters of 2003/04 and 2004/05 (see **figure 20** below).

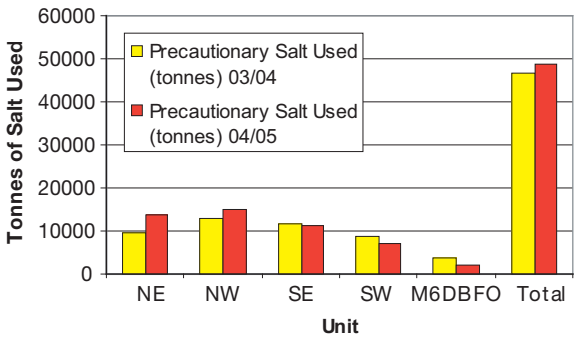


Figure 20 *Precautionary salt usage in 2003/04 and 2004/05 winter seasons*

Figure 20 shows:

- There was a 5% increase in the total precautionary salt spread on the network in 2004/05 winter season, compared with 2003/04.
- Compared with 2003/04, NE and NW spread significantly more precautionary salt (45% and 15% respectively) in 2004/05.
- By comparison, SE, SW and M6DBFO spread less precautionary salt (4%, 21% and 43% respectively) than in the previous winter.
- The amount of precautionary salt spread reflects the geographical north-south divide of the Scottish trunk road network.
- The overall tonnage used in each Unit, broadly corresponds with its extent. NW, the longest Unit, used the most precautionary salt, while M6 DBFO, the shortest, used the least.

Precautionary salt application rate per route

Precautionary salting is unlikely to be identical across all routes in a Unit. PAG's detailed analysis of the OCs' records enabled the average precautionary salt spread rates to be calculated for individual routes on the network. These results are shown in **Figure 21**.

Figure 21 shows:

- The highest precautionary spread rate of 1801-2100g/m^2 occurred on some routes in NE and NW.
- All routes in NE were treated on average with more than 1500g/m^2.
- Routes in NW varied more, with treatment levels in all four bands, possibly reflecting the varying topography of the Unit.
- All routes in SW fell into the lower two salting bands. This may reflect the wetter and milder climate of this part of the country. Higher precautionary spread rates were noted on some of the more inland sections.
- Treatments in SE varied between the middle two salting bands. The higher precautionary spread rates tended to be on the rural, hilly parts of the Unit.
- M6 DBFO received a similar average precautionary spread rate to adjacent trunk roads in SW.
- Average precautionary salt spread across the four OCs and M6 DBFO reflect the north/south weather divide as shown in **figure 22** below. This table also highlights the high average precautionary salt spread implemented across the NE in the past winter.

Unit	Average salt spread over season (g/m^2) 04/05
NE	1,885
NW	1,580
SE	1,493
SW	883
M6DBFO	741

Figure 22 *Average precautionary salt spread over the 2004/05 winter*

Salt usage on night time patrols

Night time patrols are carried out by the OCs on contract-specified routes when the temperature drops below 4°C between 10pm and 6am. The patrol season under the contract is from 1 November to 31 March.

Historically, the patrol routes have been considered to require extra scrutiny, in addition to the standard precautionary salting regime. The patrol's aim is to identify areas where ice is forming, or has already formed and take appropriate action to alleviate the problem. In comparison to precautionary salting, where the whole route is salted, patrols only apply salt where the driver or the control centre deem it necessary.

In NE and NW, BEAR primarily used 4x4 vehicles, with gritters on standby at the depots. One route in NW used a loaded gritter. In SE and SW, Amey's patrols were conducted in loaded gritters. Both these approaches comply with the contract.

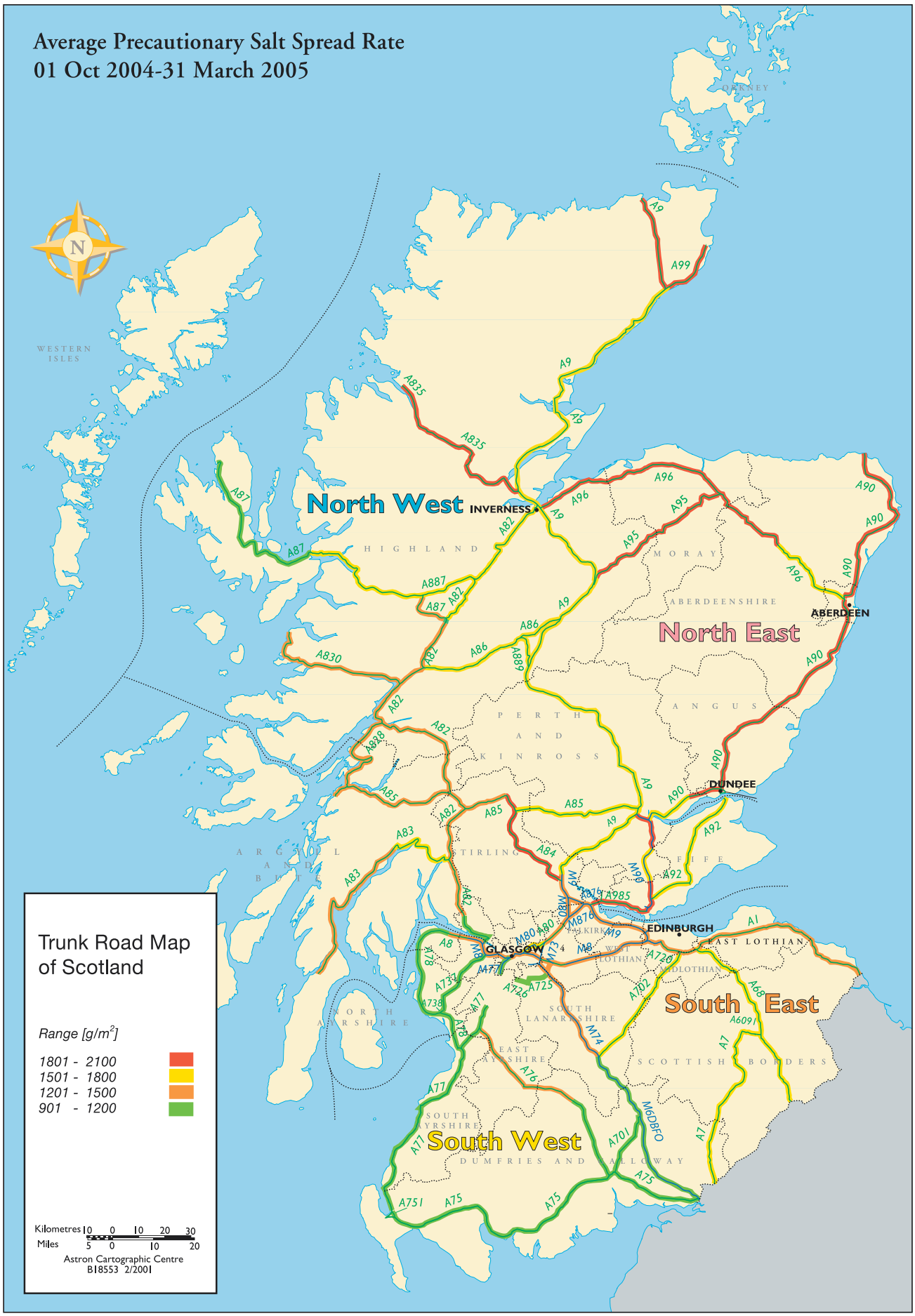


Figure 21 *Average precautionary salt spread rate across the network in 2004/05*

Figure 23 *Gritter carrying out spot treatment on A68 near Fordel in SE*

The OCs assisted PAG by supplying information on the tonnage of salt used on spot treatment during night-time patrols. This information is not required under the contract and had not been collected before. **Figure 24** shows details of salt used during patrols:

Unit	Salt used during patrols (tonnes) 2004/05
NE	0
NW	129
SE	94
SW	139

Figure 24 *Salt used during night time patrols*

As can be seen from **figure 24**:

- Salt usage by NW, SE and SW was broadly comparable in scale.
- In comparison to precautionary salting, the tonnages used during night time patrols were very small. This is because:

  – Salt is only spread where the control centre or the driver deem it necessary.

  – Scheduled precautionary salting runs are often programmed to occur during the early evening, therefore there is often adequate salt coverage along the particular route when patrolling starts.
- Records indicate NE did not encounter any adverse conditions as a result of patrols, consequently it did not instruct any subsequent spot treatments.

Winter maintenance key performance indicators (KPIs)

To measure the winter maintenance performance, two KPIs are published in each OC's monthly report. These are:

- **KPI 05 – Winter maintenance response times**
  This measures OC performance in commencing salt spreading on a specific route. Spreading must start within one hour of the decision to treat.
- **KPI 06 – Winter maintenance treatment times**
  This measures OC performance in relation to completion of salt treatment on a specific route. The treatment must be completed within two hours of starting.

Both KPIs relate directly to contract requirements.

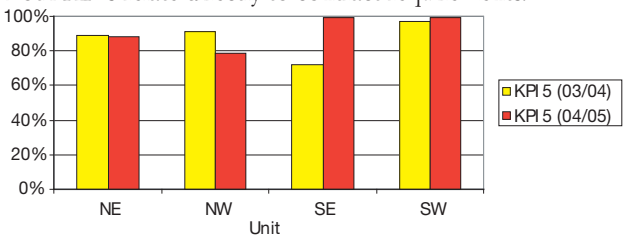


Figure 25 *Comparison of KPI 05 – winter maintenance response times – performance in 2003/04 and 2004/05*

Figure 25 shows:

- Performance in NE (88%) and NW (79%) has declined from last year. The Department and PAG will monitor BEAR's performance to seek improvement.
- Amey's performance in SE and SW was excellent, with a KPI of 99% in both Units.
- SE also recorded the most noticeable improvement in performance, with a rise of 27% from 2003/04.

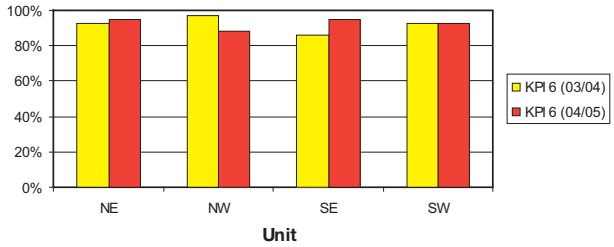


Figure 26 *Comparison of KPI 06 – winter maintenance treatment times – performance in 2003/04 and 2004/05*

Figure 26 shows:

- SE (95%) showed strong performance and improved on last year.
- In NE (94%) and NW (87%) performance has dipped from last year. The Department and PAG will monitor BEAR's performance to seek improvement.
- SW (93%) maintained its performance from last year.

3.2.3 Summary of findings

- There was a greater amount of precautionary salt used in the 2004/05 winter season than in 2003/04 winter season.
- Both NE and NW recorded an increase in precautionary salt usage from 2003/04, while SE, SW and M6 DBFO recorded less salt usage. The average salt spread rate was highest in NE and lowest on M6 DBFO.
- Night time patrols in SW carried out the greatest number of spot gritting actions, while no spot gritting was considered necessary in NE.
- KPI results indicated all the OCs are close to achieving their contractual key performance targets. While there are improvements in some results, there has been slippage in others.
- Overall the above data suggests VFM is being achieved.

3.3 Works contracts

3.3.1 Background

PAG's detailed study examined works contracts which were awarded in the 2004/05 financial year, but were not necessarily completed before 31 March 2005. In total, there were 55 works contracts awarded with a total tender value of £56m. Of the 55 works contracts analysed, 26 were completed prior to the end of the financial year. This reflects the higher number of works contracts awarded towards the end of 2004/05. This is in line with additional budget allocation.

Figure 27 shows the breakdown of the works contracts in the study:

Type of contract	No.
Pavement structural repairs	34
Minor improvements	17
Bridges	3
Investigations	1

Figure 27 *Types of works contracts*

The purpose of this study was to:

- Examine the tender process.
- Identify trends in tenders.
- Examine tender value and outturn costs.

3.3.2 Summary of findings

Tender process

- The average number of tenderers varied between 4.8 and 5.4 across the four Units. This is similar to previous years and continues to provide a good basis for competition.

Trends in tenders

- Tendering across all Units continues to be close, with the difference between the lowest and third lowest tenders being in the range of 11% to 16%.

Works contracts

Works contracts are schemes generally valued above £150,000. These are put out to tender by the OCs on behalf of the Department.

The OCs act as engineer, designing and project managing the work as well as supervising construction. The contracts are between the successful tenderers and the Scottish Ministers.

A works contract scheme in SE on A1 Craighall to Wallyford

- The average percentage difference between lowest and highest tenderer has been reducing as a whole (across the four Units) by 7% per year. Again, this indicates tendering has become increasingly competitive.
- The highest average award value was in SW at £1,512k. The lowest was in NW at £565k.
- SE had the highest and lowest award values, £3.56m and £88k, respectively.
- As in previous years, pre-tender estimates varied in accuracy, but the average value was conservative when compared with the tender values.

Tender value and outturn costs

- The average increase between tender award and scheme outturn values ranged from 7% in SW to 17% in NE.

Generally the study showed VFM was achieved.

3.4 OC quality systems

3.4.1 Background

The contracts require the OCs to operate a QMS to demonstrate and ensure everything they are responsible for is executed in accordance with the contract. The QMS must comply with the requirements of BS EN ISO 9001, but registration by a third party accreditation body is not a specified requirement. An environmental management system (EMS) complying with the requirements of BS EN ISO 14001 is also required.

Taken together, the OCs' QMSs are used to manage the activities of almost 900 staff working across the network. The OCs are paid a lump sum for the provision of the QMS and a monthly payment to maintain and operate it. Value for money is therefore achieved by ensuring the quality of the service provided is in accordance with the specified requirements.

The study looked at data from the start of the OC contracts to 2004/05. This enabled PAG to identify long-term trends in the OCs' operation of their QMSs.

In the early stages of the contract, money was withheld from the OCs until the QMSs were fully established. The monthly payments were also reduced when the OCs' QMSs were deemed not to meet the contract requirements.

During the mobilisation period for the contracts the OCs prepared documentation for their QMSs. These were reviewed by PAG and, following consent by the Department, the QMSs were implemented.

Early in the contracts, as they settled into their roles, all OCs found their documented systems required significant changes to correspond with the way their processes developed. This was to be expected as part of the continuous improvement culture.

BEAR has continued to transform and improve its QMS by adding staff resources, introducing a computerised system and creating an effective integrated management system (IMS). BEAR is now seeking third party accreditation for its system in 2005/06.

Amey has continued to revise and improve its QMS. Amey has also strengthened its quality management team and developed an effective IMS.

A well performing QMS should ensure all of the OCs' processes are continuously improving. From the beginning of the contracts, PAG has audited the OCs against the contract and their QMSs in accordance with a strategy agreed with the Department. The strategy is reviewed annually, considering the OCs' performance, and revised as appropriate.

3.4.2 Findings

PAG audit findings

The most significant quantifiable performance measure available to PAG is the findings arising from auditing the OCs. A finding is raised when an OC is not complying with the contract requirements or its QMS.

A simple count of the findings is basic, but effective. This can be influenced by many factors, such as the number and type of audits conducted and the consistency of approach taken by the auditors. PAG is aware of these and has taken steps to minimise their influence.

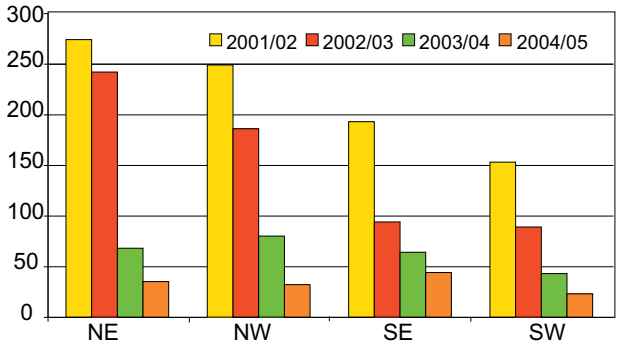


Figure 28 *Number of PAG audit findings*

Figure 28 shows the number of findings per year for each OC. This demonstrates the progressive improvement of the OCs and the significant improvements made by BEAR in 2003/04. It also mirrors PAG's view of the OCs' overall improvement in performance.

A closer examination of the findings, particularly the time taken to close out findings, is also illustrative.

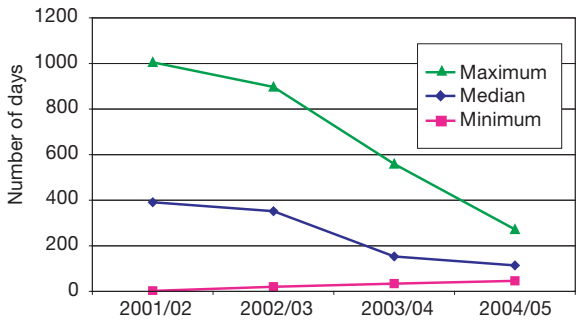


Figure 29 *Time taken to close out findings*

A summary of time taken to close out findings is shown in **figure 29**. The plot shows the maximum, minimum and median values of the times taken to close out findings in each year. The plot for individual OCs exhibits broadly similar characteristics and therefore only the aggregated values for all OCs is shown in this figure. This shows:

- The maximum time a finding is open has progressively reduced.
- Overall the time taken has reduced significantly.

The greater influence of the strengthened quality management teams has been positive, ensuring the OCs address issues arising from PAG audits.

OC internal audit findings

In addition to findings identified by PAG, all OCs register other issues including actions to:

- Correct a nonconformance.
- Prevent a nonconformance occurring.
- Improve the effectiveness of a process.

These issues are identified from many different sources including:

- Internal audits.
- Contract quality manager (CQM) audits.
- Third party external audits.
- Monitoring activities.
- Site visits.

An analysis of the 1,600 issues raised by the OCs shows they have been extremely active in improving their systems. BEAR initially identified many issues of varying severity to be addressed and later became more selective, recording and addressing only those which were significant. Amey, on the other hand, initially recorded few issues, but later recorded and addressed a much wider range of issues. Both these approaches indicate an active QMS.

All the OCs now generally address the issues raised within an appropriate timescale.

KPIs

Another measure of the performance of the QMSs are the KPIs in the contract. They include indicators for the performance of the OCs' QMSs and are shown in **figures 30 and 31**.

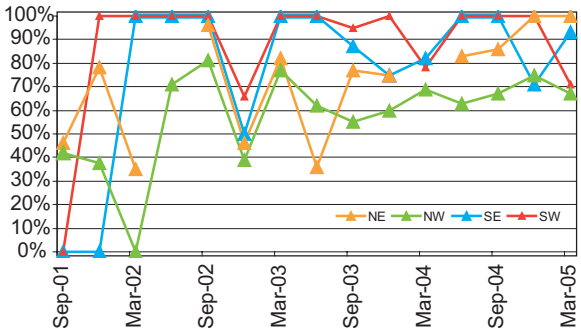


Figure 30 *KPI 12 – Close out of findings from internal audits on time*

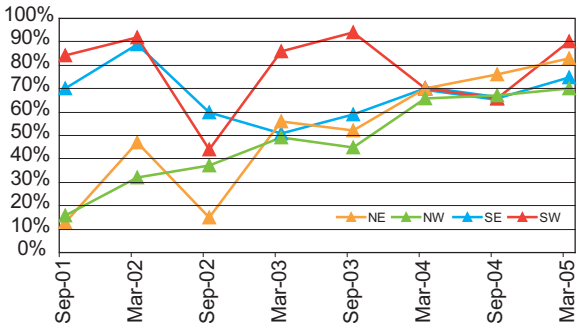


Figure 31 *KPI 13 – Close out of findings from PAG audits on time*

The KPIs show a generally improving trend, following an initial period of inconsistent results early in the contracts. There is, however, still room for improvement in many areas.

Default notices

Default notices are reserved for the most serious issues. They are a highly visible performance measure which is directly controlled by the Department.

The issues which are the subject of default notices are rarely directly attributable to the QMSs. Most default notices are only raised after the OCs' QMSs have failed to remedy an issue. An effective QMS should therefore reduce the number of default notices issued.

For all OCs there has been a general reduction in the number of default notices issued each year. Full details are given in **section 4.3.3**.

3.4.3 Summary of findings

The performance of the QMSs impacts on the ability of the OCs to deliver the contract requirements. It also affects the OCs' ability to demonstrate compliance with the contract.

All the performance measures presented in this study indicate that the OCs have improved the performance of their QMSs as the contracts have progressed.

The principal conclusions of the study are:

- The number of findings raised by PAG has reduced each year.
- The time taken by the OCs to close out PAG findings has reduced each year.
- The OCs' QMSs have been actively managed.
- The contract KPIs show a generally improving trend.
- The number of default notices has reduced.

Overall the study indicates VFM was achieved.

Chapter 4

Effective management

The OC contracts seek *"to encourage innovation and skilful management to maximise trunk road capacity and gain the best use of the network"*

Key points

Effective management – financial
The OCs' financial management is monitored by PAG. PAG looks at the amount spent by the OCs and works contractors and compares this to the Department's budget. PAG also looks at the OCs' expenditure profiles to gauge how finances are being managed.

- The total value of work done in 2004/05 was £161.9m, a 30% increase on 2003/04.
- The CCMS in each of the OCs has remained stable, providing a basic level of control and an improving level of information.
- The overall balance between spend and budget was good, however this comprised a mix of overspends in NE and SW and underspends in NW and SE.
- Prompt rebidding and reordering is required to improve the alignment between order and spend.
- The bids/orders process between the OCs and the Department was working well in practice, with effective controls and good communication.

Effective management – technical
Effective management by the OCs ensures a good level of service to road users and delivery of work to specification.

- Structural maintenance operations were carried out well across the network.
- Site supervision and workmanship on works contracts was generally good in all Units.
- The OCs largely fulfilled their winter maintenance obligations. The difference in weather across the network was reflected in the increase in precautionary salt spread in NE and NW compared with 2003/04. By comparison, less precautionary salt was spread in SE and SW this year.
- BEAR's and Amey's RMMSs continued to be compliant and operational. Amey reacted effectively to its default notice for failure to carry out all its detailed inspections.
- Throughout the year the OCs responded professionally to emergencies and hazard notices. BEAR deserves particular praise for its response to the major landslips in NW.

Effective management – quality
The OCs are obliged to maintain records that demonstrate their compliance with the contract. All of the activities by the OCs under the contracts are therefore covered by their QMSs.

- BEAR is making steady progress towards registration of its QMS to BS EN ISO 9001.
- Amey has strengthened its quality management team and made further improvements to its registered QMS.
- Both OCs have well documented EMSs, but they had not reviewed and revised environmental targets for some time.
- The number of default notices issued this year has reduced.

4.1 Financial

Figure 32 compares the make-up of the total value of work done on the network for the financial year 2004/05 (after adjusting for amounts omitted from payment) with the corresponding amounts for 2003/04.

The highlights are as follows:

- The total value of work done in 2004/05 of £161.9m was significantly higher than that for 2003/04 of £124.5m.
- Excluding contract price fluctuation (CPF) of £11.8m, the value of work done of £150.1m for 2004/05 was almost the same as the budget of £150.2m.
- BEAR contributed £13.5m of the increase in total value of work done by OCs of £14.3m.
- 40% or £65.0m of total value of work done for 2004/05 was attributable to works contractors (2003/04 – 34% £41.9m).
- NE £7.3m and SE £11.9m were responsible for most of the increase in works contractors of £23.1m.
- There was an increase in CPF (included in total value of work done by OCs) from £7.3m in 2003/04 to £11.8m in 2004/05.
- The CPF increase reflects further year on year inflation adjustments on rates and prices tendered by OCs, prior to the commencement of the contract.

	2004/05			2003/04		
	OC £m	Works contracts £m	Total £m	OC £m	Works contracts £m	Total £m
NE	21.4	15.8	37.2	14.0	8.5	22.5
NW	23.2	11.0	34.2	17.1	10.2	27.3
BEAR total	**44.6**	**26.8**	**71.4**	**31.1**	**18.7**	**49.8**
SE	18.1	20.7	38.8	17.9	8.8	26.7
SW	34.2	17.5	51.7	33.6	14.4	48.0
Amey total	**52.3**	**38.2**	**90.5**	**51.5**	**23.2**	**74.7**
Network total	**96.9**	**65.0**	**161.9**	**82.6**	**41.9**	**124.5**
%	60	40	100	66	34	100

Figure 32 *Comparison of work done year on year*

4.1.1 Contract control and management systems (CCMS)

CCMS
The CCMS is a computer based system for financial management and project control. The system allows PAG and the Department remote access to the OCs' information.

It was noted in last year's report that while each of the OCs had a fully operational CCMS, there was still a need for them to improve compliance on some controls and procedures to maximise their systems' effectiveness.

2004/05 has seen further improvement and those areas that have continued to give problems are being addressed by the OCs. The specific issues relating to BEAR and Amey were:

BEAR

- Apart from some minor high level differences, the CCMSs for both NE and NW have remained stable during the year. These differences are currently being investigated by the OCs.
- Controls for preventing spend exceeding amounts ordered have been successfully introduced to the CCMSs in NE and NW.
- Despite revision of their procedures, NE and NW continued to experience problems throughout the year with scheme completion and, more recently, the authorisation of costs. The OCs have again reviewed their procedures in an attempt to improve their performance in these areas.
- While some training has been given by BEAR to PAG, the Department has not found it necessary to request any further training during the year. A meeting involving BEAR, the Department and PAG has been arranged to review any outstanding CCMS issues, including training requirements.

Amey

- Regular CCMS progress/user group meetings, involving Amey, the Department and PAG have continued throughout the year. These have helped to address problems as they arise and introduce improvements to the system.

- The areas of procedural weakness identified last year in scheme completion and authorisation of costs (SE only) have continued to give concern, although the latter has become more of a historical problem. It has now been established that the main reason for the scheme completion difficulties is one of a technical nature in the way the CCMS operates. A solution to overcome the problem has now been agreed with the Department.
- Amey continues to provide adequate training to its staff as well as the Department and PAG.
- The 'user-friendly' reports introduced to the CCMS last year have now been made available to the Department and PAG.

Summary

The CCMS in each of the OCs have remained stable during the year, providing a basic level of control and an improving standard of information.

The development of procedures and tightening of controls have led to a general improvement in the OCs' financial management since last year. Reporting of scheme completion, however, is an area which continues to be a problem in all OCs and is being addressed.

4.1.2 Budgets, orders and spends

Financial management and monitoring process

The Department works closely with the OCs in the financial management and monitoring process required under the contract. It sets the budgets and agrees the 1-year and 3-year programmes with OCs and is assisted by PAG in the monitoring of budgets/orders/spends throughout the year. The relationship of the different stages in the process is set out in **figure 33**.

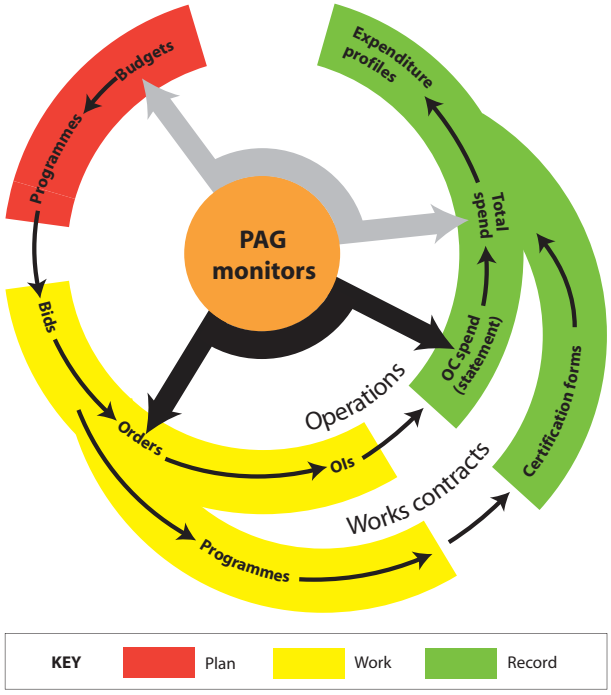


Figure 33 *Financial monitoring process*

Budget v spend

Budgets are allocated to the OCs, excluding CPF. Therefore, to give a like for like comparison with the value of work done, in this section, operations carried out by the OCs are also shown net of CPF. This together with work carried out by the works contractors is referred to as 'spend'.

Figure 34 shows budget variance for the years 2004/05 and 2003/04.

	2004/05 £m	2003/04 £m
Total value of work done	161.9	124.5
Less CPF	11.8	7.3
Spend	**150.1**	**117.2**
Budget	**150.2**	**123.4**
(Under)/over spend	**(0.1)**	**(6.2)**
Spend/budget %	**99.9**	**95.0**

Figure 34 *Budget variance*

Overall balance between spend and budget was good. However this comprised a mix of overspends (NE and SW) and underspends (NW and SE), see **figure 35**. Nonetheless, all the OCs again performed well in programming works to utilise the additional significant budget allocations made available to them in the latter part of the financial year.

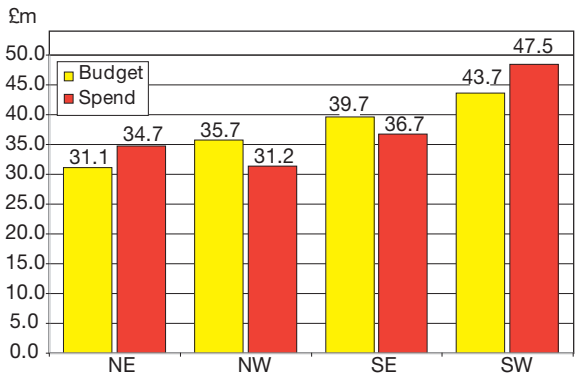


Figure 35 *Budget v spend in 2004/05*

This additional funding was made available by the Department in order to reduce the backlog of needs-based work which has been identified by the Department and the OCs. Whilst all of the work was, therefore, necessary and appropriate, the Department would receive a better guarantee of value for money and programme efficiency if these additional resources were made available earlier in the financial year.

Further details are as follows:

BEAR

- The overspend against budget in NE of £3.6m mostly related to structural maintenance roads, where the main schemes were reconstruction on A90 Westport to Muchalls, M90/A95 Balmanno to Glenfarg and and A90 Starr Farm to Longforgan. By comparison, the underspend in NW of £4.5m was spread across all of the budget categories.

Amey

- In SE there was an underspend against budget of £3.0m. As in NE, this was mostly attributable to structural maintenance roads. The overspend of £3.8m in SW was primarily related to work carried out by works contractors on routine/structural bridges where the main schemes were: A898 Erskine Bridge refurbishment, M74 Raith bridge box strengthening and A78 Inverkip Street railway bridge replacement.

Expenditure profiles

The contractual requirement to produce expenditure profiles for the financial year and update them on a monthly basis is designed to promote effective financial management of the OCs' business. 2004/05 has seen further improvement by all the OCs in producing their profiles, although much of the information is not being directly produced from the CCMS.

BEAR

- An internal review of its procedures in the early part of the year resulted in NW having a much more reliable expenditure profile during the year. Nevertheless, updating the profile for actual expenditure and ensuring that budget headings were fully profiled were areas that had to be addressed during the year.
- NE's expenditure profile continued to meet the requirements of the Department. This, however, included additional spend on schemes, over and above the budget, in anticipation of a further budget allocation later in the year.

Amey

- The problems identified in last year's report with the accuracy and late submission of SW's expenditure profile, were successfully resolved.
- Apart from some minor problems in updating the profile for actual expenditure and profiling the additional budget allocation later in the year, the profiles in SE and SW worked satisfactorily.
- Development work by Amey is underway to allow more of the expenditure profile information to be produced directly from the CCMS.

Orders, operations instructions and spend

As can be seen from **figure 31**, for work to be carried out on the network it has to be bid, ordered and instructed. The method of doing this varies:

- **For operations carried out by OCs** - The Department orders the work as necessary in response to bids submitted by the OCs. The OCs then issue operations instructions (OIs) to instruct the work to proceed. On completion of the work, the costs are collated by the OCs and charges are raised through their monthly statements.
- **For work carried out by works contractors** - This is bid by the OC, but instructed under another mechanism based on programmes agreed with the Department. The work is certified in stages by the OC, acting as engineer, and is invoiced directly to the Department by the works contractors.

Operations instructions

To give some context it should be noted that the OCs dealt with about 35,000 OIs in 2004/05. In last year's report, reference was made to the OI process audits carried out by PAG during 2003/04. Following these audits, the OCs undertook a revision of their financial procedures. Follow-up audits were carried out by PAG in each of the OCs during September and October 2004.

BEAR

- In NW, apart from its electrical department and one of its depots, the revised procedures had been successfully rolled out. Subsequent audits have confirmed that this has now been completed and improvements in the OI process have been evident.
- At the time of the follow-up audit, it was found that the revised procedures in NE had still to be implemented. A further audit has been arranged to assess the extent to which this has been achieved.

Amey

- Improvements were noted in SW, and to a lesser extent in SE, following the introduction of measures suggested at the previous audits. It was also noted that Amey staff had given a clear commitment to the successful implementation of the revised procedures.
- It was therefore disappointing an audit carried out in SW in early 2005 revealed standards in the processing of OIs had slipped. Amey is currently reviewing its procedures as a result.

Orders v spend (OCs only)

The comparison of spend (work done less CPF) against amounts ordered relates only to operations carried out by the OCs and their sub-contractors. Spend relating to work carried out by works contractors is not ordered and is therefore not included in the comparison.

Spend in 2004/05, for this purpose, has therefore been reduced to £85.1m (OC -£96.9m less CPF of £11.8m). This is £13.1m (13%) less than the amount ordered by the Department of £98.2m.

As can be seen from **figure 36,** although all of the OCs have contributed to the shortfall, £10.6m was attributable to BEAR. As in 2003/04, NW was the largest contributor at £6.9m – 25% (2003/04 – 29%), with SW being the lowest at only £0.5m – 2% (2003/04 – 9%).

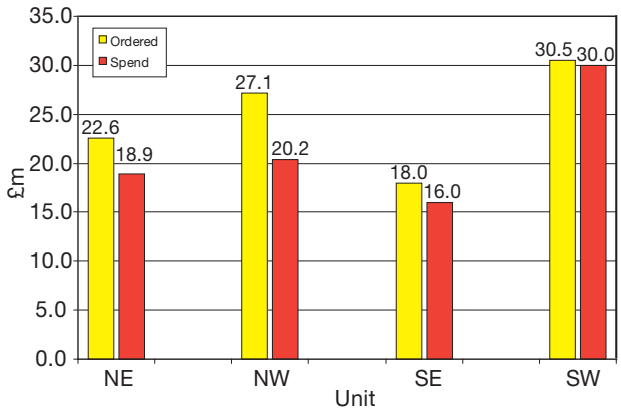


Figure 36 *Order v spend in 2004/05*

In previous years the shortfall tended to disguise instances of where spend on certain schemes exceeded the corresponding amount ordered. This has been largely eliminated since the OCs introduced further controls in their CCMSs.

Despite further promptings from the Department and PAG during the year, NE, NW and to a lesser extent SE, still had some difficulty with re-bidding schemes where the spend is significantly different from the amount ordered.

Comparison with budget v spend

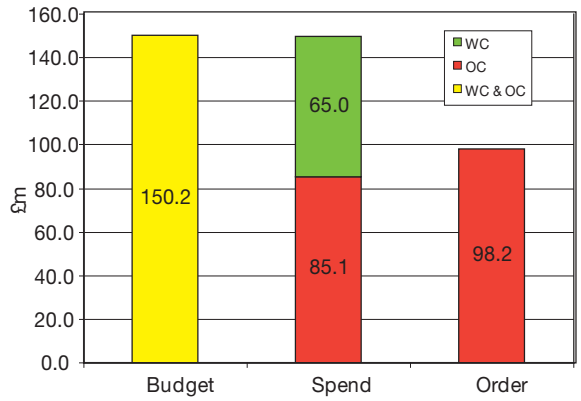


Figure 37 *Comparison of budget v spend*

Figure 37 shows that although spend (OCs and works contractors) for the network as a whole of £150.1m is almost 100% of the budget of £150.2m, that part of the spend attributable to the OCs, i.e. £85.1m represents just 87% of the amounts ordered of £98.2m (OCs only, as works contractors are not ordered).

As in previous years, **figures 38 and 39** demonstrate, separately for BEAR and Amey, the disparity between the budget v spend and order v spend comparisons in 2004/05.

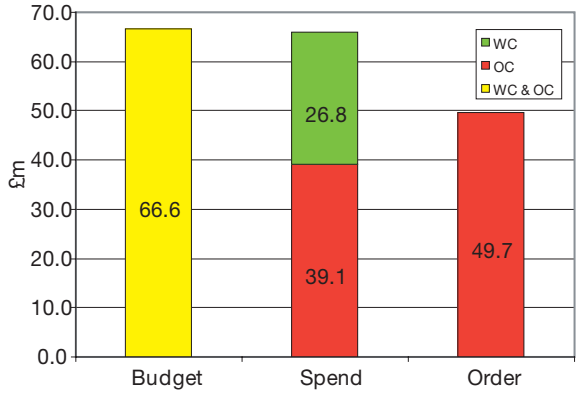


Figure 38 *Comparison of budget v total spend against order v OC spend for BEAR in 2004/05*

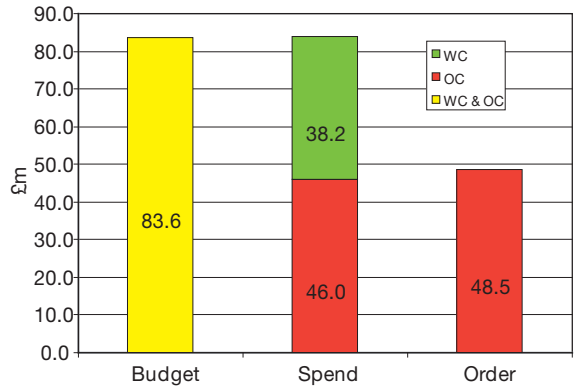


Figure 39 *Comparison of budget v total spend against order v OC spend for Amey in 2004/05*

The difference is more noticeable in BEAR, where the spend of £39.1m was only 79% of the amounts ordered of £49.7m. This compared with 95% in Amey, where the spend was £46.0m against amounts ordered of £48.5m.

Had the CCMS been fully used to manage budgets in accordance with the contract, it is likely these percentages would have been much closer to each other.

While it is acceptable for operational reasons, e.g. allow for variations on site, to order work slightly in excess of anticipated spend, it is necessary in exercising

good budget management for the OCs to re-bid work as soon as they are aware of any likely variation in final costs. With prompt rebidding by the OCs and reordering by the Department, it is likely that orders will be more closely aligned to the corresponding amount of spend, as was the case in SW in 2004/05.

A bids/orders process audit was carried out in each of the OCs during the year to identify any procedural weaknesses in this area. The outcome of these audits is discussed more fully in **section 4.1.3**. The Department and PAG are continuing to liaise with BEAR to seek further improvement in 2005/06.

4.1.3 The bids/orders process

Bids/orders process

The bids/orders process is a fundamental link between planning operations and carrying them out on the network. It is important for the delivery of a robust financial cycle that this area works effectively. Almost £100m was ordered by the Department through this process in 2004/05.

Background

The process audits referred to in **section 4.1.2** examined the effectiveness of the key controls in the bids/orders process in both the Department and the OCs, for each of the Units. The areas in which the controls applied were:

OCs

- Generating and cancelling bids.
- Receipt of orders.
- Issue of further detailed enquiries (FDEs) related to orders.
- Receipt of further detailed directions (FDDs) related to orders.
- Financial management of orders.

The Department

- Receipt and review of bids.
- Valuation and issue of orders.
- Receipt of FDEs related to orders.
- Issue of FDDs related to orders.

Comments

The main points highlighted in the audits were:

- Although working well in practice, the processes being followed by the OCs and the Department were not always reflected in their procedures.

  Both parties committed themselves to revising their procedures where necessary.

- Generally controls were seen to be effective. This was particularly noticeable in the receipt and review of bids in the Department.

- Problems with the re-bidding of operations, as soon as the OC is aware of any variation in final costs. This has been giving problems in the financial management of orders since the beginning of the contracts.

  However, Amey's performance improved during the year. It is likely this was aided by the OCs introducing protocols, as agreed at the audit.

  BEAR has not always found it practical to exercise the requirements of the contract in this area of its operations and, following the audit, proposed a draft relaxation protocol in consultation with the Department. A meeting is being arranged for the Department, BEAR and PAG to consider this proposal.

- There was good communication between the OCs and the Department. The Department was given a wide range of information by the OCs to enable it to review bids, prior to issuing orders.

- While administration of FDEs and FDDs was comprehensive, their usage extended beyond that intended by the contract. Nevertheless, the Department and the OCs were content this assisted them with the audit trail for tracking the progress of an order.

- There is a timetable set out in the contract for the authorisation of variations on site by the OCs. Although this was rarely adhered to, the Department accepted it was being updated by the OCs, as soon as possible.

Feedback from the OCs and the Department regarding the audits was positive, as they drew attention to examples of good practice, as well as areas that required further attention.

4.2 Technical

4.2.1 Reports by the OCs

The OCs are required to deliver monthly reports on many aspects of their activities. In addition, they are also required to produce weekly programmes of intent (WPI) which detail proposed and current works on the network and any traffic restrictions. These WPIs should also confirm information recorded by the OCs in the NADICS roadworks diary facility. The WPIs are circulated to the Department, PAG and other interested parties such as local authorities, police, media, and transport organisations.

Monthly reports

The OCs showed good performance in delivering reports:

- As can be seen from **figure 40** all the OCs produced their required number of monthly reports covering March 2004 to February 2005.
- The previous year's improvement by Amey and BEAR has been maintained, with all of the monthly reports delivered on time.

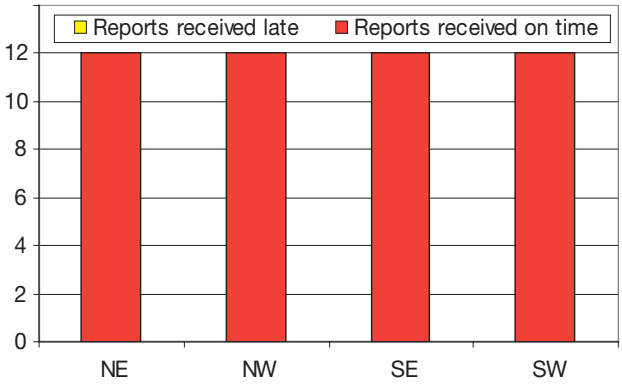


Figure 40 *OCs' delivery of monthly reports*

WPIs

There was also good performance by the OCs in this area:

- WPIs should be delivered by noon each Thursday. The OCs maintained the previous year's improvements in delivering the WPIs on time.
- Regular updates were also received by the Department, PAG, and other interested parties as required by the contract.
- The OCs are also required to report the actual works and restrictions which were on the network. Amey produced all 53 required retrospective reports for SE and SW. BEAR delivered 52 out of 53 retrospective reports in NE and 48 out of 53 in NW. These results represent an improvement over the previous year for all except NE, which remained the same.
- The NADICS roadworks diary facility should be updated daily by the OCs. This information is then made available to the travelling public using the media and NADICS website. It is therefore important that this information is accurate and up to date. PAG monitors the accuracy of the roadworks diary facility and raises ORIs where there are discrepancies. Over the past year 14 observations resulting from inspections (ORIs) have been issued to NE for NADICS roadworks diary issues, one each to NW and SE, and two issued to SW. **Figure 41** shows the number of ORIs issued relating to NADICS roadworks diary queries over the period of the Contract. PAG will seek improvement in NE in the coming year.

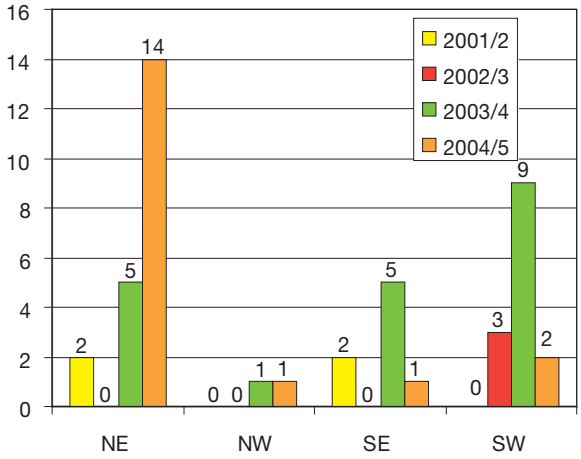


Figure 41 *ORIs issued for NADICS roadworks diary queries*

4.2.2 Structural maintenance

Structural maintenance operations

Structural maintenance operations are carried out on both roads and bridges. Roads maintenance typically comprises areas of overlay, carriageway reconstruction, resurfacing, machine laid patching, surface dressing, anti-skid, specialist concrete carriageway repairs, road markings and studs. Bridges maintenance includes joint replacement, parapet replacement, bearing refurbishment and water proofing.

These operations are valued at less than £150,000 per scheme and carried out by the OCs. The OCs are paid on the basis of the tendered rates and prices with adjustments for inflation (CPF).

Comments on use of sub-contractors and performance issues relating to structural maintenance operations by the OCs are given below.

Procurement

BEAR

- The majority of structural maintenance operations in NE were carried out by BEAR, with specialist sub-contractors undertaking bridge works and landscaping works.
- In NW, the work was shared between BEAR and its sub-contractors, as in previous years.

Amey

- Work in SE and SW was undertaken by Amey and its sub-contractors. Typical work by Amey included traffic management, safety fence work, drainage and signs. Machine laid patching, road markings, bridge waterproofing and bridge joints were generally sub-contracted.

Workmanship

BEAR

- A good level of workmanship was sustained in NE.
- In NW, workmanship was broadly satisfactory and improved from last year. There were a number of issues with the performance of one sub-contractor, which BEAR successfully resolved.

Amey

- In SE, the standard of workmanship was good.
- Overall, workmanship in SW was good

Supervision

BEAR

- Early in the year, concerns were raised in NE regarding the inadequacy of supervision levels leading to poor performance. BEAR made a concerted effort to improve the levels of supervision, with training and extra resources. This was successful, with a continuing trend of improved supervision and quality of workmanship. This should also reduce the future need for remedial works.
- Supervision levels in NW have improved from last year. However, there was still too much reliance by BEAR on sub-contractors supervising their own works.

Amey

- In SE, the standard of supervision continued to improve. There were still occasions when defects were being identified that should have been prevented by satisfactory levels of supervision.
- In SW, the supervision of sub-contractors was of a good standard. Amey representatives were frequently seen on site.

Completion of works and records

BEAR

- In NE, there was a significant improvement in record keeping in 2004/05, although there are still some minor issues to resolve. There were also some delays to the replacement of road markings and studs. This led to PAG issuing ORIs.
- BEAR instigated a procedure in NW to improve record collection, which improved performance. There were some delays in the completion of road markings and studs after carriageway patching. Some repairs to vehicle safety fences were late and many potholes tended to have numerous temporary repairs prior to a permanent repair. These areas of concern were highlighted through ORIs and the NEI process. They will be closely monitored by the Department and PAG in the coming year.

Amey

- Amey completed works satisfactorily in SE. However, works often took longer than originally programmed. Record keeping has improved to a good standard.
- Works were completed satisfactorily in SW. Record keeping was good, with information available on site for PAG's review. There were limited occasions when overnight resurfacing works overran, causing major traffic delays on busy parts of the Unit. This problem was addressed by Amey, with the successful implementation of new management procedures.

4.2.3 Works contracts

The delivery of works contracts to programme and budget is important in providing a good service to road users. This represents a significant investment in maintaining the condition of the network (see also **section 3.3**). The OCs have a direct impact on the process prior to the work going out on site, through the quality of their design of the works and their tender documentation. Once on site, the OCs' supervision of the activities provides assistance in completing the work to the required specification and to the programme.

As can be seen from **figure 42**, the majority of works contracts are for the structural maintenance of roads and minor improvement schemes. Other works contracts can also cover specialist work, such as bridge maintenance and safety fence renewal.

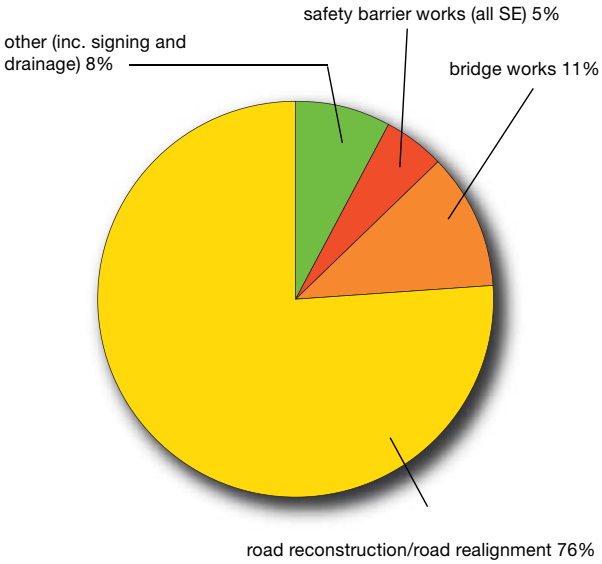


Figure 42 *Proportion of tender documents received in 2004/05 for different types of works contract*

A detailed value for money study into works contracts is contained in **section 3.3** of this report.

Tender documents

Part of PAG's role is to review and comment on a percentage of the tender documentation for works contracts produced by the OCs. PAG has a KPI to review at least 25% of all tender documents received during the year. The OCs produced 64 sets of tender documents in 2004/05 of which 19 (30%) were reviewed. This level of review is broadly comparable with last year. The details on the number of documents received and reviewed for each OC are given in **figure 43**.

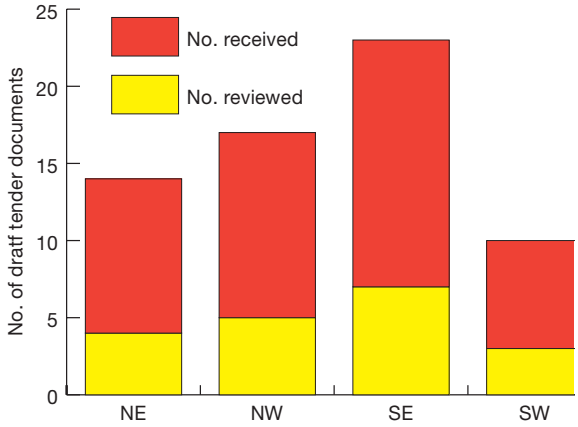


Figure 43 *Draft tender documents reviewed by PAG in 2004/05 (target 25%)*

PAG's sample review covers:

- Whether documents meet contract standards.
- Consistency of approach across the network.
- Identifying serious omissions or errors.

BEAR
There was a balanced distribution of tender document production between the first and second halves of the year in NE and NW.

Amey
In SE and SW, 66% of tenders were issued in the second half of 2004/05. This is related to an increased budget being made available by the Department. By comparison, in NE and NW the increased budget was absorbed by increasing the scope of planned schemes.

Execution of works contracts

Figure 44 provides a comparison by OC on the number of contracts awarded and completed during the course of 2004/05. However, not all contracts awarded were programmed for completion by the end of the year.

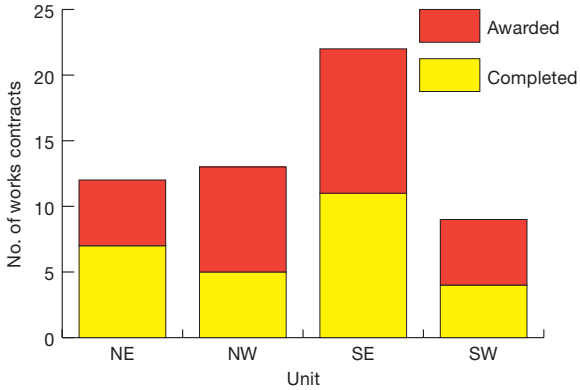


Figure 44 *Progress of works contracts in 2004/05*

Figure 45 *Surfacing works on A90 at Laurencekirk in NE*

BEAR

- In NE, works contracts sites were well resourced and there was realistic programming of contracts, which assisted delivery.
- Two contracts let in NW for bilingual signing had problems with workmanship, supervision and programming. A more detailed assessment of contractors applying to tender for this type of work will be applied in the future to prevent a recurrence of the problems experienced. There were delays on the A828 Creagan to Invernahyle maintenance scheme contract due to problems with a service diversion which was outside BEAR's control. The other works contracts were completed satisfactorily.

Amey

- In SE, out of the 11 contracts tendered and completed, eight were carried out on a lane rental basis, helping to minimise delays to traffic. A works contract for reconstruction work on M80, which started this year, was delayed due to unforeseen drainage problems that were outside Amey's control. The contract will be completed in 2005/06.
- The execution of the works contracts was successful in SW, with schemes being completed to programme.

Supervision and workmanship

BEAR

- A good level of supervision by BEAR was noted in NE. PAG's inspections indicated site diaries and records were being updated as appropriate. In general, there was good workmanship on these works contracts.
- In NW, BEAR's site supervision continued at a satisfactory level. Workmanship was to a consistently good standard, with the exception of the bilingual signing contracts.

Amey

- In SE, the site supervision of works contracts by Amey improved and was generally good. Amey provided more site inspectors to oversee and supervise the works. Workmanship was within specification, having a better standard of finish and supervision on single carriageway routes.
- In SW, site supervision on works contracts sites continued to be of a high standard, with a strong emphasis on health and safety issues. Amey representatives were seen on site on a regular basis in a supervisory role. Overall workmanship was good with any minor defects being dealt with through remedial works.

4.2.4 Investigation and prevention of accidents

Accident investigation and prevention (AIP)

The OCs help the Department by monitoring trunk road safety. The information is then used to identify sites and routes across the network that would benefit from AIP schemes.

AIP can include:

- New signing and road markings.
- Anti-skid treatments.
- Traffic signals including pedestrian crossings.
- Traffic calming measures.
- Speed limit reductions.
- Route accident reduction plans.

Identifying AIP schemes

Accident data is analysed using a moving cursor programme (MCP) provided by the Department. The OCs use the programme to assess accident clusters for possible common causes. This enables the OCs to identify sites and prioritise suitable AIP schemes.

BEAR

- In NE, 29 road safety studies were identified from the MCP. BEAR subsequently took forward these investigations, with a large proportion relating to junctions on A92 and A985. A further 24 additional AIP studies were instructed by the Department during the year.

Figure 46 *Village gateway AIP work completed on A9 Golspie in NW*

- BEAR's AIP team in NW carried out a similar number of studies from the MCP, together with 47 individual studies instructed by the Department. Village gateway works were completed at a number of locations on A9 and A99 (see **figure 46**).

Amey

- In SE, Amey has a dedicated resource which successfully completed the reporting of all 27 schemes identified in its programme. 26 AIP schemes were constructed in SE in 2004/05. This included a number of schemes identified from last year's programme. A further eight additional studies were instructed by the Department during the year with five of these being constructed. 14 schemes reported in 2004/05 are programmed for construction in 2005/06.

- In addition, Amey in SE developed a new AIP methodology review to overcome the limitations of the existing MCP, which only considers accident cluster sites. This new approach identifies similar accident types occurring throughout a route and, with the support of the Department, has now been adopted by all four OCs.

- The Scottish trunk road remedial treatment monitoring database (STRUM) initiative was also developed by Amey in SE. It offers a system which will monitor the effectiveness of schemes in terms of statistical significance, accident and financial savings. Implementation of this database in 2005/06 will enable development of a reference guide containing expected accident reductions on the network due to proposed AIP measures.

- Amey investigated 31 sites in SW following analysis of the MCP, with 11 sites being identified for accident reduction measures. A number of schemes are programmed for completion early in 2005/06. Amey is closely involved in the A77 safety group, established by the Department to focus on road safety issues affecting communities and road users on A77 between Ayr and Stranraer in SW. The group includes the Department, local police forces, and local authorities. Amey carried out an in-depth review of the route characteristics and accident trends. Measures identified include trials of high PSV surfacing at a site and a point to point safety camera system.

4.2.5 Minor improvement schemes

The OCs are responsible for the investigation, design and supervision of minor improvement schemes, with the construction being carried out by works contractors. Land purchase, other statutory procedures, and consultation with the public, local authorities, community councils, statutory undertakers, and other interested parties, which are outwith the control of the OCs, can affect the delivery of minor improvement schemes.

Minor improvement schemes

Minor improvements are schemes that improve trunk road infrastructure, rather than just maintaining it.

The schemes can be initiated by ministerial commitment or identified by the OCs or the Department.

Schemes can include road realignments, junction improvements, installation of overtaking opportunities, new footways, provision of new lighting and new safety barriers.

BEAR

- In NE, two junction improvement schemes, A90 at Durris and Maryculter and a watercourse realignment/embankment stabilisation scheme on A96, were completed during 2004/05. The construction of a further three schemes is ongoing, with completion expected early in 2005/06. In addition, the investigation and design of a number of schemes were progressed by the OC. This included A90 Hatton Bends scheme, a major off-line realignment anticipated to start on site in 2005/06.
- In NW, a number of schemes were delayed pending completion of statutory procedures for land purchase. This contributed to a significant underspend of the minor improvements budget. Schemes that were completed included bend improvements, and strategic and bilingual signing. A further bilingual signing scheme is ongoing at this time.

Amey

- Amey's minor improvement programme in SE comprised the construction of nine schemes including safety barrier installation, junction improvements, and installing village gateways. As planned, six of the nine schemes were completed within 2004/05, with the remainder to be completed early in 2005/06. Amey also progressed the design of a number of other minor improvement schemes which are programmed for construction in 2005/06.
- In SW, scheme investigations and designs were progressed, including a number of junction improvements. In total, eight schemes were constructed, including the next phases of the gantry refurbishment and high mast lighting replacement schemes on the motorway network. **Figure 47** shows an improvement scheme on A78. A number of schemes on the original programme are pending completion of statutory procedures and further investigations.

Figure 47 *Cloch Road Roundabout complete on A78 in SW*

4.2.6 Materials and workmanship testing

Materials and workmanship testing form part of the contract. PAG audited and observed the OCs' activities to verify compliance with their responsibilities.

Defined testing was carried out by the OCs' suppliers under the relevant Sector Scheme, where certificated bituminous materials suppliers operate to quality criteria.

PAG audited works contract testing documentation across the OCs. Records were comprehensive and all expected registers and testing requirements information were found to be satisfactory. In general, good workmanship was observed on works contracts. Workmanship on operations with a value of less than £150,000 was generally good throughout the four OCs, although materials testing varied slightly.

BEAR

- In NE, testing on operations had improved and complied with the contract. However, PAG audits

identified that these testing records were sometimes missing or incomplete. BEAR is addressing this.

- PAG audits in NW identified a lack of records to confirm if requirements for testing were being met. BEAR is introducing 'gang packs' to inform operatives and to prevent recurrence of this problem.

Amey

- In SE, schemes audited by PAG identified a significant improvement in record keeping for materials testing. Test failures identified were addressed by Amey.
- Deficiencies identified by previous PAG audits in SW were successfully addressed by Amey, who had put in place new systems and management. These addressed the findings previously raised regarding testing requirements and record keeping.

4.2.7 Winter maintenance

As in previous years, the OCs' winter maintenance activities generated wide public, media and political interest. This included discussion at a session of the parliamentary Local Government and Transport Committee in March 2005, where senior representatives from the Department and the OCs answered detailed questions on a range of winter-related matters, among other issues.

Reflecting the importance of this topic, PAG's audit strategy contained a series of audits examining the OCs' compliance with their winter maintenance obligations. The eight audits confirmed all four OCs had largely fulfilled their contractual obligations.

Weather conditions

The 2004/05 winter had two distinct halves. The first period up to the turn of the year was relatively mild, although there was a cold spell in mid to late December. The second period was considerably colder, with significant snow falls across NE and NW, see **figure 48**. There was also localised heavy snow in SE west of Edinburgh in early March 2005.

Figure 48 *BEAR gritter ploughing on 18 January 2005 on A82 near Bridge of Orchy in NW*

Winter treatment

The contractual winter maintenance period runs from 1 October to 15 May. The prime winter maintenance activities carried out by the OCs are precautionary and reactive salting and snow ploughing.

Road closures

A north-south divide was reflected by road closures. All four of the 2004/05 winter road closures were in the north, with three in NW and one in NE. **Figure 49** gives details of winter-related major incident road closures.

Winter period	No. of road closures
2004/05	4
2003/04	11
2002/03	4
2001/02	4

Figure 49 *Number of winter-related major incident road closures over the last four years*

Precautionary salting

As identified in **section 3.2**, compared with last year there was an increase in precautionary salt spread in NE and NW, with a reduction across SE and SW. In addition, across all four Units, there were less 10g/m^2 actions and more 20g/m^2 actions compared with the previous winter. This is shown in **figure 50**. This may be as a result of an increase in marginal conditions, together with an increase of longer periods of snow, primarily in the north.

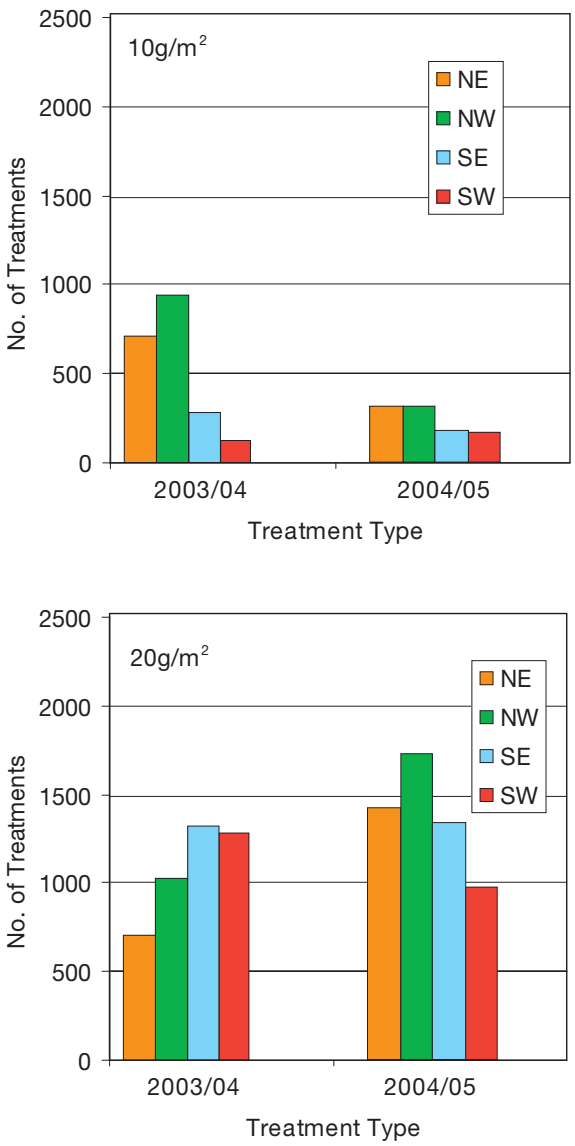


Figure 50 *Precautionary salting actions over period 1 October to 31 March for winters 2003/2004 and 2004/2005*

The move from less 10g/m^2 actions to more 20g/m^2 actions is much more pronounced in NE and NW than in SE and SW.

Overall, the 2004/05 winter was less onerous for SE and SW than the previous winter, with less salting actions implemented and a lower tonnage of salt spread. BEAR on the other hand, implemented a higher number of actions with heavier spread rates which in turn led to more salt used than last winter. Winter conditions are shown in **figure51.**

Figure 51 *Conditions on the morning of 23 February 2005 on the southern end of M90 in NE*

PAG audits and investigations into winter operations

During 2004/05, PAG undertook detailed investigations into two aspects of winter maintenance. The outcomes of these investigations are summarised below:

Winter maintenance audits

There were a total of eight compliance audits across all four OCs. Two areas of winter activities were audited. Firstly, gritter calibration, salt certification, data logger downloading and operation training records were reviewed. Secondly, the logic and integrity of decision making related to specific events were retrospectively examined. Issues identified in the decision-making audits prompted follow-up meetings between the Department, the OCs and PAG, analysing the logic on which these decisions were made. This deeper scrutiny will continue with the activity audits PAG will use in its 2005/06 winter investigations.

The winter audits confirmed the OCs had largely fulfilled their contract obligations.

Value for money – salt usage

The VFM exercise reviewed the amount and location of salt spread across the network. Full details of this study are contained in **section 3.2**.

Summary

PAG's investigations into the 2004/05 winter identified a larger north/south divide in precautionary salting than the previous winter. Amey in SE and SW experienced less onerous conditions than BEAR in NE and NW.

Overall, the OCs continued to broadly meet their contract requirements.

4.2.8 Cyclic maintenance

Activities, such as grass cutting, weed control, gully cleaning, sign cleaning (see **figure 52**) and litter picking are carried out on a regular ongoing basis.

Such activities are classified as cyclic maintenance. PAG considers that cyclic maintenance was carried out to a reasonable standard across the network.

A detailed study of the OC's cyclic maintenance activities is reported in **section 3.1** of this report.

Figure 52 *Sign cleaning on A77 at Glenapp in SW*

4.2.9 Recording details of routine maintenance operations

RMMS

The RMMS is a computer-based system, which is operated by the OC. The provision, operation and maintenance of an RMMS to record details of routine maintenance activities on the network is a requirement of the contract.

The main factors influencing the performance of the OCs in respect of the RMMSs were:

- RMMS hardware and communication links.
- System compliance and operation.
- OC performance.

RMMS hardware and communication links

The hardware and communication links for all OCs operated successfully throughout the year, enabling the Department and PAG to access the RMMSs when required.

System compliance and operation

Amey

- Amey completed an RMMS action plan early in the year, resulting in the closure of default notices issued previously against their non-compliant RMMSs. This action ensured the RMMSs functioned correctly throughout the year and Amey staff were trained to use it correctly.

BEAR

- BEAR's RMMSs remained compliant and operational throughout the period. Following discussion between BEAR and PAG, BEAR implemented an enhanced recording regime during the period.

OC performance

Safety inspections

The contract requires safety inspections to be carried out every 7 days on motorways, dual carriageways and other specified routes. The remaining mainly rural single carriageway routes are inspected every 28 days.

KPI 02, provided by the OCs, details their performance in terms of achieving the required frequency of safety inspections (see **figure 53**).

	NE	NW	SE	SW
KPI 2 – Safety inspections	100%	100%	94%	96%

Figure 53 *KPI 02 Safety inspections*

Figure 53 *indicates:*

Amey

- Amey's safety inspection frequency performance is good, but leaves some room for improvement.

BEAR

- BEAR's safety inspection frequency performance is excellent. Some concerns were raised during the year by PAG audit on the accuracy of BEAR's inspections. These were addressed by the OC.

Detailed inspections

Detailed inspections are carried out at frequencies from three months to five years. They are carried out to check the condition of the infrastructure items to allow longer term programmes of maintenance to be compiled.

KPI 03, provided by the OCs, details the percentage of detailed inspections carried out within the required timescale (see **figure 54**).

	NE	NW	SE	WW
KPI 3 – Detailed inspections	100%	100%	-	-

Figure 54 *KPI 03 Detailed inspections*

Figure 54 indicates:

Amey

- Amey has not submitted its KPI data. This is currently being sought by PAG.
- However, during the period PAG identified that Amey had not carried out detailed inspections of some infrastructure items which require inspections every three years. This resulted in Amey receiving default notices. Amey reacted quickly to carry out the detailed inspections and programmed subsequent inspections for the remainder of the contract. The default notices have subsequently been closed.
- In December 2004, PAG noted that an Amey SW internal audit had identified failures to record evidence of cyclic maintenance and inventory changes. An NEI was raised covering these problems as Amey was already addressing them under its QMS. Amey is implementing an action plan to correct the failures and this will be monitored by PAG.

BEAR

- KPI data shows an excellent performance by BEAR.

Cyclic maintenance

Cyclic maintenance is now being recorded in the RMMS by all OCs in accordance with the contract requirements.

4.2.10 Dealing with emergencies

Emergency response

The OCs are responsible for taking immediate action to deal with emergencies on the network, to minimise disruption and delay to road users. Some emergencies can be dealt with by the OCs alone, but frequently they are required to assist the emergency services.

Typical emergencies include:

- Road traffic accidents.
- Flooding.
- Spillages.
- Debris removal.
- Carriageway defects.
- Landslips.
- Bridge strikes.
- Incidents due to adverse weather.

The OCs are required to respond to emergencies as quickly as possible and within specific timescales depending on the type of road and time of day.

Major landslips in NW

BEAR had to deal with a number of major, high-profile landslips in NW following heavy rainfall in August 2004 (see **figure 55**). These affected A83, A84, A85 and A9 and the routes were closed for a number of days, with subsequent traffic disruption.

Figure 55 *Landslip on A83 Cairndow in NW*

BEAR responded well, quickly mobilising resources to deal with the landslips. The roads were made safe and remedial works carried out as quickly as possible.

A9 and A85 landslips

In dealing with these incidents BEAR deployed professional, technical and manual resources from within NW and NE to minimise delays and facilitate the early re-opening of the routes. **Figure 56** shows work at A85 Glen Ogle.

Figure 56 *BEAR resources mobilised following landslip at A85 Glen Ogle in NW*

At the request of the Department, PAG undertook an audit to review the nature of the operations carried out by BEAR to determine if they were appropriate for the conditions encountered on site. The audit also reviewed the charges made against the emergency and remedial works to determine if they were reasonable. For convenience, all charges were processed by BEAR through NW. PAG found:

- NW was quick to mobilise resources from within BEAR and externally to deal with the landslips. The routes were made safe and remedial works were carried out promptly.
- Good records were kept of the decision making and work instructed and most of the measurements were adequately supported by documentation.
- The works carried out were appropriate for the incidents.
- In view of the exceptional nature of the works, the Department used its discretion to pay certain charges outwith the strict interpretation of the contract, e.g. travel time for resources brought in by the OC from outside the locale of the landslips. Other costs were reviewed with the OC and where appropriate adjustments were made.

BEAR reacted well to these emergencies and their professional approach helped to minimise delays to the road users. Works carried out were appropriate for the nature of the incidents and costs were reasonable.

Emergency response performance

KPI 07 is used to monitor the OCs' response times. **Figure 57** shows a comparison of the OCs' year on year performance.

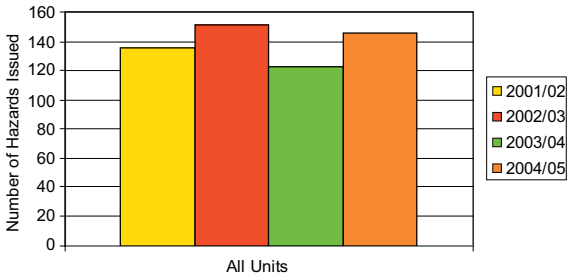


Figure 57 *KPI for emergency response times*

Both NE and NW maintained their previous year's strong performance. In SW and particularly SE, performance dipped. Amey is aware of the situation and is taking steps to address this.

Hazard notices

When PAG's field engineers find hazardous situations on the network, they inform the OCs by mobile phone from the site. They then issue a hazard notice by mobile email, containing details and a picture of the problem. This is sent to the OC and copied to the Department. The OCs are obliged to deal with the problem immediately and to respond formally within 24 hours.

Hazards can be due to factors outside the OCs' immediate control and do not necessarily result from poor workmanship or management.

Typical hazards include:

- Significant potholes.
- Poor traffic management.
- Damaged gullies.
- Exposed electrical wiring.
- Flooding.

Figure 58 shows flooding across the whole carriageway on A85 near Glen Ogle, a typical hazard encountered by PAG.

Figure 58 *Flooding on A85 near Glen Ogle in NW*

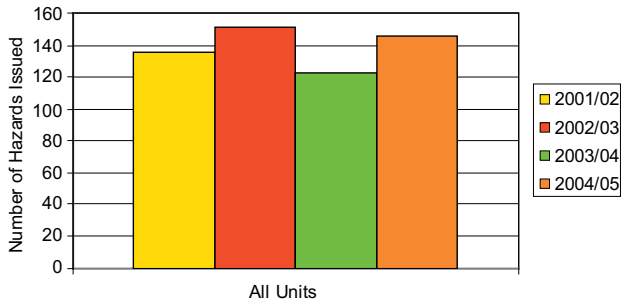


Figure 59 *Number of hazards notices issued by PAG*

PAG issued 157 hazard notices during 2004/05. Although this is a 29% rise on last year, it is only slightly above the average annual number of hazard notices issued since the start of the current OC contracts in April 2001 (see **figure 59** for details).

Throughout the year the OCs responded well to emergencies and hazard notices, with issues being dealt with professionally.

4.2.11 General management tasks

In addition to the design and management of the operations, the OCs undertake various delegated general management functions. These include:

- Development control, including technical studies and responses to planning applications.
- Co-ordination of undertakers works under the New Roads and Street Works Act.
- Co-ordination of routing for abnormal loads.
- Authorisation of tourist and other signing.

PAG has not specifically examined these management tasks in any technical detail. These have, however, been examined as part of PAG's audits of the OCs' quality systems and are reported in **section 4.3.1**.

4.2.12 Management and maintenance of structures

Maintaining structures

Under the contract, the OCs are required to carry out general and principal inspections of bridges and structures at two and six yearly intervals, respectively, and to prepare programmes for management and repair.

Across the network 1,077 general and 950 principal bridges and structures were programmed for inspection by the OCs. This is a major undertaking which, with the exception of a small number of bridges over railways, was completed to programme.

photo: Amey

Figure 60 *A898 Erskine Bridge in SW*

PAG carried out a series of audits to examine each OC's performance in these areas. The main findings were:

- All the OCs demonstrated sound management of the inspections and recording processes.
- Certificates for completion and maintenance of works and operations were generally completed correctly and filed in the appropriate file, although certificate registers were not always up-to-date.
- As-built drawings were submitted to the Department within the required timescales, with improvements particularly noted in SE and SW over the past year.
- In NE and NW, routine maintenance activities were not being recorded in the trunk road bridges database (TRBDb), although changes to construction details were entered correctly. BEAR is working to improve the situation.
- In NW, an NEI was raised for the lack of progress in delivering the bridge maintenance programme.

Across the network, repair timescales for bridge parapets remains an area of concern, although the issue is largely outwith the OCs' control. This is most notable for aluminium parapets where there are particular difficulties in sourcing specialist materials. This is exacerbated as the fabrication industry has rationalised to one large manufacturer who holds all the licences for the manufacture and installation of the systems from former suppliers. The Department is working with this manufacturer to explore ways to speed up the repair process.

An additional audit was carried out in NE at the Department's request to examine design revisions and details of damage to crown property schemes. This recorded several observations that have since been addressed by BEAR.

4.3 Quality

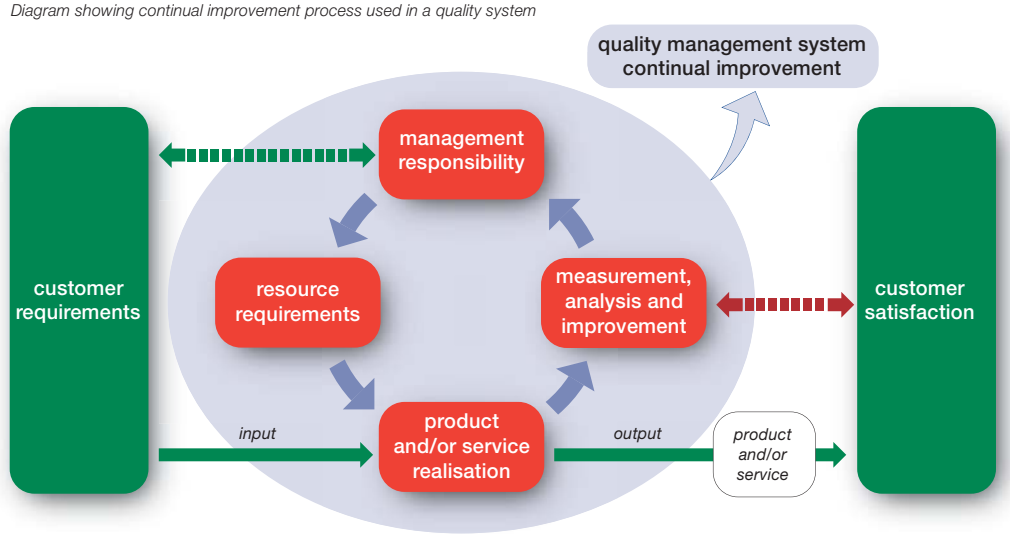
4.3.1 Quality management

OC quality systems

The OCs are required by the contracts to operate quality systems which comply with the requirements of the internationally recognised standard, BS EN ISO 9001. The standard advocates use of the process approach to continually improve the effectiveness of quality management systems so that customer satisfaction is enhanced through meeting customer requirements.

The quality systems are also required to demonstrate that OCs are complying with all aspects of the contracts.

Diagram showing continual improvement process used in a quality system



In addition to the internal auditing requirements of the standard, the contracts require that independent CQMs are appointed by the OCs to audit at specified intervals and report to the Department.

PAG audited the OCs throughout the year in accordance with a strategy agreed with the Department.

All of the OCs have adopted an open and co-operative attitude to auditing and this has contributed to the effectiveness of the auditing programme. This co-operation has extended to dealing with issues arising from audits. In most situations the OCs recognise improvements are necessary and initiate appropriate action. Where disputes arise, these are discussed and if necessary referred to the Department for resolution.

BEAR

- BEAR has been steadily making progress towards registration of its QMS to BS EN ISO 9001 by third party assessors. Final preparations have been made and a successful outcome is anticipated towards the end of 2005.
- The IMS team, which develops and monitors the BEAR QMS, uses the Q-Pulse computerised data management system to manage its activities and provide documents and information to the staff.
- In general, PAG has observed that BEAR's QMS is continually improving and is integral to the management of the OC's activities.
- PAG has reported in previous years that BEAR's management of sub-contractors required improvement and this year substantial progress has been observed. However, follow-up audits have shown that continued efforts are required, particularly with regard to sub-contractor evaluation and performance analysis.
- A follow-up audit on BEAR's OI process showed the revised procedure, introduced as part of the action plan from an earlier audit, had not been fully implemented in NE. An overall improvement in the process was observed, however PAG will monitor to confirm the implementation is completed in NE.
- PAG audited BEAR to assess its ability to hand over records within 28 days of a request from the Department, as required by the contract. This indicated BEAR would be able to comply with the request and, subsequently, records for NW were handed over when required.
- BEAR's duties under the contract include providing the Department with advice on development control, undertaking duties in relation to tourist signing and various other functions delegated under the contract. Audits of these activities found that in NE they were being implemented effectively, but in NW record keeping required immediate attention. BEAR took action by re-organising provision of the services and re-allocating resources.

Amey

- Amey operates its QMS as a component of its IMS, which is accredited to BS EN ISO 9001.
- During this year, Amey has consolidated and made further improvements. The quality management team was also strengthened with additional resources.
- The Amey QMS is on an intranet which is available to all staff, supplemented with specific documentation for these contracts.
- Follow-up audits of Amey's OI process found improvements, but further monitoring by PAG of the effectiveness of the revised procedures is underway.
- Amey is required, upon request under the contract, to provide certain records and files to the Department within a specified timescale. PAG audits indicated Amey would be able to comply. This was demonstrated in SW when records were handed over on request.
- Audits of Amey's process for liaison with NADICS found it was effective, with regular meetings taking place. Occasions when Amey is unable to update the NADICS roadworks diary facility due to its unavailability are expected to decrease when the system is upgraded.
- Amey's compliance with its obligations for development control, traffic counter loops and other administrative and delegated functions was audited by PAG. These audits found overall compliance with the requirements.

4.3.2 Environmental management

The OCs are required by the contract to implement an EMS in accordance with BS EN ISO 14001. Each OC has established documented environmental management systems that are generally effective in preventing pollution and encourage reducing, recycling and re-using waste.

The OCs' records indicated their work on the network complied with environmental legislation.

BEAR

- BEAR's EMS is well documented and makes efficient use of the Q-Pulse data management system for storing records, reports and procedures.

- The management team is conversant with the requirements and is committed to the continual development and improvement of the EMS as part of the IMS.
- BEAR's commitment is demonstrated by its plan to establish a recycling plant adjacent to A9 for the re-use of road material arising from A9 Drumochter to Tomatin road reconstruction scheme. The provision of this facility would, of course, be subject to local planning authority approval.
- However, BEAR needs to ensure environmental awareness is communicated to its employees at regular intervals. There were some lapses in performance and operational procedures identified at audit, in particular the maintenance of plant, waste control and the storage of chemicals and oils.
- An EMS requires the organisation to review its activities periodically to assess their effect on the environment and to implement measures to reduce the impact of those considered as significant. It was disappointing, therefore, that BEAR had not carried out a review for some time.

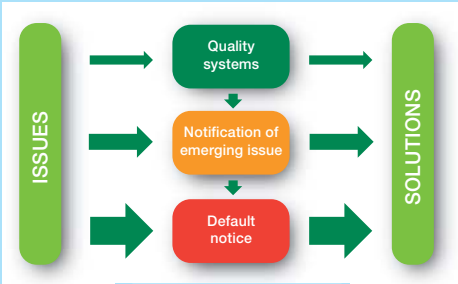
Amey

- Amey's EMS is also well documented and procedures are accessible to all personnel via the Amey intranet site. Access to records and reports was also readily available.
- Recent management changes, unfortunately, showed deterioration in the good performance observed during the previous year. PAG, however, is confident that Amey is committed to implementing rapid improvements in the EMS and to its continual development.
- On a positive note, Amey actively promotes reduction in energy use and recycling of materials arising from road maintenance works. It has introduced systems for closely monitoring the consumption of road and operational plant fuels, including idling times of vehicles using global positioning systems. Drainage filter material is also cleaned and re-used which reduces the consumption of primary aggregates for road maintenance.
- Areas of weakness included the control, storage and disposal of wastes and the storage of chemicals and oils at depots. This indicated a need for increased environmental awareness training which is being addressed by Amey.
- Amey had also not reviewed, for some time, its activities to confirm those that could have a significant impact on the environment. Targets had therefore not been adjusted to ensure continual improvement is achieved.

4.3.3 Resolving problems and improving performance

Where the OCs fail to meet contract requirements it is important action is taken quickly to improve performance. Through regular monitoring, the Department and PAG work with the OCs to deal with performance issues.

Process for resolving problems



When performance issues are identified, the OCs are required to use their quality systems to correct the issue and prevent recurrence. If the OCs fail to do this, or the actions taken are not effective, a notification of emerging issue (NEI) may be issued to the OC by PAG.

If the issue remains unresolved, or if it is considered sufficiently serious, there is provision for the Department to issue default notices. These require the OC to undertake remedial action within a specified period and can result in omitting amounts from payment.

NEIs

The NEI process is an agreed extension of PAG's role. It formalises initial discussions with the OCs and enables PAG to take a more proactive role in resolving problems and improving performance.

In effect, the NEI process sits between ORIs/audit findings and default notices. It raises the profile of an issue to focus on its resolution. If PAG's involvement with the OC does not achieve a satisfactory outcome, a recommendation for further action is made to the Department. The NEI process also assists the Department in formally raising issues of concern at an early stage before a default notice is required.

This year was the first full year of the NEI process. During this period the process was reviewed and streamlined. At the start of 2004/05 there were 17 NEIs open. 22 NEIs were closed in 2004/05 including many issued in the previous year. At the end of the year, 14 were receiving attention (see **figure 61**). PAG and the Department will seek to speed up closure of NEIs in 2005/06.

Unit	NEIs issued in 2004/05	NEIs open at end of 2004/05
NE	8	6
NW	5	5
SE	2	1
SW	4	2
Total	**19**	**14**

Figure 61 *Number of NEIs issued and open at end of 2004/05*

Issues were raised across the breadth of the management functions and operations. In addition there were two issues raised with all four OCs:

- Permanent repair of category 1 carriageway defects (see **section 2.3**).
- Data logger records from winter gritter runs.

These have been long term issues and discussion between the OCs, PAG and the Department is ongoing.

Another issue – the overall management and closure of ORIs – was noted in all four OCs. There was regular communication between PAG and the OCs to resolve this. Amey in SW has implemented a new monitoring procedure in its QMS to improve its ORI responses. Five other issues were reported across most of the network:

- Replacement of roadmarkings after patching.
- Grass cutting.
- Weed control.
- Signs obscured by foliage.
- Financial close out of schemes.

In most instances, when NEIs were raised, the OCs focused their attention on resolving them and generally this was successful. However, in some instances it was necessary to escalate the NEI to default notice.

The NEI process is regarded by all parties as useful in highlighting and resolving issues. It aims to prevent performance deteriorations to a level where a default notice would have to be issued.

Default notices

Default notices are issued by the Department to an OC as a contractual notification that it has not met a particular requirement of the contract. The default notice may contain details of how the OC should put things right and when the Department expects this to be done. The Department is also able to withhold payment from the OC for failures which are subject to default notices.

The OCs' progress in remedying default notices is closely monitored by the Department and PAG. PAG produces regular reports on default notices and these are circulated to high levels in the Scottish Executive.

In 2004/05, 11 default notices were issued. This shows a considerable reduction from the previous year's 24 notices. While this indicates an improvement in the OCs' performance, the NEI procedure introduced last year has also influenced results by resolving issues without the need to resort to default notices. The number of default notices issued in each year of the contracts is shown in **figure 62**.

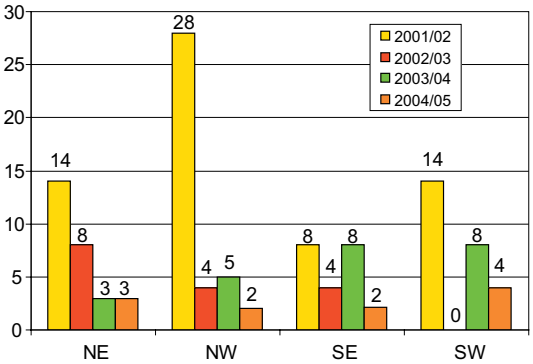


Figure 62 *Default notices issued each year*

Overall progress has therefore been encouraging.

BEAR

BEAR has shown an overall improvement, with the number of default notices issued to NW reducing from five to two. There was no change in NE with the same number of notices issued as last year. Of the five notices issued to BEAR this year, three have been resolved and are now closed (see **figure 63**).

NE	
Surfacing work which was sub-standard	1
Not carrying out routine work required by the contract	1
Lack of supervision of sub-contracted work	1
Total default notices issued in NE	**3**
NW	
Sub-standard surfacing work	1
Financial scheme completion	1
Total default notices issued in NW	**2**

Figure 63 *Subjects of default notices issued to BEAR in 2004/05*

Amey

Amey has also shown improvement over the year in both SE and SW. SE received two notices in the year, down from eight in the previous year. SW was subject to four notices being issued, again down from eight the previous year, see **figure 64**.

SE	
Failure to complete inspections required by the contract	1
Financial scheme completion	1
Total default notices issued in SE	**2**
SW	
Financial scheme completion	1
Delay in completing investigation instructed by the Department	1
Failure to complete required inspections	1
An issue relating to the reinstatement of roadmarkings	1
Total default notices issued in SW	**4**

Figure 64 *Subjects of default notices issued to Amey in 2004/05*

Overall progress on closing out default notices has been good. Over the period of the contract, 115 default notices have been issued and only four remained open at the end of 2004/05 - all with BEAR. It is, however, disappointing to note that two of these were raised in the first two years of the contract. The other two were raised this year. Discussions are ongoing between all parties to resolve these issues.

4.3.4 Key performance indicators

Introduction

KPIs are included in the contracts to provide an indication of the OCs' performance in meeting specific requirements of the contract. They are not used as a contractual performance measure.

PAG assessment for reasonableness

A considerable volume of data has accumulated over the past four years of the contracts. All of the OCs have progressively improved their record keeping, resulting in more robust data being generated.

Most OCs provided almost complete data sets for this year's KPIs. The notable exception being KPI 03 – detailed inspections completed – where Amey provided no data.

OC performance

Comments on significant performance issues, from the data submitted, are noted below:

- KPI 01 – permanent repair of category 1 defects.

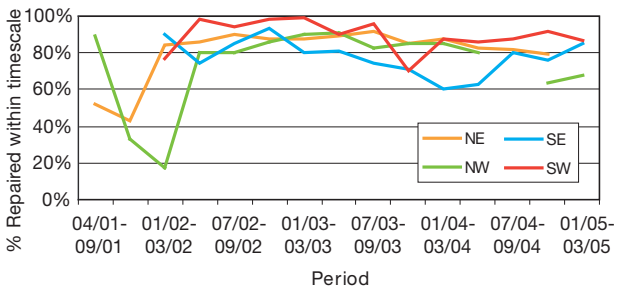


Figure 65 *KPI 01 – permanent repair of category 1 defects*

Full details are given in **section 2.3**.

- KPI 03 – detailed inspections completed

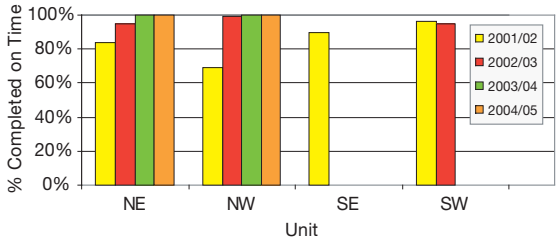


Figure 66 *KPI 03 – detailed inspections completed*

This KPI relates to the OCs' completion of inspections of the network in accordance with the required programme. Full details are given in **section 4.2.9**.

- KPI 07 – emergency response times

The OCs emergency response performance is discussed in detail in **section 4.2.10**.

- KPI 18 – operations completed within timescale

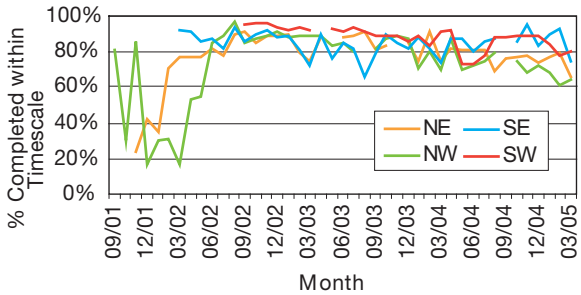


Figure 67 *KPI 18 – operations completed within timescale*

This KPI covers all operations carried out by the OCs.

- NE and NW show a small decline in performance.

- SE and SW maintained a similar performance to last year.

- KPI 25 – planning applications

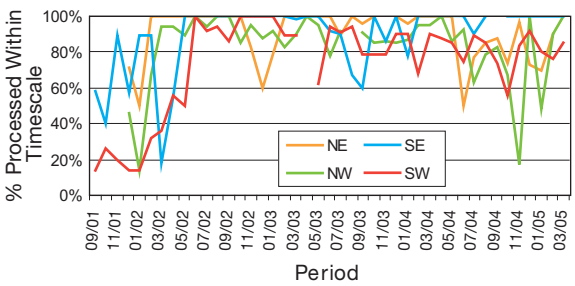


Figure 68 *KPI 25 – planning applications*

This KPI relates to the OCs' comments on planning applications being submitted to the Department within the required timescale.

-In NE and NW, the data indicates a decline in performance and a lack of consistency.

-In SE, Amey recorded very good performance.

-In SW, performance was similar to last year.

- KPI 26 – submission of reports, programmes and minutes

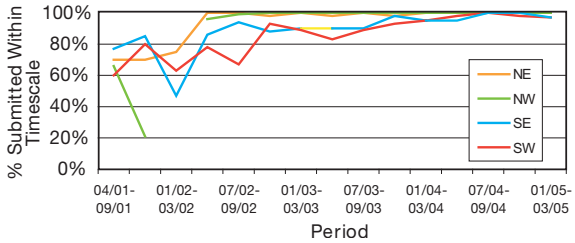


Figure 69 *KPI 26 – submission of reports, programmes and minutes*

KPI 26 relates to reports and other documents prepared by the OCs being submitted to the Department within the required timescales.

- BEAR recorded perfect performance.

- Amey also recorded very good performance.

- KPI 27 – response to public correspondence, enquiries and complaints

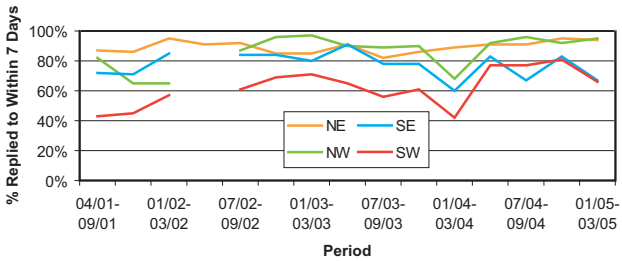


Figure 70 *KPI 27 – response to public correspondence, enquiries and complaints*

KPI 27 relates to the time taken for the OCs to reply to public correspondence.

- BEAR in NE and NW improved from last year and reported consistently good performance.

- In SE and SW Amey still requires to improve performance.

- KPI 28 – draft responses for the Department

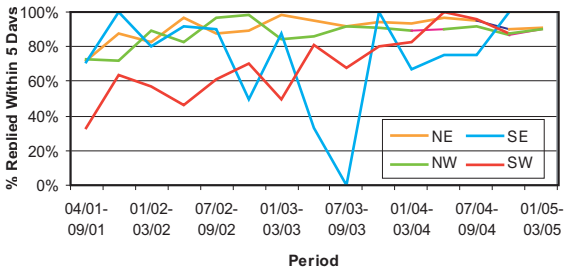


Figure 71 *KPI 28 – draft responses for the Department*

KPI 28 relates to the time taken for the OCs to submit briefings to the Department on ministerial and general correspondence.

- BEAR performance was broadly similar to last year.

- In SW, Amey's performance was significantly better than last year.

- As reported last year, Amey's performance in SE shows large variations which are likely to be due to the small number of responses during each period.

4.3.5 Project partnering

The partnering ethos between the Department, the OCs and PAG continues to enhance the working relationship between the parties.

The aim of partnering is to:

- Recognise common goals.
- Recognise each team's goals.
- Achieve mutual success.

Partnering has been taken forward by a number of formal initiatives and an informal partnering attitude is also prevalent. Both formal and informal partnering significantly improve the success of the contracts by encouraging positive communication. The aim is to promote a 'virtual team', moving away from the more adversarial approach traditionally associated with the construction industry.

Partnering and BEAR

A strategic network board set up previously, to discuss strategic partnering and innovations issues, met this year. The board consists of senior management from the Department, BEAR and PAG.

Partnering and Amey

A strategic network board set up previously has continued to meet throughout the year to look at strategic issues that could influence the running of the contract.

The board consists of senior management from the Department, Amey and PAG.


Roundabout

Partnering in Action

Vital work keeps traffic moving

Wildlife protecting

Emergency work

A partnering and innovations forum, set up previously by Amey, continued to meet up on a quarterly basis. The forum, consisting of managers from all three organisations and an independent facilitator, is tasked with improving partnering at operational level. It actively encourages innovation across the contract.

In 2003/04, the partnering and innovations forum carried out a survey of staff across all three organisations. A similar survey was carried out in 2004/05. The results were encouraging, indicating positive progress in a number of areas since the previous year.

The forum also continued to produce the partnering newsletter 'Roundabout' on a quarterly basis. The aim of the publication is to promote the positive work of the 'virtual team'. It includes factual reports on projects as well as staff news and features from all organisations.

A82 pass of Glencoe in NW

Key points

Operations and maintenance
Autolink Concessionaires plc is responsible for the operations and maintenance of a section of M74/A74(M) between junction 12 (Millbank) and the Scottish border (M6 DBFO project). Included in its remit is routine, cyclic, structural and winter maintenance.

- All the programmed detailed inspections required during the year were successfully carried out.
- Autolink maintained its high standards for routine and cyclic operations, contributing to the good overall appearance of the route.
- Autolink fully met its obligations for winter maintenance response and spreading times.
- The strong record of keeping the motorway available to users was maintained.
- Autolink responded well to emergency situations.
- All customer calls were dealt with promptly.
- Autolink and its contractors demonstrate a strong commitment to the QMS to guide their operations.

5.1 Introduction

M6 DBFO project

The 91 km section of M74/A74(M) between junction 12 (Millbank) and the Scottish border is a vital transport link between central Scotland and the south. This section of motorway is operated under a DBFO contract and for historical reasons is known as the M6 DBFO (design, build, finance and operate) project.

The 30 year contract was awarded to Autolink Concessionaires (M6) plc in July 1997. This included the design and construction of some sections, as well as operations and maintenance of the whole 91 km length. This work included routine, cyclic, structural and winter maintenance.

The agreement between the Scottish Ministers and Autolink differs in several significant ways from the contracts held by the OCs for the rest of the Scottish trunk road network. These differences relate primarily to the remit, which included elements of design-build-finance, as well as ongoing operations and maintenance, and the payment mechanisms. However, the physical operations are specified to similar standards.

PAG acts as Scottish Ministers' Agent for the project.

Autolink's formal reporting year runs from the anniversary of the project agreement, ie 29 July to 28 July annually. For consistency with the rest of this report only performance during the period April 2004 to March 2005 is discussed here.

5.2 Operations and maintenance

The M74/A74(M) is relatively new, the first section of the upgraded route being opened in 1992 and the final sections completed in spring 1999. As a consequence, there is relatively little structural maintenance work necessary at present. Routine, cyclic and winter maintenance make up the majority of the operations and maintenance work. However, major programmed structural carriageway maintenance, will inevitable increase over the years as the road progresses through its design life. During 2004/05 limited pavement reconstruction and resurfacing was carried out at several locations.

Inspections

Autolink carries out a range of inspections under the agreement. Information gathered during these inspections is recorded electronically in the RMMS database. Inspections include:

- Carriageway and hard shoulders.
- Road markings and studs.
- Signs.
- Drainage systems.
- Cuttings and embankments.
- Culverts and short span bridges.
- General and principal inspections of larger structures.

All of the programmed detailed inspections required during the year were successfully carried out on time. In addition, 27 general and 47 principal structures inspections were also carried out as planned. These regular inspections are essential to keep the route safe and to maintain its useful life.

Routine and cyclic maintenance

Autolink carries out the following works as part of its routine and cyclic maintenance obligations. These works are planned and carried out throughout the year and include:

- Repairs to safety fences.
- Repairs to boundary fences.
- Grass cutting.
- Landscape maintenance.
- Litter picking.
- Gully cleaning and sweeping.

During 2004/05 Autolink maintained its previous high standards for these operations. This contributed to the good overall appearance of the route.

Winter maintenance

Winter maintenance is a high profile activity on this vital, and in parts high level and exposed, route. Autolink's performance has a direct impact on the safety of road users.

During the winter period Autolink monitored forecast and actual road conditions and carried out treatments from two depots, at Crawford and Eaglesfield, as set out in its winter maintenance plan. This plan, reviewed annually, was lodged with and consented to by the Department.

Figure 72 *Traffic measurement site on route M6 DBFO*

As has been the trend over recent years, the 2004/05 winter saw many occasions where marginal temperatures required precautionary salting. Autolink fully met its obligations for response and spreading times, achieving KPIs of 100%. There were few prolonged periods of heavy snow which called for more intensive treatment and there were no weather related closures of the motorway. This showed that Autolink was maintaining its high standards from previous years and keeping this important corridor open to traffic. Further details of Autolink's performance are given in **section 3.2**.

Traffic management

During maintenance works the safety of road users and Autolink's workforce is paramount. Given the nature of the motorway with high traffic volumes, high speeds and a high percentage of heavy goods vehicles, only certain limited maintenance operations can be carried out without lane closures. To minimise disruption to traffic many of the maintenance operations were carried out overnight and at weekends.

Autolink has established a strong record of keeping the motorway available to users and this was maintained during the year. The agreement requires Autolink to consult on proposed lane closures and to seek the approval of the Scottish Ministers' Agent (PAG) when works will require the motorway to be restricted to less than two running lanes. Other than under emergency situations, such closures usually only occurred during off-peak periods. With careful and detailed advanced planning, delays to traffic due to works were kept to an absolute minimum.

Traffic counting

An important requirement under the agreement is the measurement of traffic volumes along the length of the route. This is primarily achieved by loops placed in the road surface. A typical site is shown in **figure 72**. These measurements form the input to a complex financial model which calculates the payments to Autolink. A significant part of its ongoing work is the repair, maintenance and replacement as required of the automatic monitoring equipment. Repairs to traffic counting equipment were carried out within a reasonable timescale.

Emergencies

Autolink is obliged to deal with the various types of emergencies that occur on the motorway. A high proportion of such instances relate to road traffic accidents, when Autolink works under police control.

During 2004/05, the carriageways were fully closed on 12 occasions, all following major traffic incidents. On one occasion in October, both carriageways were closed for most of the day to allow the police to complete investigations following a fatal accident. This resulted in major traffic delays. In addition, during December, traffic on the route was severely disrupted by an incident just south of the border outside Autolink's area. As a result of traffic congestion, the police closed a substantial length of the southbound carriageway for 24 hours. There were no weather related closures.

On these major, and the more numerous less severe incidents, Autolink's emergency response times were all well within the timescales required under the agreement.

CCS

In common with the other parts of the motorway and trunk road network, Autolink operates a CCS for enquiries and complaints. Calls are routed to Autolink's main office at Lockerbie. During the period 298 calls were received and many of these related to observations of debris or animals on the road. All calls were dealt with promptly and well within the prescribed timescales.

QMS

Autolink and its contractors, principally the M6 Joint Venture and Golden River Traffic, are required to maintain a QMS complying with the requirements of BS EN ISO 9001, and to ensure it is regularly reviewed. The agreement requires any significant changes to be submitted for assessment by PAG, who must respond within a set timescale. During the year Autolink carried out a major review of its systems to incorporate revisions to ISO 9001, resulting in the publication of a

revised quality plan. These systems were independently assessed and Autolink achieved accreditation to the new standard. In addition, Autolink submitted 50 separate procedures and method statements for review under this process.

To maintain a high standard of compliance with the QMS, audits were performed by PAG, Autolink and M6JV. To avoid duplication, but to ensure audits are as searching and wide-ranging as possible, a joint Autolink/PAG audit schedule is agreed every six months.

During 2004/05, PAG carried out eight audits of Autolink and its principal contractors. In addition, regular meetings were held with Autolink's project quality director.

Autolink has agreed 18 KPIs which are reported to the Department at quarterly intervals. These cover the main operating areas, such as inspections, routine maintenance, winter maintenance, the quality system and customer care. Most are related to requirements within the agreement, but there are others which are used as management information. During this period, all KPI data was reported accurately and on time.

Autolink consistently achieved the target performance on 10 of the 13 indicators linked to the agreement. The missed targets were:

- Suspension of the major road markings renewal programme due to poor weather.
- The postponement of three bridges inspections.
- The late submission of three reports during the year.

The lining programme and the bridges inspections have since been completed.

Among the other indicators, Autolink fully achieved its self-imposed targets for three indicators. The main problem was due to the slow closeout of non-conformities following one particular audit.

It was encouraging to note no default notices were issued during 2004/05.

Autolink and its contractors demonstrate a strong commitment on the QMS to guide their operations.

List of acronyms

Acronym	Title
AIP	Accident investigation and prevention
BIP	Business improvement plan - BEAR
BS	British Standard
CCMS	Contract control and management system
CCS	Customer contact service
CPF	Contract price fluctuation
CQM	Contract quality manager
DBFO	Design, build, finance and operate contract
EMS	Environmental management system
EN	European standard of the CEN
EPA	Environmental Protection Act 1990
FDD	Further detailed directions
FDE	Further detailed enquiries
IMS	Integrated management system
ISO	International Standards Organisation
KPI	Key performance indicators
MCP	Moving cursor programme
NADICS	National drivers information and control system
NE	North East Unit
NEI	Notification of emerging issue
NW	North West Unit
OC	Operating company
OI	Operations instructions
ORI	Observation resulting from inspection
PAG	Performance Audit Group
QMS	Quality management system
RMMS	Routine maintenance management system
SE	South East Unit
SERIS	Scottish Executive road information system
STRUM	Scottish trunk road remedial treatment monitoring database
SW	South West Unit
TRA	The Road Ahead
TRBDb	Trunk road bridges database
VFM	Value for money
WPI	Weekly programme of intent

A82 near Luss in NW

List of figures

Winter conditions on southbound dual carriageway of A9 at Killiecrankie in NW

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