

5 Highways Maintenance

Introduction

Over the Plan period we have seen a significant improvement in the quality of the road network in Cambridgeshire. As detailed in Chapter 4, we have met the new Government benchmarks for the principal road network, with only 4% now in need of repair, and for footways, with only 10% in need of repair. We are close to meeting the benchmarks for the non-principal and unclassified road networks, whose condition has also markedly improved over the period of the plan. We have achieved this by committing considerable funds both from the LTP allocation and additional funding through individual bids and from the County Councils capital and revenue budgets.

This success has been achieved against a backdrop of increased traffic flows in Cambridgeshire, particularly on the principal and trunk roads. This can be seen in **Figure 5.1**. Traffic density on Cambridgeshire's rural trunk A roads is twice the national average, and is 40% above average on other rural A roads. Over the last ten years traffic crossing the county screenline has grown by 23%, compared with national traffic growth of 16%.

Figure 5.1 All Vehicle Traffic Growth in Cambridgeshire by Road Category
(1995 = 100)

Road Type	1995	2001	2002	2003	2004	2005
Trunk	100	116	116	120	122	122
Principal Roads	100	116	116	121	120	123
Other Roads	100	120	121	123	129	127
All Roads	100	117	117	121	124	123

The last ten years have also seen a significant growth in heavy goods vehicles with five or more axles travelling through Cambridgeshire, particularly on the Trunk Road network, but also on local roads such as the A142. The density of HGV traffic on Cambridgeshire's non-trunk main roads is nearly twice the national average.

Road and footway condition in 1999/2000

In 2000, the condition of the road network had been stable since 1993 but decline in previous years had left the condition of the network below 1979 standards. Rural roads, particularly principal roads, were in a worse state than urban, but both were in need of considerable work. On the principal road network 9% of roads had zero residual life and 14% had a residual life of less than four years (as measured by deflectograph). Assessment of trends in maintenance and of traffic growth indicated that if more funding were not made available, 20% of the principal road network would have had no residual life by 2005.

Measurement of road condition

As noted in Chapter 4 (see **Figures 4.1, 4.2 and 4.3**), the methods used to assess road condition have changed (in the case of the non-principal road network, changed twice) over the plan period. While this does make it difficult to definitively state the level of improvement of the non-principal and unclassified road networks, it can be clearly seen from **Figures 4.2 and 4.3** that there has been a great improvement since 2000. The figures for 2002/03 also show the difference in road condition as measured by deflectograph and Coarse Visual Inspection (CVI).

Road and footway condition in 2005/06

Government has announced new benchmarks for road and footway condition. These equate to a state that within known funding, should allow the condition of the network to be maintained at a steady state, without any significant or ongoing backlog of maintenance work. These benchmarks are shown in **Figure 5.2**.

We have put considerable additional investment and commitment to maintaining a viable and safe network, allowing easy travel around the county. This is reflected in our excellent progress improving the condition of the road and footway networks in the plan period.

Principal roads

In 2005/06, only 4% of the principal road network had a residual life of less than 0 years (see **Figure 4.1**, Chapter 4). Funding through the plan period has enabled us to significantly improve the condition of the principal road network, from an initial position where the condition of the network was predicted to deteriorate. While the level of funding has obviously been a contributory factor in this success, the change from a reactive to a proactive maintenance regime has allowed us to better focus maintenance expenditure. As a result, we have managed to exceed our Local Public Service

Figure 5.2 Government benchmarks for road and footway condition

	Benchmark	Actual condition, 2005/06
Principal Roads		4%
Non-principal roads	Less than 12%	13%
Unclassified roads		14.24%
Footways	Less than 25%	10%

Agreement target for principal road condition, and also the challenging LTP 'stretch' targets that we set following our initial good progress.

Non-principal classified roads

The condition of the non-principal road network has improved year on year in the plan period (see **Figure 4.2**). As noted in Chapter 4, we are slightly above the new Government benchmark of 12% non-principal roads with no residual life. Nonetheless, we have exceeded our LTP targets for non-principal road condition. While the impact of interventions on non-principal road condition as measured by TTS are not yet known, we are confident that the excellent progress we have made in the first LTP period will enable us to quickly reach the desired position where funding is sufficient to maintain the non-principal road network at a steady state with no ongoing backlog of works, as is the intent of the new benchmark.



Road maintenance

The unusually hot summer of 2003 caused considerable damage to the non-principal and unclassified road networks. This damage had to be mitigated before any further progress could be made. This resulted in the necessary diversion of funds in the short term from planned maintenance of both non-principal and unclassified roads. While we were able to meet our 2003/04 target for non-principal road condition, this was at the expense of missing our target for unclassified roads in that year due to the exceptional maintenance requirement.

We made a bid for £3 million funding to cover the additional maintenance requirement of the drought damage, and received £2.203 million Supplementary Credit Approval for this purpose. Whilst this was welcome, it did not cover the entire cost of the repairs. In this context, while we are very pleased with the excellent progress that we have been able to make on improving

the condition of the non-principal and unclassified road networks in the past two years, we have not quite achieved the new benchmark of 12% for non-principal road condition. Nonetheless, the condition of the non-principal road network is considerably better than it was at the beginning of the plan period, and will continue to improve.

Unclassified roads

As mentioned above, the damage caused by excessive heat has resulted in us being slightly (2.24%) above the 12% Government benchmark for unclassified road condition (BV224b, see **Figure 4.3**). It should be noted that due to the need to repair more major routes some of the funding for unclassified road repairs was temporarily diverted. The heat also exacerbated damage to some roads already in need of repair work, as the heat caused further structural damage beneath the road surface. This made the repair work more time consuming and expensive. We therefore channelled funding into clearing this backlog of work in 2004/05. As can be seen in the **Figure 4.3**, since peak damage occurred in 2003/04, there has been a dramatic improvement in unclassified road condition, and we have been greatly improved upon our original targets for BV224b in 2004/05 and 2005/06. As with the non principal road network, we are extremely pleased with the progress we have made over the plan period.

Footways

We have succeeded in meeting the new Government benchmark (less than 25% in need of repair) for footway condition, with only 11% in need of repair. Pedestrians are therefore provided with a more pleasant environment and are more likely to walk, helping us meet our objectives and targets.

We are committed to increasing the integration of pedestrian routes into the transport network, particularly for those who cannot drive and find accessing services more difficult. Better maintenance and de-cluttering of the street scene makes accessing amenities easier for the visually impaired or otherwise disabled.

Bridge Maintenance

The extra money channelled into bridge maintenance over the plan period has allowed us to continue to maintain them to a high standard and meet the targets set at the beginning of the LTP period. By 2004 99.47% of all bridges in the county were open to traffic, and 99.5% of bridges in the assessment programme were completed. The number of weak bridges being monitored rose over the period, owing to the county council's preference to monitor bridges constantly and so be able to implement repairs quickly when needed, rather than have to close them when they fail. We have also improved facilities when maintenance work was required. For example, when the span of the Cutter Ferry footbridge in Cambridge was



Footway construction

replaced, it was with a wider bridge deck to allow for use by cyclists. There has been a refurbishment of the Carter cycle and footbridge at Cambridge Railway station, which is now considerably more pleasant to use and has an enhanced feeling of personal security for users.

Some resources have also been committed to the design of the proposed footbridges over the Cam at Riverside, and the River Great Ouse in St Neots. The Riverside Bridge will allow cycle access to the south side of the city without having to use Elizabeth Way, providing a direct and considerably shorter route between Chesterton and retail premises on Newmarket Road. The St Neots Bridge will provide a new link for school, work, retail and leisure trips between Eynesbury and Eaton Socon. Both schemes should help persuade people to leave the car at home.

The roads were not the only structures to suffer from heat damage in the summer of 2003, as bridges were also left in need of some repair. On Westmoor Common in Huntingdon, the bridge failed and needed emergency repairs, using funds found and invested by the county council in the form of capital receipts.

We strengthened 38 bridges over the plan period to take 40 tonne lorries. This is particularly important for the agricultural industry in the fens, and in maintaining rural accessibility.

Maintenance expenditure and investment

Over the whole plan period Cambridgeshire was allocated a total of £46.2 million from the LTP maintenance block. We have supplemented this funding with over £15.8 million capital funding from other sources, including the LTP discretionary element, county council capital receipts, and recycled SCA / SCER from Government. **Figure 5.3** shows total capital and revenue expenditure on road maintenance by year over the plan period, and **Figure 5.4** shows how the capital funding has been spent. These two figures show the priority that we have given to road and bridge maintenance over the period of the plan, highlighting the fact that we have fully spent Government allocations and the very significant additional funding that we have invested from our own budgets.

Figure 5.5 shows the sources of additional capital funding. Approximately three quarters of this supplementary funding was allocated from County Council capital funds (including the SCP discretionary element); the remainder came from Government as a result of various supplementary bids. The SCA Drought was awarded to enable us to clear some of the maintenance backlog that had been created by the need to repair exceptional damage caused by the hot weather conditions in the summer of 2003/04.

Over the plan period, as can be seen from **Figures 5.3** and **5.4**, we have invested heavily where needed.

We have also met our targets for the quantity of streetlights working, with 99% functioning. We have entered into a commercial contract that provides financial incentives to keep as high a proportion of lights working as possible.

Additional Resources

During the LTP period we have used a significant amount of revenue funding to help improve the condition of the highway network. Over £41 million of revenue funding has been utilised to complement the capital programme. This has resulted in a vast improvement in the condition of the county's roads. In addition, a further £19 million revenue funding has been used for other maintenance activities in the county, in the plan period, as detailed in **Figure 5.6**.

Figure 5.3 Maintenance expenditure, 2001-2006

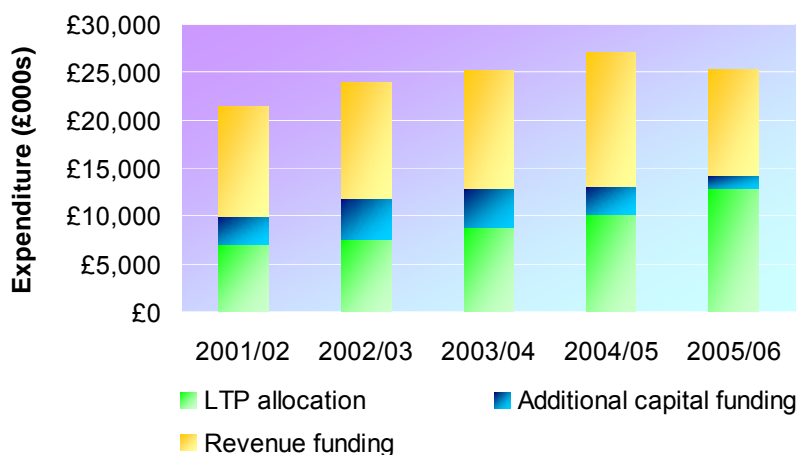


Figure 5.4 Where maintenance capital funding has been spent, 2001-2006

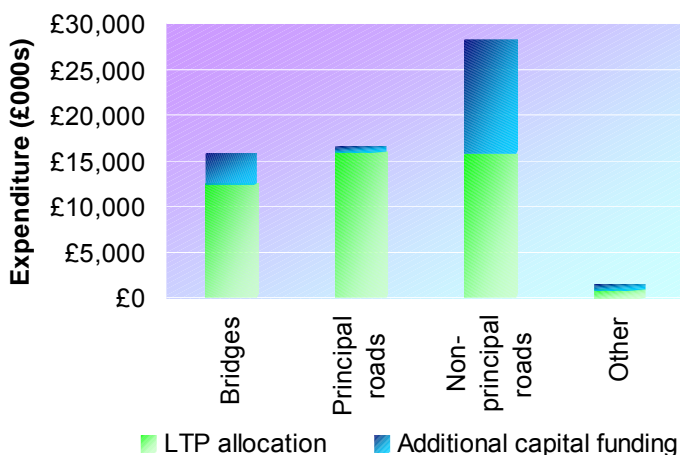
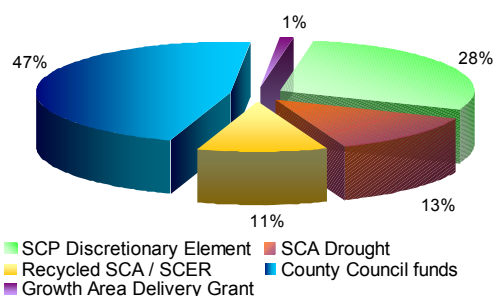


Figure 5.5 Sources of additional capital funding, 2001-2006



Our maintenance team is in the process of changing contracts concerning both the contractors we use to carry out works and the consultants who design them. We have created a partnership with WS Atkins who will carry out both of the above functions. This change should allow us to more efficiently commit resources to maintenance, making the best use of both finance and people.

Implementation of maintenance schemes

We have implemented a considerable number of large schemes both improving road surfaces and structurally enhancing the network. As noted above, the excellent progress we have made is in part due to improvements in the processes and methods we use to identify priority areas for remedial work, and particularly the use of the Pavement Management System to enable a pro-active maintenance regime. This enabled us to meet our target for the principal road condition two years earlier than we initially predicted. This in turn allowed us to focus on the schemes needed to improve the condition of the non-principal and unclassified road networks.

Cambridgeshire has a considerable length of non-principal rural roads linking villages. Due to the dispersed nature and overall length of these roads, it can be challenging to meet their maintenance needs. However, we are committed to improving the condition of the entire road network, as can be seen from the expenditure profile shown in **Figure 5.4**. We have also implemented traffic management schemes and initiatives to limit the amount of damage to minor roads, such as channelling heavy freight traffic onto the principal road network. Not only does this improve the safety and environment on the more rural parts of the non-principal road network, it should also, in the longer term, reduce the need for maintenance of these roads, as less are damaged.

Figure 5.6 Revenue maintenance funding, 2001-2006

Programme	Funding (£000s)
Winter maintenance	£4,292
Road maintenance	£41,817
Bridge maintenance	£1,522
Street lighting	£10,741
Traffic Signals	£2,496
Total	£60,868

Case study: A141 Wimblington and Doddington Bypass –Road Safety and Maintenance scheme



A scheme to reduce accidents in the Fenland District near the villages of Wimblington and Doddington on the A141 was implemented in 2002/03. The works comprised extensive maintenance and resurfacing works to the worn out road, and an accident remedial scheme. This scheme is one example of joint working across programme areas to achieve a reduced overall cost and to lessen the impact of the works on the travelling public. The scheme was project managed and implemented in partnership with Fenland District Council.

There was extensive consultation with the public, local community and stakeholders during which time the scheme evolved through various modifications that took account of the input of local people. The combined surfacing and safety scheme involved the following measures:

- new safer arrangements at four junctions on the A141;
- white lining and red surfacing to discourage dangerous overtaking;
- new signing to give greater emphasis to the road layout;
- new lighting to improve night time visibility;
- pedestrian crossing facilities and new footways to allow safer walking through the junctions; and
- complete resurfacing through the entire length of the scheme.

The scheme has resulted in a 49% reduction in accidents, equivalent to two personal injury accidents per year.

Conclusions

Over this plan period we have met or are on track to meet all of our targets for road and footway condition. We have achieved the new Government benchmarks for principal road condition and footway condition. We are very close to achieving the Government benchmarks for non-principal and unclassified road condition, and should do so within the first two years of our second LTP. We have continued to maintain and improve bridges, streetlights, traffic signals and other transport infrastructure, both with LTP funding and from other capital and revenue budgets.

We have invested heavily in maintenance, over and above the demands of the LTP, as shown above. Much of this funding has come directly from the county council in the form of capital receipts. By continuing to invest and increase the levels of funding available for maintenance, we hope to be able to carry on improving the status of the travel network in Cambridgeshire. By improving the road network we can reduce congestion and delays, leading to cleaner air and easier travel. Also, by maintaining the footways and streetlights we can encourage people to walk where possible, avoiding increased congestion. Overall, we have seen a good return on our use of funding and investment, with roads being in a better state of repair than at any other time in the plan period, and other aspects such as bridges also seeing improvement.