

# **HIGHWAY MAINTENANCE**



A typical road in South Worcestershire

## **Report of the Highway Maintenance Scrutiny Task Group**

**February 2007**

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## **Foreword**

I am pleased to be able to present this scrutiny report on behalf of colleagues. Our task group was made up of 8 councillors drawn from every district of the county. Mike Oborski was part of the original team but sadly his contribution was limited by his final illness.

I would like to thank everyone for their hard work, their enthusiasm and their stamina. It has been a tightly packed programme of work stretching over six months, as can be seen in Appendix 4, taking place at a time of rapid change within the service. Special thanks is due to our Highways Maintenance officers who always made themselves available and were unfailingly helpful despite the pressures they were under. We are grateful to the other authorities we visited for sharing their best practice, to parish councils for their positive input and members of the public who sent us their views.

Lastly, we give our sincere thanks to Professor Martin Snaith, our expert witness, who opened new windows onto the subject and encouraged us to take a much deeper approach.

Service changes and systems improvements were ongoing throughout this investigation and still continue. It is inevitable that some of our observations are already out of date and we welcome the ongoing progress within the highways service. As well as the conclusions and recommendations of this report, we believe that the positive interaction and discussion between scrutiny members, highways officers and best practice elsewhere has opened up fresh thinking on all sides.

**Councillor Liz Tucker**  
**Lead Scrutiny Member**

# Highway Maintenance Scrutiny Report

## EXECUTIVE SUMMARY

The Highway Maintenance Scrutiny Task Group examined what value for money the Council is getting from its maintenance expenditure. Members looked at the current inspection processes, the new Term Maintenance Contract, public satisfaction and how we compared to other authorities. The key findings and recommendations are set out below.

### **WORCESTERSHIRE'S ROAD CONDITION** (see page 7)

The Council is not doing enough planned maintenance to prevent deterioration of the non-principal roads and is therefore not meeting the Local Transport Plan 2 requirement to have no deterioration from 2004/05 levels. It was estimated that around £40m over 6 years (£30m on roads, £10m on footways) would be needed to result in considerable improvement to the road network.

The "Asset Management approach" to resource allocation uses data on road condition to determine when it is best to carry out less costly preventative treatments on (amber) sections of the network to prevent them deteriorating to the point (red) where they need much more expensive repairs in the future. **This approach maximises the value gained for the spending made and for this reason, it is the best approach to spending, particularly in the longer term. Although we consider there must continue to be a separate programme of maintenance, with a separate budget, to deal with the roads in the worst condition (red).**

**Worcestershire is fast approaching, if indeed we have not already reached, the "tsunami" point – where the cost of repairs to the most critical roads overwhelms the available funding - and, without intervention, this situation will continue to develop.**

**It is clear to us that the only solution to the problem of deteriorating road condition in Worcestershire is an additional programme of work requiring an injection of extra funding.**

Any increase in capital investment would have revenue consequences and the precise balance between these requires very careful evaluation. **We therefore recommend that the Directorate carries out detailed modelling in order to assess the programme of work, and its cost, required to stabilise the road network and improve the condition of our roads. This modelling should balance the capital sum required against revenue consequences and sustainability of the highways budget, if revenue consequences cannot be funded from elsewhere.**

### **FOOTWAYS** (see page 8)

Worcestershire's footways are consistently in bottom quartile condition nationally as measured by BVPI 187 which accounts for only 3.77% of the total length. However the real need is to improve category 3 footways, which are not covered by the BVPI. Members considered that the Council's priority should be residents' local needs, rather than the BVPI. **We recommend that the Council adopts a**

**new local performance indicator for footways, which ensures that expenditure can be re-prioritised so that the condition of category 3 footways can be improved.**

**SATISFACTION** (see page 9)

We were struck by how other Councils placed public satisfaction at the core of service delivery, ranging from contact and consultation with the highways service to easy availability of information.

We found that County and Parish Councillors felt they lacked information on the planned maintenance programme in their area and clearly relationships between the highways service and parish councils could be improved.

**We therefore recommend:**

- **the reintroduction of a highway maintenance newsletter to parish councils and councillors; and**
- **that individual relationships be forged via regular meetings between the District Liaison Engineers, other relevant highways officers/engineers, and parishes.**

**We also recommend that better information for parish clerks should be provided on planned maintenance works and priorities for repair through both the HUB and website, and the creation of a series of information leaflets, which could also be made available for public use.**

**TERM MAINTENANCE CONTRACT** (see pages 12, 14 and 15)

The contract's Key Performance Indicators (KPIs) may not be enough to ensure quality and neither do they include any measurement of public satisfaction with the highway network. **We recommend that there is an audit of our KPIs and possible adjustments, similar to the best practice we saw in Gloucestershire.**

**Quality of defect repairs** (see page 13)

We found there was huge dissatisfaction among residents about the poor quality of repairs to safety defects (potholes) and concluded that **the directorate should ensure that the necessary training and motivation of Area Response Teams (ARTs) is undertaken, documented and monitored appropriately.**

The contract has no individual job penalties or monitoring of ARTs' work and the KPIs do not specifically refer to quality of ART jobs completed. **We recommend that key performance indicators based on quality of work should be introduced at the earliest opportunity. The Council should:**

- **devise a system of checks on the quality of ART work . Serious consideration should be given to implementing a small percentage of checks, rising or falling over time depending on levels of concern, the results to feed into key performance indicators;**
- **ensure that ARTs have received adequate training and practice in agreed methods of repairing pot holes and other road defects; and**
- **ensure that ARTs are aware of the requirement to repair other potholes close to those identified for repair and can use their initiative and common sense.**

We have been unable to find a mechanism to record defect repairs or repeat repairs so that they can be picked up in the planned maintenance programme. **We recommend that all defect repairs are logged into the planned maintenance programme properly.**

**UTILITIES** (see page 15)

Members queried whether the Council should pay for extra inspections (above the 10% already carried out) of utility openings to save on the cost of inheriting unnecessary maintenance work. **We recommend that further work is done on whether the additional costs of inspection at the end of two years would outweigh the costs incurred if the county council had to repair a similar percentage of defects on the remaining 90% of utility openings.**

We understand that action plans and joint coring with utilities have been developed in Worcestershire to ensure effective joint working. **We recommend that the Environmental Services Directorate considers whether examples of best practice in Hertfordshire and Kirklees, through pro-active engagement with the Regional Highways and Utilities Committee (HAUC) could lead to improved relationships with utilities in Worcestershire.**

# HIGHWAY MAINTENANCE

## REPORT OF THE SCRUTINY TASK GROUP

### Introduction

1. The condition of Worcestershire's roads is a major issue for the public. The Highway Satisfaction Survey<sup>1</sup> (2003) showed that 95% of residents felt it was important that roads were free from potholes (defects). This survey also showed that 96% felt it was important that the roads and pavements look well maintained.

2. Roads and pavements (known in the trade as "footways") are used daily by the majority of people and are fundamental to the economic, social and environmental well being of the community. They help to shape the character and quality of the local areas and make an important contribution to the wider local authority priorities, including regeneration, social inclusion, community safety and health. Increasing traffic levels increases road deterioration and congestion. "Inadequate investment in highway maintenance has implications for these areas as well as safety and journey reliability".<sup>2</sup>

3. Poor road and footway condition can have an impact on residents' quality of life. More than 11,000 adults aged 55 or over were admitted to hospital in the county over the last 2½ years due to trips/falls.<sup>3</sup> It is not possible to tell how many of these accidents were due to faulty or uneven road surfaces, unless individual patient records are checked. However, members recalled instances of residents tripping or falling over raised kerbs or uneven surfaces resulting in serious injury and long term health consequences.

4. One of the County Council's corporate priorities is to improve the condition of roads and footways. There have been a number of changes to the way the highways service is organised and a new highway maintenance contract has been let with a new company, Ringway. However highways budgets are traditionally vulnerable and £1.4m was taken out of the budget in 2006/07.

5. Members were concerned whether the Council is doing enough to ensure effective highway maintenance. The 2006/07 general survey<sup>4</sup> shows that, after activities for teenagers, roads and footways are the most important things that people think need improving in their local area. In addition, County, District and Parish Councillors receive numerous complaints about road condition and poor quality of repairs from their constituents, particularly in rural areas.

6. This report examines the current situation, outlines the problems and suggests some possible solutions.

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<sup>1</sup> BMG Research Report – Highway Satisfaction Survey for Worcestershire County Council, August 2003, fig 23, page 34 & fig 8, page 16

<sup>2</sup> Maintaining a Vital Asset – page 3 (Department for Transport publication)

<sup>3</sup> A current research project by the Primary Care Trust – 'WiNN Project – Better Footways'

<sup>4</sup> 2006/07 BVPI General Satisfaction Survey – all Councils are required to complete this survey and the results are published by the Audit Commission

## **Terms of Reference**

7. The scrutiny took place in two stages so that an interim report (attached at Appendix 1) to coincide with the budget scrutiny process could be produced.

### *Stage 1*

To gain a greater awareness and understanding of the current situation with the highway maintenance service, including:

- highway and footway maintenance policy and objectives;
- current performance – what is happening on the ground;
- how the County Council monitors the effectiveness and quality of the work of the contractors;
- the costs of highway maintenance and the purchasing power of existing budgets;
- the expected efficiency savings for highways maintenance for 2007/08 as well as possible budget reductions and the implications on the nature and movement of the current backlog of repairs to highways and footways;
- what criteria are used to determine priorities for highways and footway maintenance and how are defects identified and processed to produce a shortlist of prioritised repairs.

### *Stage 2*

To examine:

- what value for money the County Council is getting for its expenditure on highway maintenance (in comparison with other authorities);
- inspection (of the road surface) processes compared to other authorities in order to identify best practice and possible improvements for Worcestershire;
- the differences between the old and new Term Maintenance Contracts;
- public satisfaction; and
- how claims against the County Council are dealt with.

## **How the scrutiny was carried out**

8. This was a long and complex scrutiny; Members were on a steep learning curve. The scrutiny task group was made up of members from divisions in each of the 6 Districts. Evidence was gathered initially by reading relevant documents and information, and by visiting our own depots in Malvern and Lydiate Ash to find out how works on the ground were carried out. We spoke to a number of our own officers involved in highway maintenance activities from safety and condition inspections to contract and finance officers. We split into small groups to visit District Liaison Engineers in Bromsgrove, Malvern, Worcester City and Wychavon. The task group saw some examples of highway work in Worcestershire. We then went further afield, visiting and speaking to officers and councillors in a number of beacon<sup>5</sup> and best performing Councils in the UK

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<sup>5</sup> Kirklees Metropolitan Council gained beacon status in 2003/04, mainly for its community focused approach to street and highway works and concentration on improving their own and utility companies performance. Cornwall County Council also gained beacon status for its voluntary agreement with utility companies on their sensitive road network.

including Kirklees, Lancashire, Hertfordshire, Gloucestershire, Portsmouth, Cornwall and Northern Ireland. We watched Devon County Council's approach to utilities on a DVD 'Who's digging up your road'. We gathered evidence from various organisations, receiving input from the County Association of Local Councils (CALC), parish councils and the Regional Director of Ringway. The key learning points from each of these visits is summarised in Appendix 2. Questionnaires were sent to our nearest neighbour authorities (as defined by CIPFA). We found that authorities have different ways of recording road maintenance costs and it is difficult to make meaningful comparison. Also, we have not had time to fully analyse the data received although the findings are attached at Appendix 3.

9. A list of the task group's activities and documents made available can be found at Appendix 4, with a glossary of terms at Appendix 5.

10. We are very grateful to all those who contributed to the scrutiny, in particular our expert witness Martin Snaith, the Emeritus Professor of Highway Engineering (Formerly Pro-Vice-Chancellor) at Birmingham University<sup>6</sup> who helped us immensely in our understanding of the subject and had a significant impact on our thinking in relation to achieving value for money for planned maintenance.

## **Worcestershire's Road Condition**

11. The core objective of highway maintenance is to deliver a safe, serviceable and sustainable network.

12. The annual National Road Maintenance Condition Surveys (NRMCS), based on a very small sample (0.5% of the network), show that Worcestershire's road condition was deteriorating between 1990-97 but had started to improve since 1998.

13. Worcestershire's A roads are in good condition, however compared to the rest of the country the B, C and Unclassified roads, which make up 88% of the network, are in poor condition. The table below (figure 1) shows the condition by class of road, according to the Best Value Performance Indicators (BVPI).

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<sup>6</sup> Martin Snaith, the emeritus professor of Highway Engineering, Birmingham University (Formerly Pro-Vice-Chancellor) OBE, MA, BAI, MSc, PhD, ScD FEng, FICE, FIHT. Professor Snaith also holds the position of Highways Advisor to the Roads Service, Northern Ireland, and TRANSIT (New Zealand). His research interests are:

- Management of resources for the operation of road networks.
- Analytical processes for the investigation and design of road maintenance options.
- Road engineering in residual soils.
- Extensive and continuing research into the optimisation of network condition with the minimisation of both user and agency costs. An integral part of this is the definition of network condition and capital value. Research into this is continuing in partnership with TRANSIT (New Zealand), amongst others.
- The practical application of these techniques throughout the world for both public and private road networks.

Figure 1

BVPI	2000/01	%ile	2001/02	%ile	2002/03	%ile	2003/04	%ile	2004/05	%ile	2005/06	%ile
223 (96)	3.30%	1	2%	1	3.40%	1	5.64%	1	35.25%	2	7.00%	NC
224a (97a)	11.50%	3	11.10%	3	20.70%	3	26.25%	3	21.35%	4	20%	3*
224b (97b)	9.23%	3	11.10%	3	18.10%	2	17%	3	20.33%	3	20.73%	3*

Key

1	above upper threshold
2	between median and upper threshold
3	between median and lower threshold
4	below lower threshold

\* based on 2004-05 (latest available) outturn data

**BVPI 223** (was BVPI 96 before 2005/06) – Percentage of the local authority principal road network where structural maintenance should be considered

**BVPI 224a** (was BVPI 97a before 2005/06) – Percentage of the non-principal classified road network where structural maintenance should be considered

**BVPI 224b** (was BVPI 97b before 2005/06) – Percentage of the unclassified road network where structural maintenance should be considered

14. Worcestershire's road condition can also be classified using a traffic light system as being in either Red, Amber or Green condition. These categories indicate roads in critical condition, in need of maintenance but not yet critical, and good condition. For Worcestershire the figures are:

	Red Critical condition	Amber In need of maintenance (but not yet critical)	Green Good condition
<b>A roads</b>	7%	37%	56%
<b>B &amp; C roads</b>	20%	49%	31%

## Worcestershire's Footways

15. Worcestershire's footways are consistently in bottom quartile condition nationally as measured by BVPI 187.

BVPI	2000/01	%ile	2001/02	%ile	2002/03	%ile	2003/04	%ile	2004/05	%ile	2005/06	%ile
187	NA	NA	NA	NA	66%	4	60.22%	4	62.79%	4	46%	4*

**BVPI 187** - Percentage of the category 1, 1a and 2 footway network where structural maintenance should be considered

16. However, this BVPI only measures the most heavily used footways amounting to no more than 3.77% of the total length. The remaining 96.23% of footways, (includes those on estates and lesser used rural footways) can be assumed to be in generally poorer condition than the BV187 footways.

17. At £300k per annum, claims for trips on Worcestershire's footways are comparatively low, and we are told it is anticipated will be lowered further by the

introduction of the dedicated claims team. However, poor footway condition inevitably has an impact on public opinion of the services provided by the County Council.

18. Historically, spend on footways has been held down at between £2m and £2.5m to maximise funds available for carriageways. An extra £500k in 2005/06 and £225k in 2006/07 was allocated to improve the footways covered by BV187. For 2007/08 it would be expected that footway spend should be approximately £2m, leaving about £8m for carriageways.

19. Based on raw lengths alone, irrespective of footway construction and condition, approximately 82% of this should be focussed on Category 3 footways, with only approximately £100k spent on category 1 and 2 footways (footways are classified into 5 different categories). In 2005 the expenditure on categories 1 and 2 was five times this amount in order to address only 117km of footways.

20. This is because the footway BVPI (187) only measures the condition of Category 1 (main shopping) and Category 2 (busy urban) footways, which form only 3.7% of the entire network length. By far the longest length of footways fall into Category 3 (quiet urban).

21. It is clear that the real need is to improve category 3 footways, which are not counted as part of the BVPI 187. If expenditure was focused on category 3, rather than 1 and 2, this would have a detrimental impact on the BVPI (and possibly the Council's excellent status). However Members considered that the Council's priority should be residents local needs, rather than the BVPI. Enabling residents, and older people in particular, to walk safely would promote independence and help to encourage healthier lifestyles.

**22. We recommend that the Council adopts a new local performance indicator for footways, which ensures that expenditure can be re-prioritised so that the condition of category 3 footways can be improved.**

## **Satisfaction**

23. We were struck by how other Councils placed public satisfaction at the core of service delivery, ranging from contact and consultation with the highways service to easy availability of information.

24. In Worcestershire, the most recent highways satisfaction survey in 2003 found that of all respondents, 49% were satisfied (37% dissatisfied) with the general condition of road surfaces.<sup>7</sup>

25. During the scrutiny members met and surveyed over 100 parish councillors (see Appendix 6 for analysis of the responses). The survey found that 75% were dissatisfied with the condition of their local road surfaces (compared with 66% in 2003). In particular the condition of rural and minor roads was felt to be poor. Redditch and Droitwich residents at spotlight forums raised similar concerns.

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<sup>7</sup> BMG Research Report – Highway Satisfaction Survey for Worcestershire County Council, August 2003, fig 7, page 14

26. 57.5% of parish councillors told us they were dissatisfied with the condition of the footways. However there were mixed comments - some noted their local footways were uneven and in poor condition, others commented they were in good condition due to recent refurbishment.

27. We also sent a questionnaire to all County Councillors. We had just over 20 responses and the vast majority were dissatisfied with the condition of their local road surfaces (85.7%) and 71.4% were dissatisfied with the condition of the footways. The only questions that received a majority satisfaction were the condition of verges, contact with the County Council and Parish Lengthsman Scheme. The analysis of the responses are in Appendix 7.

28. There was evidence that some (mainly safety) repairs to road defects are of poor quality. Over 50% of parish councillors were dissatisfied with what they described as 'ineffective and poor quality' repairs.

29. Nearly 74% of parish councillors were dissatisfied with the time taken to repair defects (compared with 70% in 2003).

30. Parish councils were very keen on the Parish Lengthsman Scheme and found it very valuable. We welcome the recent agreement to continue with this scheme, but note that currently there are about 80 (out of around 150) parishes in the scheme.

31. Parish councillors were particularly dissatisfied about not being kept informed more regularly about highways matters and priorities for repair. Similarly, there were comments that little or no information is given in advance of starting road works. Just over 70% were dissatisfied with feedback from the council after defects were reported, whilst 63.8% said they were dissatisfied about contact generally with the County Council.

32. A large majority of County Councillors (65%) said they were very dissatisfied with feedback after defects are reported. Many commented that there is never any feedback and reported defects have to be chased up to ensure any action is taken. 45% said they were satisfied with County Council contact (as opposed to 40% dissatisfied). However, there were a number of comments stating that it was difficult to speak to the correct person in the Highways department.

33. We found that County Councillors also felt that they were not well informed about the planned maintenance programme in their area. Previously lists of planned works were circulated to councillors, but these had not been issued to many councillors recently. Similarly, parish councils used to receive a regular newsletter, which they had found helpful. **We recommend the reintroduction of the highway maintenance newsletter to parish councils and councillors.**

34. Highways have started to use the Hub to enable people to report and track repairs reported by them. The web site is being developed to provide a wealth of information about road maintenance and road closures. It is hoped that interactive plans for future schemes will also be available.

35. Clearly relationships between the highways service and parish councils could be improved. To assist this **we recommend that individual relationships be**

**forged via regular meetings between the District Liaison Engineers, other relevant highways officers/engineers, and parishes.**

**36. We also recommend that better information for parish clerks should be provided on planned maintenance works and priorities for repair through both the HUB and website, and the creation of a series of information leaflets, which could also be circulated to the public.**

## **Current strategy**

37. Given the problems with road condition, quality of safety defect repairs and satisfaction outlined above, the scrutiny task group was keen to find out:

- how quality is measured and ensured
- what is being done to improve road condition and service efficiency and
- what is being spent and how is value for money ensured.

38. Members findings and recommendations with regards to these issues are set out later in the report.

## **Policy and Objectives**

39. We recognise that the Highways Service is going through a period of change. A new Term Maintenance Contract has been let with Ringway and there has been a re-organisation in the way which highways maintenance is delivered to bring together county council and contractor staff in the depots. The process for prioritising the planned maintenance programme has been centralised and we understand that the Directorate is aiming to reduce the need for reactive maintenance through long-term planned maintenance and patching programme. Our report explores how this can be achieved.

40. The Council has not had any long-term strategic plans for the future of highway maintenance.

41. We are aware of the recommendations resulting from the Transport Research Laboratory (TRL) review of highway maintenance policies practices and procedures<sup>8</sup> and that progress on the 39 recommendations formed part of a report to Cabinet on 9 Feb 2007. Work is still ongoing with regards to TRL's recommendations on the Highway Maintenance Plan, which should be used to reinforce new policies and practices to all maintenance staff.

42. Since September 2005 the Council's Highways Maintenance Policy has been based on the principles contained in the national code of practice for highway maintenance management, *Well Maintained Highways*, July 2005.

### *Highways Asset Management Plan*

43. The new codes of practice require the development of a Highway Asset Management Plan (HAMP) to demonstrate the value of highway maintenance in delivering wider corporate strategy objectives, transport policy and value for

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<sup>8</sup> TRL Road Death Investigation – Review of Highway Maintenance Policies, Procedures and Practices 31 March 2006

money. Effective asset management planning enables authorities to understand the value and liability of their existing asset base and make the right strategic decisions to ensure its value is safeguarded for future generations. The Government is now requiring all highways authorities to value their highway networks. In Worcestershire, a HAMP is currently being developed and should be completed in spring 2007.

### **Term Maintenance Contract**

44. A new highway maintenance contract was let with Ringway in April 2006. This contract is a new way of working and is based on the ICE's New Engineering Contract as recommended by Sir Michael Latham in his 1994 report, *Constructing the Team*. Worcestershire was one of the first authorities to adopt this new style contract, but the contract was based on consultation on best practice with other local authorities and with a wide variety of contractors. Lessons were also learned from the experiences, trials and experiments that took place within the previous contract.

45. The new contract includes key performance indicators (KPIs), which are intended to provide incentives for continued improvement throughout the duration of the contract. We discuss monitoring of quality of works later in the report, however Members were concerned that the contract's KPIs may not be enough to ensure quality. We also noted that they do not include any measurement of public satisfaction with the highway network.

46. We were impressed with Gloucestershire's approach, which relied on joint working with their contractor whose profits were linked (by a scoring system) to performance, quality and public satisfaction indicators). **We recommend that there is an audit of our KPIs and possible adjustments, similar to the best practice we saw in Gloucestershire.**

47. The contract also includes a "pain/gain mechanism", the *Target Cost Approach*. For a particular piece of work, a target price is prepared using the tendered rates. As the work progresses, the actual costs are recorded and paid to the contractor. When the work is completed, the actual costs are compared with the target price and the difference is shared in proportions set down at the contract preparation stage. In this way, if actual costs are lower than the target cost, both contractor and county council would benefit (the County Council share 50/50 any gain 3% over target). However, if the actual cost of a job exceeds the target, the excess is shared 50/50, but only up to 115% (i.e. the County Council never paid more than 7.5% excess). This should provide a powerful incentive for both parties to undertake the work together in the most efficient possible manner. However this exercise is carried out on an annual basis and members were concerned that this blurs the effectiveness of pain/gain.

48. Brian Moss, Ringway told us that the cost of calculating a target cost and administering this process was more than it was worth for low value orders (ie below £3,500). The Head of Highways agreed that this should not be happening.

49. It was explained that process mapping is taking place on the work of contractors and council staff in the new depots to ensure maximum effectiveness from co-location. The Council is working with Ringway to train and incentivise staff to work as efficiently as possible, in particular there is a focus on the quality

and productivity of the work of the Area Response Teams (ARTs). We understand there are now plans to bring the ARTs under the direction of the Council.

50. However, the full benefits of the new contract will not be realised this year due to the delays in co-locating staff and the culture change needed. This may have a financial impact if the expected efficiencies do not materialise this year.

## **Reactive Maintenance (Safety Inspections & Defect Repairs)**

51. An inspector is sent out to all reported defects in the road, reacting to PEMS (Phone Enquiries Management System) enquiries. The inspector determines, based on risk assessment, whether the defect needs repairing. Not all reported defects are repaired, as they might not reach the necessary 'intervention level', unlike Hertfordshire Highways, where all reported potholes are repaired.

52. Criteria laid out in the Codes of Practice are used to determine whether an identified defect needs to be repaired within 24 hours, 7 days, 8 weeks or repair during the next available programme, schedule more detailed inspection, or review condition at next inspection, based on an assessment of the risk of deterioration before next visit. Repairs needed are categorised, logged and sent to the depots where jobs are allocated to an ART, which is then sent out to do temporary repairs.

53. Other Safety Inspectors concentrate solely on inspecting a dedicated area. The new codes of practice mean that high-speed roads such as the A38 are now safety inspected once per month as opposed to every 3 months. Unclassified roads are inspected a minimum of once per year.

### **Process for repairing potholes**

54. At the start of our scrutiny we were told that the process for a temporary repair of a defect is to sweep out loose material, fill with cold bitmac and flatten with a vibrator plate.

55. Worcestershire Highways had a deliberate policy to use cold fill repairs to defects as these achieve a quicker response time in dealing with the defect.

56. Health and safety issues and the danger of industrial diseases such as vibration white finger (caused by vibrating equipment such as pneumatic drills) was another major consideration in the argument for cold fill defects. Such machinery could now only be operated for limited periods at a time and the costs to the industry are increased due to the need for risk assessments and more supervision. However such equipment is not needed with the current cold fill process.

### **Quality of defect repairs**

57. The level of dissatisfaction amongst the public, parish and county councillors on the quality of repairs to potholes was noted earlier in the report. As an example, the task group observed an Area Response Team (ART) do a temporary repair to a pothole in Albert Park Road, Malvern. A member of the public described to members how the ART had previously repaired two defects

right next to the one being repaired. He complained about the inefficiency and wished to know why all three had not been filled and patched at the same time. The ART drove over the patch with the van tyres to help compact it. Members considered that the temporary repair was done very quickly, with no attempt to neatly finish or properly compact the repair. The depot manager agreed that the job was unsatisfactory.

58. Members of the task group received complaints from the public about the poor quality of repairs to defects, resulting in several repeat visits. It is clear that the current situation is a huge source of dissatisfaction among residents.

59. There are a number of possible causes for low standards of work.

*No proper mechanism for monitoring quality of work by ARTs*

60. The contract has no individual job penalties or monitoring of ARTs' work and the KPIs do not specifically refer to quality of ART jobs completed.

61. We have found no evidence of any system of checking quality of the work of ARTs in Worcestershire.

62. Because ARTs mainly carry out temporary repairs, the Highways Service has not set up a (costly) system of supervision of their work. The authority therefore only finds out about poor quality work when someone complains about it.

63. Kirklees, had a well documented system for monitoring the quality of large schemes to minor maintenance work. The Principal Engineer in Northern Ireland advised that for their small work teams, they have a system of 10% checks on all work completed, if results are poor this increases to 20%, if results are good, checks decrease to 5%. They believed that it was well worth spending a small proportion of their budget on monitoring quality.

64. In our discussions with parish councillors they offered to act as the "eyes and ears" of highways.

*No follow up to check job has been completed*

65. We asked what would happen if a job had not been completed on time, or not completed at all. Assurance was given that the Council would not pay for work that had not been completed and advised that the target cost approach in the contract provides incentives to get a job of work done by a certain date.

66. However, whilst the target cost approach and KPIs may help assure quality and value for money for larger planned works, these are irrelevant for minor repairs as ARTs are employed to do a set number of hours.

67. We watched the Channel 4 Dispatches programme 'Who's digging up your road' which highlighted evidence of some contractors lack of productivity - eg workers observed doing 1hr 27 mins of work in a 4 hour period. We are not suggesting and have no evidence that this might be a problem in Worcestershire – we are just asking how would we know if no one checks?

**68. We recommend that key performance indicators based on quality of work should be introduced at the earliest opportunity. The Council should:**

- **devise a system of checks on the quality of ART work. Serious consideration should be given to implementing a small percentage of checks, rising or falling over time depending on levels of concern, the results to feed into key performance indicators;**
- **ensure that ARTs have received adequate training and practice in agreed methods of repairing pot holes and other road defects; and**
- **ensure that ARTs are aware of the requirement to repair other potholes close to those identified for repair and can use their initiative and common sense.**

#### *Dissatisfaction with cold fill*

69. We initially considered that many of the problems were due to the use of cold fill bitmac. Kirklees and Gloucestershire told us they only use hot material as they believe it gives a higher quality and longer lasting repair, in contrast to cold repairs, which in their view do not last and are not cost effective. In Hertfordshire the public have complained about the use of cold fill.

70. However Lancashire were happy to cold fill repairs and it was explained that cold bitmac can, if used properly, provide very effective repairs which can last up to 2 years.

71. The TRL review noted that a trial of a 'hot-box' for pothole repairs in one HPU, if successful, would greatly improve durability and allay maintenance staff concerns on the current practice for only cold fill material. We are pleased to find that this has been successful over the winter and resulted in hot-boxes being used in both maintenance depots. The trial found that hot fill material is more effective in wet and cold conditions.

72. After much discussion, we conclude that the quality of repair depends on the level of skill and commitment to doing a good job of the ARTs, whether using hot or cold material. The department should ensure that the necessary training and motivation of ARTs is undertaken, documented and monitored appropriately.

#### **Links with the Planned Maintenance Programme**

73. Defects are often a sign of underlying damage and longer lasting repairs on a planned maintenance programme are better value. The planned maintenance programme is determined by the annual condition survey results.

74. We have found there is no mechanism to record defect repairs or repeat repairs so that they can be included in the planned maintenance programme. **We recommend that all defect repairs are logged into the planned maintenance programme properly.**

#### **Utilities**

75. Beneath our streets and footways, utilities' pipes and cables convey water, waste, energy and information. Due to recent increases in the number of cable companies, about 200 organisations can now dig up our roads, imposing

additional strains on the road infrastructure. As owner of the asset, the authority is responsible for co-ordinating works, and for ensuring that the road continues to be safe and available for users.

76. Concerns were raised about the quality of the reinstatements to these openings. Members also wanted to be assured that any defects caused by utilities' openings were picked up early enough.

77. Utilities are responsible for remedial work when their reinstatements fail within a two or three year guarantee period.<sup>9</sup> However, their responsibility is not limited if it can be proved that reinstatements are not up to specification.

78. There is also a joint coring programme which is funded by the utilities.

79. There is a statutory inspection programme on 30% of utilities works, carried out by the Highways Authority and funded by the utilities. They are required by law to pay authorities the cost of the inspection programme. This amounted to over £88,000.00 in total last year (2005/06). The authority is statutorily obliged to carry out:

- 10% of sample inspections during progress of works (A);
- 10% within 6 months of reinstatement (B); and
- 10% within three months preceding the end of the two or three year guarantee period (C).

80. This year (2006/07) the failure rates were: 11% (often these were health and safety issues such as signage), 9% and 4% for A, B and C inspections respectively. Last year (2005/06), the 3% failure rate in category C inspections resulted in 43 repairs being carried out. If there was 100% category C inspections, this could result in a total of 430 repairs.

81. Members queried whether the Council should pay for extra inspections of utility openings in order to reduce the amount of defects that may arise in the long term and save on the cost of inheriting unnecessary maintenance work. In Kirklees, they do not inspect every repair reaching the end or the 2 year warranty period although they have carried out some additional inspections. In reality, experience has taught them that some gangs work better than others and they therefore now target inspections accordingly on the weaker gangs..

**82. We recommend that further work is done on whether the additional costs of inspection at the end of two years would outweigh the costs incurred if the county council had to repair a similar percentage of defects on the remaining 90% of utility openings.**

83. We watched the Channel 4 Dispatches programme 'Who's digging up your road' which highlighted various problems with the contractors working for utilities. This included poor quality work being signed off by the contractors' supervisor, in turn causing return visits and more disruption for residents (especially those with a disability). It was noted that the costs are passed on to the consumer. Devon County Council's approach was to prosecute utilities where poor quality work was

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<sup>9</sup> 2 years if the depth of trench was 1.5m or less, and up to 3 years if more than 1.5m.

not reinstated. They have made about 500 prosecutions in the last 3 years, more than all other local authorities.

84. However, Kirklees Metropolitan Council described how they had similarly suffered from a period of poor quality repairs by their utilities contractors. They had learned from experience that rather than 'going to war', it was better to focus on quality improvement measures and a mutual understanding that digging up roads reduces the life of the road. Kirklees Metropolitan Council, like Cornwall (also a Beacon Authority) then successfully built up a good relationship with the main utilities companies. The authority made it clear that it would insist on rectification of poor quality repairs. It was therefore imperative that the contractors worked to agreed specifications. This was supported by the utilities, who noted that any work to a lower standard than agreed in the specification was fraudulent behaviour by the contractor.

85. Kirklees have received support through their Regional Highways Authorities and Utilities Committee (HAUC), and worked with Yorkshire Water to develop a Charter focusing on improving service, minimising disruption and achieving high quality standards.

86. In Hertfordshire, their Regional Highways Authorities and Utilities Committee had created a buddying system for each Local Authority within the region. Hertfordshire Highways had 'buddied' with the Electricity supplier, EDF, and worked together to achieve improvement and share best practice in the region. Although this had been awkward and difficult (at times involving court cases), following an agreed improvement plan, had improved mutual understanding and how they worked together.

87. It is clear that a good relationship with major utility companies can lead to improvements in the quality of reinstatements and help improve co-ordination of utility works with an authorities own planned maintenance programme. We understand that action plans with utilities have been developed in Worcestershire to ensure effective joint working.

**88. We recommend that the Environmental Services Directorate considers whether examples of best practice in Hertfordshire and Kirklees, through pro-active engagement with the Regional HAUC could lead to improved relationships with utilities in Worcestershire.**

## **Planned Maintenance**

89. A road's condition declines from the time of its completion due to the effects of both traffic (including heavy lorries for example) and the environment. The Department for Transport expects that, as a minimum requirement, "authorities should aim to ensure no overall deterioration in local road conditions from 2004/05 levels, during the second Local Transport Plan period (2006 – 2011)".<sup>10</sup>

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<sup>10</sup> 'Maintaining a Vital Asset' p4 – (Department for Transport Publication)

90. The planned maintenance programme is based on the outcomes of regular condition survey inspections: all A, B, C and 50% of Unclassified roads are surveyed each year (see Appendix 8 for details of this process).

91. Defects in the carriageway identified by condition surveys are input into the UK Pavement Management System (UKPMS) software. UKPMS calculates condition indices for each type of defect (see Appendix 8). If the condition index is above a certain threshold the system triggers a recommended treatment and an engineer assesses the outcome. The Council considers for inclusion in any planned works programme Principal road sites with an overall condition index of 60+ and Non-Principal roads with an overall condition index of 70+. Please note that road condition can also be categorised as red, amber or green – see Appendix 8 for description and equivalents to Condition Index scores).

92. In terms of the condition of Non-Principal roads the average annual rate of deterioration is in the order of 4.3% pa. In 2005 only 2.74% of the Non-Principal road network was treated. In order to maintain steady state on these roads the Council would need to treat a minimum of 150km of carriageway each year as compared to the 94km treated in 2005. Any treatment lengths in excess of this minimum would lead to an improvement in the BVPI's. **It is clear that the Council is not doing enough planned maintenance to prevent deterioration of the non-principal roads and is therefore not meeting the LTP 2 requirements to have no deterioration from 2004/05 levels.**

### **Costs of maintenance**

93. As we have seen, Worcestershire's road condition for B, C and Unclassified roads is below average. The Director explained that, although efforts were being made to improve Worcestershire's road condition, the costs of raising performance to the upper quartile compared with other authorities were prohibitive. For example:

- To improve the condition of unclassified roads from 23% needing repair, to 12% needing repair (the CPA upper quartile), the Council would have to spend £20.9m over 3 years.
- To fix all the B and C class roads in the red and amber categories above Condition Index (CI) 70<sup>11</sup> would require capital investment of around £36m (current available budget is anticipated at about £2.4m and is sufficient only to fix roads at or above CI 134).
- To fix the red and amber unclassified roads above CI 70 would cost about £30m (current available budget is anticipated at about £2m and again is only sufficient to fix roads at or above CI 134).
- To improve the condition of footways would cost about £10m.
- Total costs of the above amount to over £76m.
- To maintain constant carriageway condition we need to spend £10.4m per annum on planned structural maintenance, yet in 2006/07 we will spend about £8,071,000<sup>12</sup>. Spending for preceding years on Unclassified roads was bolstered by an additional £3.6m, spread over 2 years (from 02/03) from

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<sup>11</sup> See Appendix 8 under heading 'Coarse Visual Inspection (CVI) Scores' for further explanation of Condition Index scores

<sup>12</sup> See revenue figs for carriageway maintenance in Appendix 9 and capital figs for structural maintenance of carriageways in Appendix 10

Public Service Agreement (PSA) money. Average spending over the last five years has been around £8m per annum.

94. Last year planned maintenance treatments on non-principal roads equated to £3200 per km. As a rough guide, current approximate treatment costs are:

- Surface dressing: £10–15k/km
- Resurfacing: £60k/km
- Strengthening: £250k/km

The Council therefore has to patch and dress as there are not the resources to do deep repairs.

95. The current maintenance budget is set out below.

### **Expenditure on highway maintenance**

96. The Council's revenue budget for highway maintenance for 2006/07 is £15.457m. The table in Appendix 9 shows how this is allocated and also gives the budgets for 2004/05 and 2005/06. About £8,071,000 is due to be spent on the planned structural maintenance programme in 2006/07.

97. Overall the maintenance revenue budget has been at a standstill since 2004/05. Closer examination showed that some growth had been allowed in the budgets since 2003/04, but this had been offset by efficiency savings or other reductions. The spending power of the maintenance budget has been reduced by £1m between 2003/04 and 2005/06 (£1.4m was taken out of the budget in 2006/07).

98. The capital budget for the Highways Service is £15,625k for 2006/07. The Head of Highways explained that of this, £9,790k related to maintenance of existing highways. The balance of the capital budget related to major new schemes (new roads, integrated transport developments). See Appendix 10.

99. The total resource available to support routine highways maintenance (revenue and capital) was therefore £25.247m.

100. Of this, £15.44m was spent on energy, overheads, major items (e.g. winter maintenance and bridge works), reactive works (e.g. safety repairs and emptying gullies) and special items (e.g. replacing safety fences and lighting columns). This left £9.807m to spend on planned road maintenance. This meant that the 2006/07 £1m reduction was in effect a 10% cut in the planned road maintenance budget.

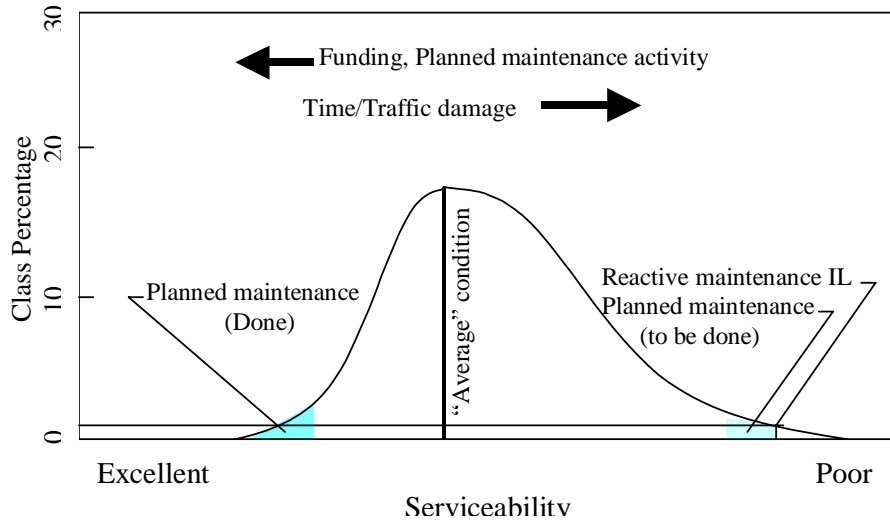
### *Inflation*

101. The Task Group asked how inflation was calculated and allocated. It was explained that calculations were based on industry specific inflation indices (the Baxter Index). In 2005/06, the allowance for inflation was limited to 3% rather than the true figure of 7%.

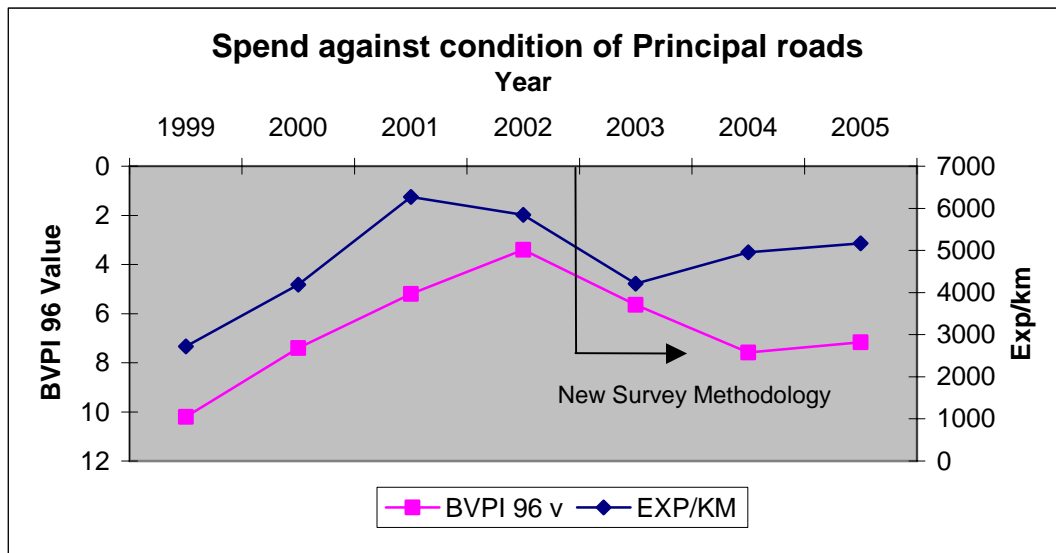
**Impact of investment in planned maintenance on road condition**

102. There is a clear relationship between levels of expenditure and road condition. Average road condition deteriorates over time, but it also improves as a direct result of investment on maintenance. This can be seen in the diagram below.<sup>13</sup>

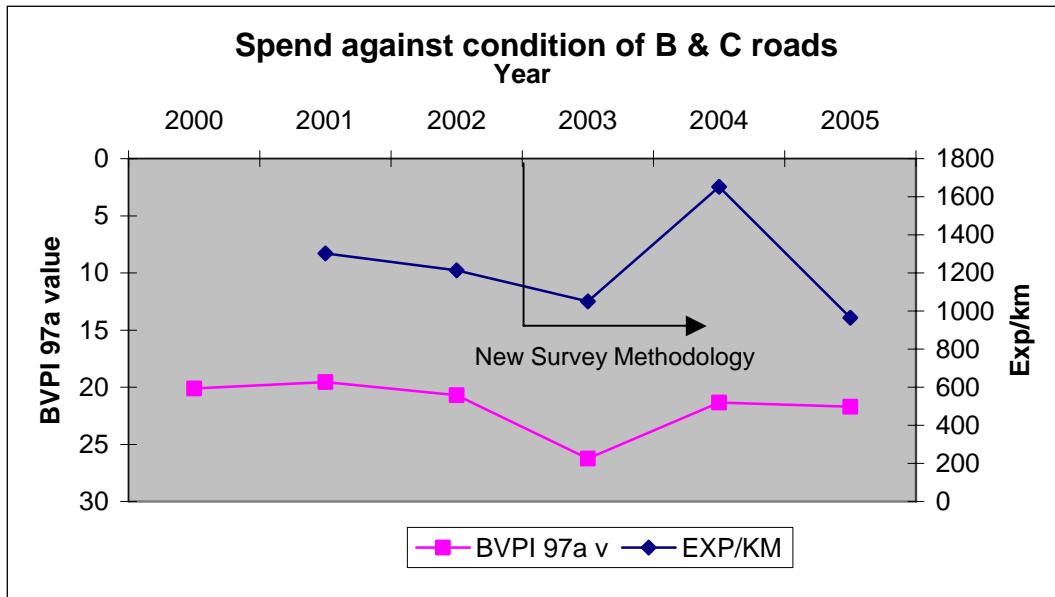
Probabilistic representation of network condition.



103. Worcestershire's data clearly shows road condition improving in a particular class of road when expenditure on that class increases. However there has never been a time when the condition of all classes of road have improved at the same time and other categories of road can be seen to drop back when investment shifted to a different class of road.



<sup>13</sup> Snaith, M.S., unpublished, 2006



### **Resource Allocation**

104. The direct relationship between investment in maintenance and road condition means it is essential to have accurate data on which to base decisions about resource allocation and to determine the most cost-effective allocation of resources.

105. The three main approaches to allocation can be summarised as:

- “Fix Worst First”
- “Maximise Best Value Performance Indicator Scores”
- “Asset Management”

Regrettably, each of these approaches tends to work against the other two.

#### *Fix Worst First*

106. The “Fix Worst First” approach would concentrate resources on those roads classed as Red. With a fifth of the B & C network already in critical condition, it would be readily possible to spend all available funding for next year on these roads without eliminating the red category. This would, of course, add to problems in the longer term by eliminating spend on maintenance needed in the amber category, which would continue to get worse and move towards red.

107. With current funding levels, dealing with those roads identified as being in greatest need (ie ‘fix worst first’) would concentrate the spend for B, C and unclassified roads in south Wychavon at £3.36m with no more than £201k being spent in Bromsgrove, £660k in Malvern Hills, £74k in Redditch, £153k in Worcester and £95k in Wyre Forest. There would be no spend on roads in “amber” condition.

#### *Maximise Best Value Performance Indicator Results*

108. The “Maximise Best Value Performance Indicator result” approach would

concentrate spend on economic treatments such as surface dressing over a wide proportion of the network. Whilst this would, to some extent, match the asset management approach by concentrating spend in the amber category, the consequent lack of investment in the structural strength of the road would lead to accelerated deterioration in a few years time. Indeed, there is some concern that this problem exists already on the A road network where low cost “Plane and Pave” work has given a good surface for a few years at the expense of failing to maintain or improve the structural strength and hence long term life of these roads.

109. There is a conflict between the need to keep the BVPIs on road condition up to a satisfactory level (to maintain the 4\* CPA assessment) and adequately maintaining roads in the amber section (see Asset Management Approach). The BVPI is driven by the length of surface of road treated, which can lead to superficial fixes i.e. better BVPIs will result from cheaply surface dressing long stretches of road. This clearly influences the approach authorities take to planning road maintenance and this has been recognised by central government.

110. We are told that proposals to change the BVPIs are in the pipeline. We understand that current thinking is that they would be based on the difference between the overall value of the asset and the cost of maintaining that value). Our policy then has been influenced by chasing BVPIs in relation to roads when the asset management approach would be better value for money.

#### *Asset Management Approach*

111. The Government is now requiring local authorities to determine the capital value of the road network, and to report the loss of value due to deterioration in service. It is clear that, if insufficient funds are spent on maintaining an asset, its value will deteriorate. It is therefore important that sufficient maintenance funds are invested at the proper time. Systems are therefore needed to measure the value of the asset with a reasonable degree of accuracy.

112. Professor Snaith explained that he had been working on a model that associated the capital value with the measured condition of the road at any point in time. This model enables determination of the best level at which to intervene with maintenance in order to prevent irretrievable damage to the structure of the road.<sup>14</sup> These calculations are necessarily complex, but in essence it can be shown that under investment in roads in the amber category will result in more roads slipping into the red category and, in due course, a “tsunami” effect where the costs of dealing with the roads in the red category overwhelms all the available funding.

113. The “Asset Management approach” to resource allocation, therefore uses data on road condition to determine when it is best to carry out less costly preventative treatments on (amber) sections of the network to prevent them deteriorating to the point (red) where they need much more expensive repairs in the future. **This approach maximises the value gained for the spending made and for this reason, it is the best approach to spending, particularly in the longer term.**

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<sup>14</sup> Snaith, M.S. & Orr, D. M. “Condition-based capital valuation of a road network”, *Municipal Engineer*, 159, June 2006 pp91-95 (see fig 2)

114. Professor Snaith described how, in New Zealand, a period of under investment in road maintenance followed by one bad winter, led to high levels of funding having to be found to fix the roads.

115. Worcestershire's survey data from its CVIs is consistent due to an in house team being in place since 1998. Professor Snaith commented that the Council had very good quality data on its road condition, and this is essential for proper planning of the planned maintenance programme and for developing an asset management plan.

116. Switching to this could mean a deterioration in BVPI results for the first few years, as more would have to be spent on structural repairs at the expense of length of surface treatments (which drives the BVPI). There would be less local input from councillors (county, district or parish) as planned maintenance repairs would be based on technical data on the condition of the road.

117. From the public's point of view, roads could appear to be getting worse before they get better. It can cause confusion when people see seemingly good roads being treated next to roads that are in a worse condition, and this can result in increased complaints to Councillors. To combat this, Hertfordshire have clearly publicised and explained on their website, the Asset Management approach. They described how they consider over the long term all the roads in the County in relation to one another when working out which ones to repair first, rather than automatically fixing the roads which look worst. This enables them to make the best use of the limited resources.

*How have we allocated resources so far?*

118. Historically, allocation for 'A' class roads has been on the basis of dealing with those sections of road that are in the poorest condition. For 'A' class roads the work targets the amber category and for 2007/08 the sum of £2.75m is allocated. This position is reflected in Worcestershire's 'A' roads generally being in top quartile condition.

119. Allocation for 'B' and 'C' class and Unclassified roads has historically been on the basis of the percentage allocation across districts for roads with a Condition Index Score (CI) at or higher than 70.

120. As we have already seen, in Worcestershire 20% of B and C roads are in the red category. If we continue with our current approach to resource allocation for B, C & Unclassified roads, districts in the north of the county, where roads are generally in better condition, could tackle some of the 'amber' issues. In contrast, districts in the south, particularly the south of Wychavon, would not receive sufficient funding to deal with their 'red' issues. **Worcestershire is fast approaching, if indeed we have not already reached, the "tsunami" point and, without intervention, this situation will continue to develop in particular in the south of Wychavon.**

121. We asked the Directorate to produce a paper showing what the resource allocation options were, given the existing budget. A summary of this is attached at Appendix 11. None of the options leads to improvement across all classes of road.

## Conclusion

122. Our evidence clearly shows that current planned maintenance is not keeping pace with the rate of deterioration of Worcestershire's roads and current spend levels are insufficient to improve a particular class whilst maintaining the other classes in current condition.

**123. It is clear to us that the only solution to the problem of deteriorating road condition in Worcestershire is an additional programme of work requiring an injection of extra funding.** We asked Ringway if they would have the capacity to take on any extra work and they agreed they could, given some time to plan.

**124. The asset management approach provides the best value for money for such a programme. However we consider there must continue to be a separate programme of maintenance, with a separate budget, to deal with the roads in the worst condition (red).**

125. To improve our roads and footways to a more reasonable condition, striking a balance between tackling the backlog of repairs to the worst roads whilst using less costly preventative treatments on other sections of the network, would need substantial capital investment. We asked for an estimate of how much capital spend on highway maintenance was needed to result in considerable improvement, particularly to the Non Principal road network. It was suggested that around £40m over 6 years (£30m on roads, £10m on footways), would be needed.

126. The task group has seen a number of options in other authorities for funding this level of capital expenditure, involving additional capital from either reserves, borrowing or PFI credits. If extra capital was borrowed the additional revenue costs would have to be covered from within corporate funds. A further option would be to consider PFI funding for both investment in roads in the amber category and tackling the backlog. Other local authorities (such as Portsmouth) are taking this kind of approach. Another option would be to re-prioritise revenue spend in highway maintenance over time, from paying for repairs, to funding a capital loan in order to achieve significantly better results. The situation is so serious, though, that in our view some support from corporate resources is warranted.

127. The only two authorities improving all classes of road condition (from responses to our questionnaire to nearest neighbour authorities) were Wiltshire and Leicestershire. Wiltshire advised that £3m prudential borrowing had been used for an enhanced surface dressing programme whilst Leicestershire had used additional capital receipts to help fund their programme to achieve steady improvement on the condition of all classes of road and Category 1 & 2 footways.

128. Hertfordshire County Council used £9m of their reserves and £1m revenue to both improve local road and footway condition and reduce the need for spending on reactive maintenance in future. A new separate one year contract was tendered and work began in June 2006. Officers put together a suggested list of repairs needed based on road condition and technical surveys. Engineers and Members prioritised the roads in order to get the greatest possible benefit

from this extra investment. The additional money will pay for surface treatments at about 300 sites throughout the County.

129. Members considered that the policies around the use of developers' contributions should be examined to see if this was a potential source of further investment for highways maintenance as it is for schools.

130. Any increase in capital investment would have revenue consequences and the precise balance between these requires very careful evaluation. **We therefore recommend that the Directorate carries out detailed modelling in order to assess the programme of work, and its cost, required to stabilise the road network and improve the condition of our roads. This modelling should balance the capital sum required against revenue consequences and sustainability of the highways budget, if revenue consequences cannot be funded from elsewhere.**

## HIGHWAY MAINTENANCE SCRUTINY TASK GROUP

### INTERIM REPORT

#### 1. Introduction

When the Highway Maintenance Scrutiny Task Group was established, it was agreed that the scrutiny should take place in two stages so that an interim report could be produced to coincide with the 2007/08 budget setting process.

The emerging findings of the task group so far are set out below to help inform the Overview and Scrutiny Steering Committee's discussions with the Cabinet Member with Responsibility for the Environment, and the Director of Environmental Services, on Thursday 5 October 2006.

The first stage of the scrutiny has concentrated initially on gaining a greater awareness and understanding of the current situation with the highway maintenance service, including:

- highway and footway maintenance policy and objectives;
- current performance;
- how WCC monitors the effectiveness and quality of the work of the contractors;
- the costs of highway maintenance and the purchasing power of existing budgets;
- the expected efficiency savings for highways maintenance for 2007/08 as well as possible budget reductions and the implications on the nature and movement of the current backlog of repairs to highways and footways;
- what criteria are used to determine priorities for highways and footway maintenance and how are defects identified and processed to produce a shortlist of prioritised repairs.

This interim report focuses on the issues of most relevance to the budget scrutiny discussion.

#### 2. Budget and Efficiency Savings

The table below shows that some growth has been allocated to the highway maintenance revenue budget since 2003/04:

2004/05 Budget £000	2005/06 Budget £000	2006/07 Budget £000
15,000	15,549	15,457

For information, the Highways & Transportation Management capital budgets and spend since 2004/05 were:

2004/05 Budget £000	2004/05 Actual £000	2005/06 Budget £000	2005/06 Actual £000	2006/07 Budget £000
21,543	20,668	15,276	14,915	15,625

Overall the spending power of the maintenance budget has been reduced by £1m between 2003/04 and 2005/06. In 2006/07, £1.4m was cut from the highway maintenance budget. The Scrutiny Task Group has heard that £400,000 of this will be efficiencies, but there are concerns about the impact on services of a cut of £1m.

The Head of Highways explained how the total budget – revenue and capital – for highway maintenance in 2006/07 was £25.247m.

Of this, £15.44m was spent on energy, overheads, major items (e.g. winter maintenance and bridge works), reactive works (e.g. safety repairs and emptying gullies) and special items (e.g. replacing safety fences and lighting columns). This left £9.807m to spend on planned road maintenance. Due to the fixed or statutory nature of the £15m spend, a £1m cut is in effect a 10% cut in planned road maintenance budget of £10m.

**OSSC may want to explore what impact such cuts would have on road condition and how much progress has been made in finding further efficiencies to cover the £1m reduction. Members have also been concerned about what efforts are being made to reduce the £15m spend on “fixed” items.**

### Inflation

The Task Group asked how inflation was calculated and allocated. It was explained that bids were based on the industry specific inflation rate (of around 7.5% in the construction industry). However in 2004/05, only 2.5% for inflation was allocated.

**OSSC may want to ask how the 2007/08 budget is being calculated and how much has been requested to cover inflation.**

### **3. Worcestershire’s Road Condition and Future Spend**

The annual National Road Maintenance Condition Surveys (NRMCS), based on a very small sample (0.5% of the network), show that WCC’s road condition was deteriorating between 1990-97 but had started to improve since 1998. The condition of principal roads is now good. However for non-principal roads and unclassified roads (88% of the network) WCC is below the national and regional averages.

The Task Group found that in order to maintain the Non-Principal road network in its current condition [and maintain Best Value Performance Indicators], an estimated 150 km (4.3% of the network) of non principal roads would have to be treated per annum. In 2005, 88 km (2.8% of the network) was treated. Members therefore considered that **the Council is not doing enough planned maintenance.**

Local authorities use a system of red, amber and green coding to indicate roads in critical condition, in need of maintenance but not critical, and good condition respectively. When funding is scarce it is cheaper in the short term to concentrate on quick fixes to those roads in the red section.

However, the Task Group heard from Professor Martin Snaith that planned maintenance provided better value for money over a ten year period. He described the ‘Tsunami’ effect of underinvestment on the maintenance of roads in

the amber category. Once there were a certain percentage of ‘amber’ roads, the highway would have to be rebuilt at much greater cost than it would have been if ‘amber’ roads had been maintained. According to Professor Snaith, authorities could face problems in the long term if around 20% of the network were classified as amber. The current condition of Non-principal Classified (B & C class) roads in Worcestershire is

- 20% red
- 49% amber
- 31% green

Unfortunately, there is a conflict between adequately maintaining roads in the amber section and the need to keep the BVPIs on road condition up to a satisfactory level (to maintain the Council’s excellent CPA assessment). The BVPI is driven by the length of surface of road treated, rather than whether the authority has improved the sub-structure of its roads.

The Task Group discussed with the Director of Environmental Services **whether it would be more appropriate in the long term to spend more on remedial and preventative maintenance (of amber roads), rather than trying to achieve good BVPI results.** He noted that there is insufficient detail on the condition of the sub-structure of the network to accurately predict future spending needs, though he has agreed to provide a further analysis. He stressed that it was his intention to continue to reduce road defects in order to establish a good performance overall. This would then enable priority to be placed on spending in areas which would not benefit the BVPIs.

#### 4. Footways

Worcestershire’s footways are in poor condition, but some improvements have been made in recent years (see BVPI scores in table below).

Year	2002/03	2003/04	2004/05	2005/06
<b>BVPI 187</b>	66.28	60.22	62.79	45.85

In other words, in 2005/06 45.85% of footways needed repair.

However the Task Group found that the BVPI only measures the condition of Category 1 (main shopping) and Category 2 (busy urban) footways (footways are classified into 5 different categories), which form only 3.7% of the entire network length. By far the longest length of footways fall into Category 3 (quiet urban).

Although the BVPI is numerically high, category 1 and 2 footways are in a far better condition than the remainder of the footway network, Category 3 footways are in the worst condition.

Since 2001 WCC has allocated around £2m pa on footway maintenance. Based on raw lengths alone, irrespective of footway construction and condition, approximately 82% of this should be focussed on Category 3 footways, with only approximately £100k spent on category 1 and 2 footways. In 2005 the expenditure on categories 1 and 2 was five times this amount in order to address only 117km of footways.

It is clear that the real need is to improve category 3 footways, which are not counted as part of the BVPI. **The OSSC may want to discuss with the Director whether the Council should be re-focusing its spend on**

**maintenance of category 3 footways (at the risk of reducing BVPI performance).**

## **5. Highway Maintenance Contract**

The new highway maintenance contract has been designed to incentivise more efficient ways of working and continued improvement. The Task Group explored how the contract will monitor the quality of work. There is a system of key Performance Indicators but members were concerned that without individual job monitoring or specific penalties, staff would not be motivated to improve efficiency and effectiveness.

Concerns have also been expressed that **the full benefits of the new contract will not be realised this year**, due to the delays on co-location of staff and the culture change needed. This may have a financial impact if the expected efficiencies do not materialise this year.

## **6. Corporate Priorities**

The Task Group was concerned that the Corporate Strategy contains more priorities than the Council can actually afford to invest in and in real terms, less is being spent on road maintenance (despite it being a corporate priority). **OSSC may want to discuss whether some adjustments need to be made to the Council's priorities for 2007/08.**

## Highway Maintenance Scrutiny Task Group

### Key Learning points from visits

Malvern Depot - 1 September 2006

Albert Park Road, temporary pothole repairs



- observed an Area Response Team (ART) do a temporary repair. Public complained that ART had previously repaired two potholes right next to the one being repaired and wished to know why all three had not been done at the same time.
- training of ARTs - Human side – public impression
- quality of quick defect repairs – communication with public
- no productivity incentives in ART contract
- Communication – Contractor discretion to question plans ie footway sub material might not need to be replaced (even if plans show it should be)
- info exchange after repairs planned or completed between Malvern Depot and Hub



- Rhino patch trial – Health and safety issues re trip hazards on pavements and traffic management

## Kirklees Metropolitan Borough Council (Beacon) – 26 October

Kirklees Metropolitan Council gained beacon status in 2003/04, mainly for its community focused approach to street and highway works and concentration on improving their own and utility companies performance.

- most proud of the fact that they are all trying to go forward together and not shirking from the challenge of improving all aspects of service
- repaired all dangerous defects within 2 hours (24 hrs per day)
- carried out a 360° performance management appraisal of their service managers and feedback given 1 to 1 – action plans to resolve issues.
- had 3 tier checks on quality of work ie operative walks job at end of each day, then walked with team leader, then with roving site agent- form completed
- had devolved budgets of £350,000 for each of 23 wards - with local councillors involved in decisions
- good partnership working with utilities – support through HAUC – have a Charter between Yorkshire Water and Kirklees MBC
- examples of information leaflets on pavement and road surfacing
- clear named contact details for residents



Wally Stewart, member of the scrutiny task group

- good public & councillor satisfaction - examples of consultation guidelines
- believe hot repairs to pot holes give a high quality and lasting repair, in contrast to cold. They have trialled Rhino patch but do not use it, nor do they use jet patcher.

## Gloucestershire County Council – 9 November 2007

- **Contract** – contractors profit based on quality and satisfaction
- **KPIs** - GCC's contractors profits were linked to the achievement of performance indicators, weighted as follows:  
75% strategic indicators (6 in total including public satisfaction with service and network, reduction in KSI's, hitting LTP targets and APR target score, BVPI score and Gershon efficiencies) and 25% operational indicators (26 in total).
- **Integrated culture** - Atkins staff line manage GCC staff and GCC staff line manage Atkins staff under the badge of Gloucestershire Highways. It is an informal agreement - helps staff feel they have responsibility/ownership for one company one purpose.
- **Livery** - all vehicles, contractor, GCC and sub contractor have same livery – creating a more visible presence and a perception by the public that more is happening on the roads.
- tarmac suppliers are aware that additional orders for tarmac will be awarded to the company supplying the best quality tarmac at the best price - ensuring competition and ultimately **driving down costs** (also tied into their Pis).
- **Twice annual meetings with Parish Councillors** in each of their 6 districts and they have a dedicated space on their web site as well as **annual highways seminar**.
- had reduced **insurance claims** - from £1/2m to less than £3,000 this year (2006).
- wished to stop non-permanent repairs (**cold fill**) to road defects as this was a cause of public dissatisfaction and meant repeat visits.

## Cornwall County Council – 14 November 2006

- gained beacon status for its voluntary agreement with utility companies on their sensitive road network.
- roving inspectors with 4 teams of workers would visit reported defects and fix them on the spot.
- preferred hotfill material for defects - to prevent vibration white finger, potholes were dug out with a small bucket type digger.
- had 4 categories of amber for categorising road condition.

## Hertfordshire County Council - 1 December 2007

- *most proud of* - apart from overall service delivery mechanisms and an asset management approach, *they described how* a major bottleneck used to be caused by delays in processing Traffic Regulation Orders (TROs). The volume and complexity of the work led to delays in TROs being signed off. Now however, a small dedicated team is based at Highways House, led by an ex-policeman (a Mouchel Parkman employee) with legal admin support (Herts CC employees). His development of procedures for dealing with TROs,

working more closely with engineers, and delivery of training sessions to improve client understanding led to an employee award for exceptional effort and achievement.

- Through the Regional HAUC, the Region had created a buddying system for each Local Authority and each had their own utility buddy. An improvement plan had been put in place and they were now working together better and sharing best practice with HAUC.
- They believed that extra inspections at the opening stage would help prevent returns that needed to be fixed later.
- If a member of the public or a councillor reports a pothole or defect and perceives it to be dangerous then it is considered as such by the highway maintenance service.
- Public complained about using **cold fill** tarmac because of the need to keep coming back and re-doing the job - a major cause of dissatisfaction.
- **Public need/wish to know the criteria for fixing different categories of potholes** and Hertfordshire are currently working on a check list for their call centre people to go through so that they can say immediately whether or not a particular pothole will or won't be repaired and give a likely timescale. This should bring about extra efficiencies in the service.
- Safety Inspections done by their main contractor. Herts believe it would be more efficient to send a team of workers to actually fix the pothole, rather than send out a Safety Inspector and then a team.
- We feel it would be sensible for the environmental services directorate to find out more about their processes and whether any aspects might be beneficial in Worcestershire.

#### **Portsmouth City Council – 24 Jan 2007**

##### **To discuss their £500m PFI highway maintenance project over 25 years**

- PFI credits of over £120m to contractor fix all roads, footways, lights within 5 years, and take responsibility for maintenance, street scene, utilities and claims over next 25 years.
- Portsmouth is obliged to pay around £1.2m per month (this may reduce after 5 years). It guarantees that highways budget cannot be plundered.
- Members were fully committed.

#### **Lancashire - 26 Jan 2007**

- Members were enthusiastic about how Lancs CC dealt with section 106 and 278 agreements. Lancs CC now had greater control over negotiating such agreements (with agreement of districts) which led to an increase in funding for highways projects.
- Lancs did not use hot bit mac. They preferred Instamac, a proprietary brand for cold fill for temporary repairs to pot holes.
- Insurance claims for falls trips/accidents on highways came to over £6.5m in Lancs.

## Northern Ireland - 26 Jan 2007

Visit to see the asset management approach (ie preventing deterioration of the Amber network) working in practice.

- Authorities must spend enough to prevent deterioration and not increase roads falling into red.
- If insufficient funds, need 2 distinct budgets, one to maintain value of roads in the amber section and one to deal separately with those in the red.
- Professor Snaith was now using Pete Burnhams graph to demonstrate to students how increasing maintenance treatments (and spending) on different classes of road improved the BVPI (condition) for that class
- Restricting axle weight of heavy vehicles on non principal roads could increase life of road by 20%.
- For small work teams, they have a system of 10% checks on all work completed, if poor results this increases to 20%, if good, then decreases to 5%. They felt that it was well worth spending a small proportion on monitoring quality.
- NI prefer hot fill for pot holes – don't want to keep going back to re-do job. Re H&S concerns, can get pneumatic drills that have handles which prevent vibration white finger, and or special gloves can be worn or potholes can be cut out using a diamond black saw (as in Glos).

## Highway Maintenance Scrutiny Task Group

### Questionnaire to Nearest Neighbour Authorities – January 2007

We sent a questionnaire to our nearest neighbour authorities (as defined by CIPFA) as we found it difficult to make reliable comparison from BVPI data due to the number of changes there has been to how information is collected over recent years. There is also a difference between the quality of Coarse Visual Inspection (CVI) data depending on whether an authority contracts out the work or has an experienced in house trained team.

We were keen to compare ourselves with how other authorities are approaching highway maintenance and hoped to be able to compare like with like. However, authorities have different ways of recording road maintenance costs and we did not have time to fully analyse the factual data.

6 forms out of 14 were returned, some of which were only partially complete and a summary of the responses is set out below.

### SUMMARY OF RESPONSES TO TEXT QUESTIONS

#### *Objectives and Obstacles to achieving them*

The main objectives for highway maintenance were keeping the network safe and serviceable in a cost effective well managed way. One authority mentioned moving towards an asset management approach.

Every respondent said the biggest obstacle to achieving objectives was inadequate funding and/or long term funding uncertainties.

#### *Keeping pace with deterioration*

Only two authorities, Wiltshire and Leicestershire, answered 'yes' to the question 'Does your maintenance programme keep pace with your calculated rate of deterioration?.'

#### *Additional funding*

Wiltshire advised that £3m prudential borrowing had been used for an enhanced surface dressing programme to help improve overall road condition. In 2004/05, Leicestershire had used additional capital receipts to help fund their programme to achieve steady improvement on the condition of all classes of road and Category 1 & 2 footways.

Suffolk County Council had, like Hertfordshire used money from reserves, as well as prudential borrowing and SCC Single Capital Pot. Cambridgeshire listed trunk road grant and PSA funding. Worcestershire had listed trunk road grant and SCA grant for flood alleviation (Bransford).

#### *Best thing to ensure value for money?*

Leicestershire felt the most important thing to ensure good value for money was their in house service provision. Wiltshire, like Hampshire, felt their works and

consultancy contract was key, together with effective management of those contracts.

Interestingly, neither Leicestershire or Wiltshire have the New Engineering Contract. Leicestershire have 'In House' contractors (employees of the local authority) carrying out most work except resurfacing, grass and weeds. Wiltshire's Highways Works Contract is about £15 million per year and is a bespoke contract based on ICE 5<sup>th</sup> Edition (lowest price) but operated on the basis of informal partnership.

Here in Worcestershire, robust, evidence led targeting of maintenance to ensure adequate levels of service are provided to the highway user within the constraints of available resources. In terms of these resources the Council strives to optimise expenditure by both encouraging the Term Maintenance Contractor to introduce greater operational efficiencies, and similarly focus on its own internal business processes to ensure that the partnership provides suitable engineering solutions at minimum cost.

## FACTUAL DATA

Some authorities said it was difficult to extract figures and did not have complete faith in the data they had provided. An example of some of the comments received were:

*"we don't hold information in the required format. Also we do not keep financial information separately split between B&C and unclassified roads.*

*"...there may be a combination of works costs and total costs; detrunking may not have been fully accounted for; revenue expenditure split between reactive and programmed maintenance is poorly defined in some cases."*

As there is not a set way of recording costs of road maintenance it is difficult to make meaningful comparison. One of our Principal Engineers suggested it could be useful if say one of the regional or national bodies could look more closely at the whole area of how authorities record financial data on road maintenance with the aim of producing nationally agreed system in future.

The data collected is detailed as follows:

Authority	Population/area sq km	Overall Lengths of road (KM)	Principal roads (KM)	Non Principal Roads (KM)	Unclassified (KM)	Footways (KM)
<b>A</b>	570200 / 3054	4342km	405km	1616km	2321km	Data not yet complete
<b>B</b>		8497km	670	2599	5228	4300
<b>C</b>	623900 / 2083	4121	300	1555 (B & C)	2266	3000approx
<b>D</b>	692000 / 3802	6710	483.9	709.8	5516	4027
<b>E</b>	449000 / 3255	4399	573	1981	1845	1903
<b>F</b>	555800 / 1,735292	3962	489	1457	2016	3175

**Question 2:** Road lengths **resurfaced** and costs per annum (revenue and capital)

<b>Authority A</b>	2002/03	2003/04	2004/05	2005/06
Total Road length resurfaced (km) (inc. reconstruction)	72.89	63.5	45.37	65.55
Cost	7,607,000	5,877,000	4,578,000	6,344,000
Principal road	24.32	18.09	15.55	14.83
Cost	3,632,000	2,406,000	1,899,000	1,815,000
Non principal				
Cost	Combined 48.57 3,975,000	Combined 45.41 3,471,000	Combined 29.82 2,679,000	Combined 50.72 4,529,000
Unclassified Cost				

<b>Authority B</b>	2002/03	2003/04	2004/05	2005/06
Total Road length resurfaced (km)		<b>44.5km</b>	<b>51.8km</b>	<b>50.1km</b>
Cost		<b>£6.6M</b>	<b>£7.8M</b>	<b>£7.5M</b>
Principal road		<b>7.5km</b>	<b>10.8km</b>	<b>8.9km</b>
Cost		<b>£1.1M</b>	<b>£1.6M</b>	<b>£1.3M</b>
Non principal and Unclassified Cost		<b>37km</b> <b>£5.5M</b>	<b>41km</b> <b>£6.2M</b>	<b>41.2km</b> <b>£6.2M</b>

<b>Authority C</b>	2002/03	2003/04	2004/05	2005/06
Total Road length resurfaced (km)	?	?	<b>37.9km</b>	<b>30.5km</b>
Cost	?	?	<b>£2.8m</b>	<b>£3.3m</b>
Principal road				
Cost	?	?	<b>12.5km</b> <b>£1.02m</b>	<b>7.4km</b> <b>£1.04m</b>
Non principal				
Cost	?	?	<b>25.4km</b> <b>£1.75m</b>	<b>23.1km</b> <b>£2.21m</b>
Unclassified Cost	?	?	Inc in previous	Inc in previous

<b>Authority D</b>	2002/03	2003/04	2004/05	2005/06
Total Road length resurfaced (km)	71.4km £6,910,900	88.7km £8,866,650	108.63km £9,781,000	162km £12,678,000
Cost				
Principal road	28.9km £3,936,900	27.5km £4,480,900	31.1km £5,048,000	40.7km £4,442,000
Cost				
Non principal	Non principal and Unclassified combined. 42.53km £2,974,070	61.2km £4,385,750	77.53km £4,733,000	121.31km £8,236,000
Cost				
Unclassified Cost				

<b>Authority E</b>	2002/03	2003/04	2004/05	2005/06
Total Road length resurfaced (km)	42.39	46.36	54.89	51.21
Cost	£5213k	£4410k	£4850k	£4583k
Principal road	22.05	5.83	5.27	3.88
Cost	3895k	577k	682k	880k
Non principal	11.44	24.05	24.72	20.93
Cost	£85.7k	£2585k	£2494k	£2051k
Unclassified	8.9	16.5	24.9	26.4
Cost	£461k	£1248k	£1674k	£1652k

<b>Authority F</b>	2002/03	2003/04	2004/05	2005/06
Total Road length resurfaced (km)	60.64	48.46	68.73	59.04
Cost	£4.279m	£4.121m	£5.461	£4.63m
Principal road	18.76	12.72	22.97	17.64
Cost	£2.089m	£1.615m	£2.109m	£2.296m
Non principal	17.74	15.12	26.7	20.35
Cost	£1.118m	£1.235	£2.012m	£1.217m
Unclassified Cost	24.14 £1.072m	20.62 £1.271m	19.06 £1.340m	21.05 £1.117m

**Question 3** Road lengths **surfaced dressed** and costs per annum (revenue and capital)

<b>Authority A</b>	2002/03	2003/04	2004/05	2005/06
Total Road length surface dressed (km)	73.09	119.39	57.2	88.3
Cost	1,227,000	1,958,000	1,352,000	1,545,000
Principal length	2.65	1.89	13.64	12.3
Cost	95,000	122,000	339,000	215,000
Non principal length				
Cost	Combined 70.44 1,132,000	Combined 117.5 1,836,000	Combined 43.56 1,013,000	Combined 76.0 1,330,000
Unclassified length				
Cost				

<b>Authority B</b>	2002/03	2003/04	2004/05	2005/06
Total Road length surface dressed (km)	<b>248km</b>	<b>250km</b>	<b>280km</b>	<b>310km</b>
Cost				
Principal length	<b>£704,000</b>	<b>£750,000</b>	<b>£602,911</b>	<b>£592,212</b>
Cost				
Non principal length	<b>£536,000</b>	<b>£765,000</b>	<b>£1,115,563</b>	<b>£1,489,797</b>
Cost				
Unclassified length	<b>£1,214,978</b>	<b>£945,630</b>	<b>£1,070,128</b>	<b>£1,070,176</b>
Cost				

<b>Authority C</b>	2002/03	2003/04	2004/05	2005/06
Total Road length surface dressed (km)	?	?	?	<b>178km</b>
Cost	<b>£3.4m</b>	<b>£3.3m</b>	<b>£3.7m</b>	<b>£3.48m</b>
Principal length	?	?	?	<b>21.7km</b>
Cost	?	?	?	<b>£0.58m</b>
Non principal length	?	?	?	<b>156 km</b>
Cost	?	?	?	<b>£2.9m</b>
Unclassified length	?	?	?	<b>Inc in previous</b>
Cost	?	?	?	

<b>Authority D</b>	2002/03	2003/04	2004/05	2005/06
Total Road length surface dressed (km) Cost	386.2km £2,773,150	375.6km £3,203,460	383.24km £4,556,000	527km £4,950,000
Principal length Cost	14.49km £144,550	20.1km £296,600	9.94km £169,000	19.98km £330,000
Non principal length Cost	Non principal and Unclassified combined. 371.7km £2,628,600	355.5km £2,906,860	373.3km £4,387,000	507.7km £4,620,000
Unclassified length Cost				

<b>Authority E</b>	2002/03	2003/04	2004/05	2005/06
Total Road length surface dressed (km) Cost	137.3 £2170k	211 £3681k	470.1 £6698k	363.5 £4533k
Principal length Cost	0	21.14 £388k	12.7 £246k	2.3 £29k
Non principal length Cost	117.3 £1917k	143 £2642k	326.7 £4978k	249.2 £2894
Unclassified length Cost	20 £253k	46.9 £650k	130.6 £1474k	161.4 £1610k

<b>Authority F</b>	2002/03	2003/04	2004/05	2005/06
Total Road length surface dressed Cost	122.44 £2.033m	139.12 £2.165m	92.32 £1.436m	56.38 £0.633m
Principal length Cost	26.62 £0.693m	14.95 £0.486	7.25 £0.293m	2.79 £0.152m
Non principal length Cost	73.92 £0.949m	60.71 £0.891m	60.45 £0.826m	38.36 £0.335m
Unclassified length Cost	21.9 £0.391m	63.46 £0.788m	24.62 £0.317m	15.23 £0.146m

**Question 4: What is your total spend on planned structural maintenance**

<b>Authority A</b>	2002/03	2003/04	2004/05	2005/06
All carriage ways				
BVPI 187 footways				
All other footways				

<b>Authority B</b>	2002/03	2003/04	2004/05	2005/06
All carriage ways				
BVPI 187 footways				
All other footways				

<b>Authority C</b>	2002/03	2003/04	2004/05	2005/06
All carriage ways	<b>£8.2m</b>	<b>£9.5m</b>	<b>10.4m</b>	<b>£9.6m</b>
BVPI 187 footways	<b>Inc below</b>	<b>Inc below</b>	<b>Inc below</b>	<b>100</b>
All other footways	<b>446</b>	<b>1298</b>	<b>1878</b>	<b>1677</b>

<b>Authority D</b>	2002/03	2003/04	2004/05	2005/06
All carriage ways	£15,800,000	£19,100,000	£19,500,000	£25,000,000.
BVPI 187 footways	)			
All other footways	) Combined. £2,916,940	£3,514,990	£4,023,780	£4,189,000*
* Info. For the first time in 2007/08 all Footway funds will be targeted on BV187 footways and all footways				

<b>Authority E</b>	2002/03	2003/04	2004/05	2005/06
All carriage ways	£11682k	£12324k	£15855k	£11966k
BVPI 187 footways	43.04%	33.29%	13.42%	43.8%
All other footways	£153.3k	£149.1k	£47.8k	£402k

<b>Authority F</b>	2002/03	2003/04	2004/05	2005/06
All carriage ways	£8.813m	£8.002m	£8.164	£6.473m
BVPI 187 footways				£0.538m
All other footways			£1.677m	£1.294m

Question 5: What is your total spend on **reactive maintenance** (including safety defects and incident response) for all carriageways and all footways

<b>Authority A</b>	2002/03	2003/04	2004/05	2005/06
All carriageways				
All footways				

<b>Authority B</b>	2002/03	2003/04	2004/05	2005/06
All carriageways				
All footways				

<b>Authority C</b>	2002/03	2003/04	2004/05	2005/06
All carriageways	<b>£3.0m</b>	<b>£3.9m</b>	<b>£3.8m</b>	<b>£3.4m</b>
All footways	<b>£2.5m</b>	<b>£1.5m</b>	<b>£1.5m</b>	<b>£1.4m</b>

<b>Authority D</b>	2002/03	2003/04	2004/05	2005/06
All carriageways	£862,460	£1,015,000		
All footways				

<b>Authority E</b>	2002/03	2003/04	2004/05	2005/06
All carriageways				
All footways	£3972k	£4477k	£3931	£4454

<b>Authority F</b>	2002/03	2003/04	2004/05	2005/06
All carriageways			£1.869m	£2.414m
All footways			£1.366m	£1.433m

Question 6 : What is your total spend on **patching**?

<b>Authority A</b>	2002/03	2003/04	2004/05	2005/06
All carriageways	2,259,000	2,924,000	2,582,000	2,533,000

<b>Authority B</b>	2002/03	2003/04	2004/05	2005/06
All carriageways				

<b>Authority C</b>	2002/03	2003/04	2004/05	2005/06
All carriageways	<b>£1.6m</b>	<b>£2.5m</b>	<b>£2.5m</b>	<b>£2.4m</b>

<b>Authority D</b>	2002/03	2003/04	2004/05	2005/06
All carriageways	£3,220,990	£3,542,950	£3,474,270	£3,236,000

<b>Authority E</b>	2002/03	2003/04	2004/05	2005/06
All carriageways	£440k	£603k	£602k	£804

<b>Authority F</b>	2002/03	2003/04	2004/05	2005/06
All carriageways	£2.501m	£1.716m	£1.267m	£1.210m

## Highway Maintenance Scrutiny Task Group

### List of Evidence Sessions and Task Group Activity

28 July 2006	Nick Twaite, Highway Works Manager, WCC	Terms of reference Highway and footway maintenance policy and objectives
18 August 2006	Pete Burnham, Pavement Management Engineer, WCC	Current performance Road condition & pavement condition – UKPMS, surveys, GIS, SCANNER, CVI Costs
25 August 2006	Paul Jameson, Head of Highway and Transportation Management Michael Howard, Strategic Procurement Manager Nick Twaite	Highway Maintenance Term Maintenance Contract
1 September 2006	Terry Godwin and Nils Wilkes, Maintenance Managers (North and South depots)	Vist to highway maintenance depot (Malvern) and examples of maintenance work in progress
1 September 2006	Tony Dipple, Scrutiny Liaison Officer (SLO) Financial Services	Costs of highway maintenance and the purchasing power of existing budgets
8 September 2006	Professor Martin Snaith and John Hobbs (Director) with senior highways officers	Discussion on asset value or road network and the asset management approach
15 September 2006	Members of Task Group only	Brainstorming on interim report
22 September 2006	Tony Dipple, SLO  Nick Yarwood, Partnership and Contracts Manager  Bob Lloyd – Street Works Manager	Clarification on the highways budget reduction Explanation of financial disincentives in the new contract to reduce the need for sub - contractors - Reparation and monitoring of road defects caused by utilities
27 September 2006	District Liaison Engineer (DLE) and Utility Inspector	Visit to Worcester City
September/October 2007		Task Group members met with other DLE's in Bromsgrove Malvern and Wychavon
29 September 2006	John Hobbs, Director of Environmental Services	Discussion on emerging findings, Stage 1
20 October 2006	Brian Moss, Regional Director, Ringway	Discussion and questions on highway maintenance from the contractors

		perspective
26 October 2006	Frank O'Dwyer, Principal Engineer (and senior officers)	Visit to Kirklees Metropolitan Council's highways HQ (beacon authority) and to examples of highway maintenance in progress
26 October 2006	Droitwich Spotlight Forum	Views of public sought
9 November 2006	Philip Hoare, Head of Gloucestershire Highways (and senior officers)	Visit to Gloucestershire County Council's highways HQ and to examples of highway maintenance in progress
14 November 2006	Mark Stephenson Assistant Director (Highway Management)	Visit to Cornwall County Council (during CNN conference in Newquay)
22 November 2006	Cabinet Member, Director and officers	Member's Seminar – information on Highways – and progress since re-organisation
23 November 2006	Parish Council Clerks	Parish Council Workshops – views on highway maintenance
24 November 2006	DVD – Channel 4 Dispatches - 'Who's digging up your road'	Key lessons learned and next steps
30 November 2006	Spotlight Forum, Redditch	Views of public
12 & 14 December 2006	Task Group Members	Consider paper on options within existing budget, and feedback from Parish Council Workshop
24 January 2007	Senior officers and Cabinet Member (Portsmouth)	Visit to Portsmouth County Council (PFI project)
26 January 2007	Professor Snaith and Senior Officers (NI)	Visit to Northern Ireland Highways HQ, Belfast (asset management approach)
26 January 2007	Senior Officers and Cabinet Member (Lancs)	Visit to Lancashire County Council's highways HQ
2 February	Task Group Members	Consider draft final report

## List of main documents consulted during this exercise.

### ***National Documents***

- Maintaining a Vital Asset' – A5 Booklet, describing the new government codes of practice in network maintenance management, by UK Roads Liaison Group (Distributed to Members on 21.07.06)
- New Government Code of Practice “Well Maintained Roads”
- The Future of Transport – Government White Paper Sept 2004, Chapt 3 – Roads: smarter travel
- Department for Transport Annual Report 2006, chapt 4 – Roads

### ***Worcestershire County Council Documents***

- BMG Research Report – Highway Satisfaction Survey for Worcestershire County Council, August 2003
- Environment Scrutiny Panel – minutes and agenda from 14 January 2005 (Differences between the old and new term maintenance contracts)
- Use of Resources Assessment - Value for Money (VFM) Profile report **01 county councils** 2005
- Use of Resources Assessment - Value for Money (VFM) Profile report **02 single tier** councils 2005
- Relevant extracts from the Provisional Local Transport Plan 2 (2006-2011 (click from contents)
- Worcestershire County Council's revised Highway Maintenance Policy Document (September 2005)
- Worcestershire County Council's revised Highway Maintenance Plan (September 2005)
- Cabinet minutes and agenda of 12 September 2005 - *Review of Highways maintenance policy, highways management plan and service delivery structure*
- Question 2 from County Council Annual meeting on 11 May 2006 (*spending in DC's + efficiencies & prioritisation of repairs, page 16 of the minutes*)
- Directorate Performance Plan for Environmental Services 2006/07
- TRL Road Death Investigation – Review of Highway Maintenance Policies, Procedures and Practices within Worcestershire - 31 March 2006 and Progress on recommendations
- Cabinet agenda and minutes of 20 July 06 in which the Director of Environmental Services recommends that the Transport Research Laboratory (TRL) report be accepted.

- Cabinet minutes and agenda of 9 February 2007 in which Progress with Transport Research Laboratory (TRL) was reported.
- Best Value Performance Indicators - *new for 05/06, BVPI223 (was 96) BVPI224a (was 97a) and BVPI224b (was 97b) covering from 2000 – 2005/06 (from Directorate Performance Plan )*
- 2006/07 BVPI General Satisfaction Survey – all Councils are required to complete this survey and the results are published by the Audit Commission (published late January 2007)

**Other Documents**

- “Condition–based capital valuation of a road network”, *Municipal Engineer*, 159, June 2006 pp91-95 - Snaith, M.S. & Orr, D. M.

**Other Scrutinies**

Government response to the Transport Select Committee on Local Roads and Pathways – October 2003

Haringey Council Scrutiny Review of Repairs to Highways and Footways March 2006

Oxfordshire scrutiny - Review of Quality of Highway Repairs and Drainage September 2003

Blackpool Council Highway Maintenance Scrutiny - February 2006

### Glossary of Terms/Acronyms used in Highway Maintenance

UKPMS	<b>United Kingdom Pavement Management System</b>	Industry standard system used for storage of both visual and machine survey data and the processing and analysis thereof for the purposes of maintenance management and the production of statutory Best Value Performance Indicators. Also used as data repository for all Highway Inventory/Asset data
SCRIM	<b>Sideways force Coefficient Routine Investigation Machine</b>	Method of measurement for the resistance to wet skidding of the road surface
BVPI	<b>Best Value Performance Indicator</b>	Statutory indicators of performance determined by Government
NPRN	<b>Non Principal Road Network</b>	B, C, and Unclassified roads
PRN	<b>Principal Road Network</b>	A roads
CVI	<b>Coarse Visual Inspection</b>	Visual inspection system used for production of BVPI 224b
GIS	<b>Geographical Information System</b>	Computerised mapping
TTS	<b>Tracs Type Survey</b>	Automated survey system
SCANNER	<b>Surface Condition Assessment of the National Network of Roads</b>	Latest revised version of TTS
RCI	<b>Road Condition Indicator</b>	Results obtained from SCANNER surveys, which form the basis for BVPI 223 and 224a
NRMCS	<b>National Roads Maintenance Condition Survey</b>	Annual CHART based survey of a number of 100m length sample sites on all classes of county road (approx 200 sites pa)
CHART	<b>Computerised Highways Assessment of Ratings and Treatment</b>	Visual survey now used solely for the purposes of NRMCS
MSIG	<b>Midland Service Improvement Group</b>	Group of 13 County Councils sharing, comparing and promoting good practice
CSS	<b>County Surveyors Society</b>	National group advising on/monitoring Local Authority services
LPSA	<b>Local Public Service Agreement</b>	Agreement to achieve specific targets agreed between the Local Authority (and partners) and Government
LAA	<b>Local Area Agreement</b>	Replacement for LPSA
HAUC	<b>Highways Authorities and Utilities Committee (UK)</b>	Aims are nationally to: advise government on street works legislation; provide guidance to practitioners; provide a forum for matters of mutual interest and share best practice. Regional HAUCs have similar aims.

## Highway Maintenance Questionnaire Analysis

There were a total of 50 responses from different Parishes across the whole of Worcestershire. The table below gives a breakdown of the results:

**Table 1**

		Very Satisfied	Fairly Satisfied	Neither	Fairly Dissatisfied	Very Dissatisfied
1. Condition of road surfaces – holes/potholes	Number	0	9	3	21	15
	%	0.0	18.8	6.3	43.8	31.3
2. Condition of pavements	Number	0	16	4	20	7
	%	0.0	34.0	8.5	42.6	14.9
3. Condition of verges – not cut/maintained	Number	2	12	13	16	5
	%	4.2	25.0	27.1	33.3	10.4
4. Drainage of roads	Number	0	9	9	18	12
	%	0.0	18.8	18.8	37.5	25.0
5. Time taken to repair defects	Number	0	4	8	15	19
	%	0.0	8.7	17.4	32.6	41.3
6. Quality of repairs	Number	0	11	11	15	10
	%	0.0	23.4	23.4	31.9	21.3
7. Feedback after defects are reported	Number	0	4	9	9	22
	%	0.0	9.1	20.5	20.5	50.0
8. Contact with the County Council	Number	2	5	10	14	16
	%	4.3	10.6	21.3	29.8	34.0
9. Quality of information received in advance of starting road works	Number	2	3	7	15	17
	%	4.5	6.8	15.9	34.1	38.6
10. Knowledge about priorities for repair	Number	0	1	9	14	17
	%	0.0	2.4	22.0	34.1	41.5
11. Being kept informed more regularly about highways matters	Number	2	3	6	21	13
	%	4.4	6.7	13.3	46.7	28.9
12. The ease of access to information generally	Number	1	5	11	18	10
	%	2.2	11.1	24.4	40.0	22.2
13. Content of the website	Number	0	6	19	3	0
	%	0.0	21.4	67.9	10.7	0.0
14. Parish Lengthsman Scheme	Number	16	6	6	0	6
	%	47.1	17.6	17.6	0.0	17.6

From looking at the table above, there is a general view of dissatisfaction with highway and footway maintenance across Worcestershire's Parishes. The only questions that received a majority satisfaction were the content of the website and the Parish Lengthsman Scheme.

Three quarters of respondents are dissatisfied with the condition of their local road surfaces and 57.5% are dissatisfied with the condition of the pavements. The most common comment relating to this subject was that the condition of rural and minor roads is poor with potholes being badly repaired. There was a mixed response about pavements, with some commenting their local pavements were uneven and in poor condition, and others commenting they were in good condition due to recent refurbishment.

The most positive response excluding the last two questions was for the condition of verges, with 29.2% of respondents satisfied and 43.7% dissatisfied. Many people commented that verges are mainly the responsibility of the Parish Councils. The areas that received the biggest dissatisfaction response are the condition of the roads, knowledge about priorities for repair and being kept informed more regularly about highways matters, where over 75% of respondents were dissatisfied. The main comments included people don't know about priorities for repair and no information is distributed. Respondents also commented that they are not informed about highways matters since the Road Ahead newsletter stopped.

There were a lot of comments relating to the drainage of roads, including:

- Severe flooding problems caused by blocked drains
- Gullies and ditches are not cleaned causing problems with flooding on the roads creating hazardous driving conditions

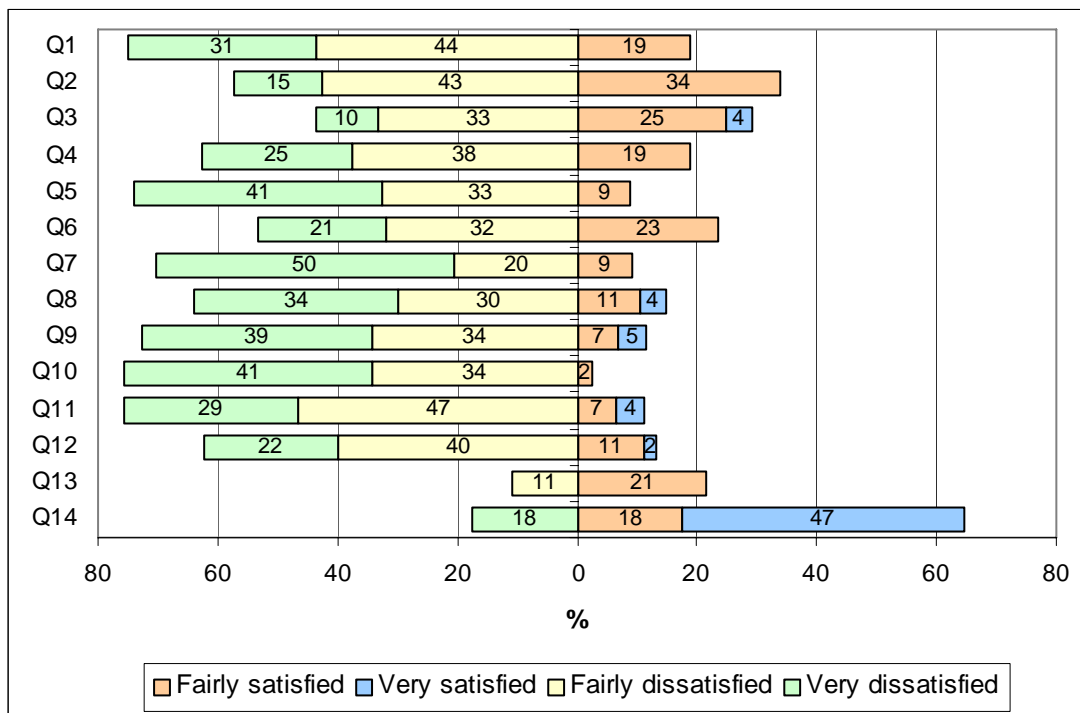
In terms of time taken to repair defects and quality of repairs, many respondents commented there is generally a long wait for repairs and when the repairs are eventually done, they are ineffective and of poor quality. Many also commented that there is very little, if any, feedback after defects are reported.

63.8% and 72.7% of respondents said they were dissatisfied about contact with the County Council and the quality of information received in advance of starting road works respectively. There were lots of comments relating to poor communication with the County Council and the loss of direct contact since the introduction of the Hub. Similarly, it was expressed that little or no information is given in advance of starting road works.

Not many respondents commented on the content of the website, probably due to either not being aware of it or being able to access it. Those who did comment said it was improving and easy to use, but it is not available to every Parish. The Parish Lengthsman Scheme received a good response with 47.1% of people saying they were very satisfied and 17.6% saying they were fairly satisfied. The comments made backed up the results with many commenting that the scheme was working very well in their Parish and that local knowledge helps. Other comments included respondents who were either not aware of the scheme or were in the process of joining.

Below is a graphical representation of the figures in Table 1.

**Graph 1**



The graph above gives a good view of the level of satisfaction and allows for easy comparison between the different questions.

**Other Issues**

The main concerns from respondents included:

- Poor road and pavement surface (including road markings and cats eyes)
- Lack of communication and consultation from the Council
- Supervision of contractors performing road repairs

There were also a number of additional comments made, which can be found in the summary of the top five priority issues and suggestions for improvement, as well as on the spreadsheet of raw data.

## **SUMMARY OF TOP FIVE PRIORITIES AND SUGGESTIONS FOR IMPROVEMENT**

### **Condition of Road/Pavement**

- Better engineering standards are needed so that a good quality job is done first time
- Parishes could check completed works, via Lengthsman
- There is a need for monitoring by qualified staff, the parish acting as the eyes and ears for highways
- Parish lengthsman could be used as a joint resource
- Cyclists put in danger due to edge erosion and potholes – repairs done for motorists
- More preventative maintenance would save money in the long term
- What is the long term strategy
- Footways are vital for those with a disability – some in very poor condition
- Block paving in urban areas should not be repaired with tarmac

### **Being kept informed more regularly about highways matters**

- Reintroduce Newsletter specific to Districts
- Known contacts to build relationships
- Communication is paramount – improve it!

### **Repairs – Quality and Time taken**

- Should be right first time
- Better quality repairs would prevent repeated returns to correct poor jobs
- Need better supervision of road repair teams
- Parish could help prioritise urgent repairs – acting as eyes and ears for highways –
- Better liaison needed with Utilities
- Not enough budget to maintain roads
- Need a quick response team for pot holes
- Repairs should be done sooner to help reduce costs
- System to identify defects using parishes
- Clerk could be equipped with a GPS satellite navigation aid and use on behalf of WCC

### **Feedback after defects are reported**

- Ensure correct information is given to Parish Councils
- Opportunities for Partnership working with parishes and achieving better value for money has been wasted
- Lengthsman scheme needs extending and Lengthsman's role should have a wider remit
- No feedback from website to clerks – a checklist could be emailed back
- Feedback should be definitive and detailed
- Lack of confidence in talking to call centre staff on some issues
- Need to know where to get information
- New system needs to work
- More feedback will allow Clerks to pass information on to residents
- Need rolling information on planned maintenance on web site
- Internet contact is still not being used fully

**Contact with the County Council ie being able to speak in person to someone who can deal with the problem**

- The District Liaison Officer should visit the parishes, holding regular regional twice per year? meetings
- Email contact list
- Parishes can be eyes and ears for WCC
- Not enough use made of web site
- Need contact with someone who knows the area
- Need named officer
- Loss of senior staff
- Website should acknowledge clerks
- Hub – Parish Cllrs need to be put through to who they want to speak to straight away
- Hub not working – direct contact required
- Website should have a dedicated area specifically for Parish Clerks
- Need reassurance that repairs/defects are going to be clearly located – little confidence in existing system (Hub)

## Highway Maintenance Questionnaire Analysis

There were a total of 21 responses from County Councillors. The table below gives a breakdown of the results:

**Table 1**

		Very Satisfied	Fairly Satisfied	Neither	Fairly Dissatisfied	Very Dissatisfied
Condition of road surfaces – holes/potholes	Number	0	1	2	8	10
	%	0.0	4.8	9.5	38.1	47.6
Condition of pavements	Number	0	5	1	7	8
	%	0.0	23.8	4.8	33.3	38.1
Condition of verges – not cut/maintained	Number	2	6	8	3	2
	%	9.5	28.6	38.1	14.3	9.5
Drainage of roads	Number	0	6	2	10	3
	%	0.0	28.6	9.5	47.6	14.3
Time taken to repair defects	Number	0	3	0	6	11
	%	0.0	15.0	0.0	30.0	55.0
Quality of repairs	Number	0	5	5	5	4
	%	0.0	26.3	26.3	26.3	21.1
Feedback after defects are reported	Number	0	1	3	3	13
	%	0.0	5.0	15.0	15.0	65.0
Contact with the County Council	Number	2	7	3	2	6
	%	10.0	35.0	15.0	10.0	30.0
Quality of information received in advance of starting road works	Number	5	3	2	3	7
	%	25.0	15.0	10.0	15.0	35.0
Knowledge about priorities for repair	Number	2	3	2	3	9
	%	10.5	15.8	10.5	15.8	47.4
Being kept informed more regularly about highways matters	Number	1	4	2	7	7
	%	4.8	19.0	9.5	33.3	33.3
The ease of access to information generally	Number	1	4	4	5	7
	%	4.8	19.0	19.0	23.8	33.3
Content of the website	Number	0	4	5	1	5
	%	0.0	26.7	33.3	6.7	33.3
Parish Lengthsman Scheme	Number	3	2	4	1	1
	%	27.3	18.2	36.4	9.1	9.1

From looking at the table above, County Councillors have a general view of dissatisfaction with highway and footway maintenance across Worcestershire. The only questions that received a majority satisfaction were the condition of verges, contact with the County Council and Parish Lengthsman Scheme.

The vast majority of respondents are dissatisfied with the condition of their local road surfaces (85.7%) and 71.4% are dissatisfied with the condition of the pavements. Comments related to there being a large number of potholes, which are not seen as a priority and therefore do not get repaired for a long time.

There is a marginal positive response from Councillors regarding the condition of verges within their respective divisions. 38.1% of respondents said they are satisfied with their condition, whereas 23.8% are dissatisfied. Many respondents are dissatisfied with the drainage of roads, the amount of time taken to repair defects and the quality of these repairs. There were a small number of comments relating to the drainage of roads: drains and gullies not cleaned often enough and roads flood easily after heavy rainfall.

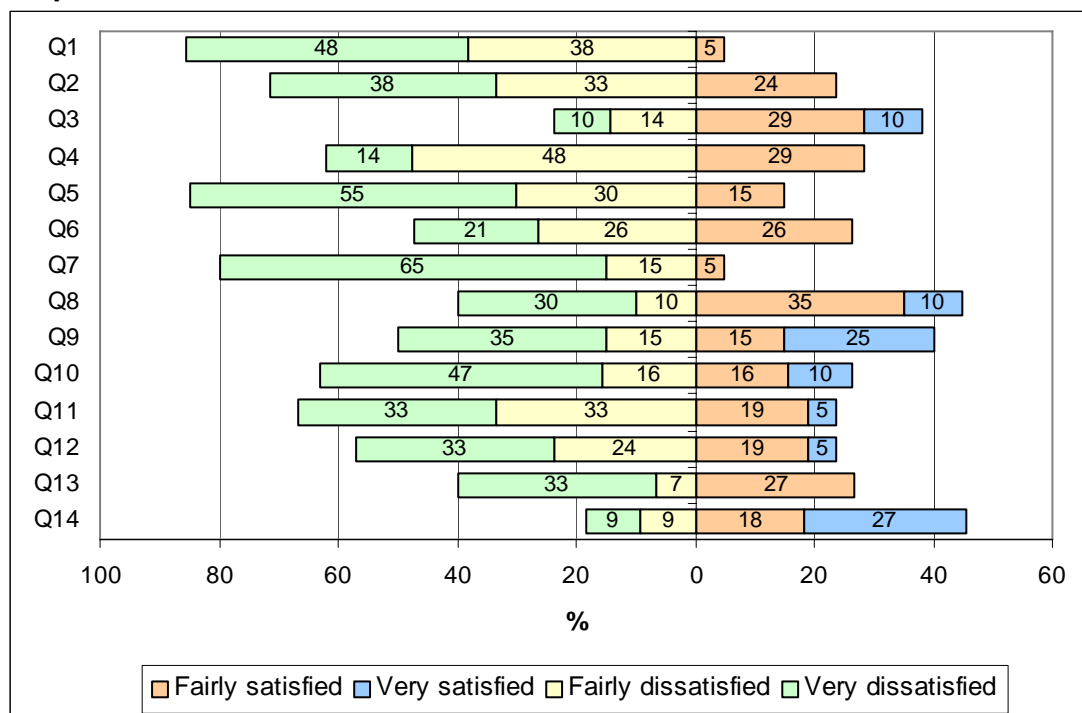
A large majority (65%) of respondents said they were very dissatisfied with feedback after defects are reported. Many commented that there is never any feedback and reported defects have to be chased up to ensure any action is taken. 45% as opposed to 40% of Councillors said they were satisfied rather than dissatisfied with County Council contact. However, there were a number of comments stating that it was difficult to speak to the correct person in the Highways department.

Table 1 shows a mixed response regarding the quality of information received in advance of starting road works. One Councillor said the weekly e-mail was very useful but others said that they don't get given any information in advance. Furthermore, respondents said that there is no or little information relating to knowledge about priorities for repair. Two thirds of respondents said that they aren't kept informed about highways matters and 57% are dissatisfied with the ease of access to highways information. All comments made the point that it is difficult to obtain information that is required.

Not many respondents commented on the content of the website, probably due to either not being aware of it or being able to access it. Those who did comment said they hadn't seen or had any experience of the website. There weren't many responses to the question on satisfaction of The Parish Lengthsman Scheme, mainly because it does not apply to all County Councillors, as it is not available in their division (i.e. Worcester City). Although those who did respond, are generally satisfied with the scheme

Below is a graphical representation of the figures in Table 1.

**Graph 1**



The graph above gives a good view of the level of satisfaction and allows for easy comparison between the different questions.

**Top Priorities for Improvement**

Councillors top priorities included:

- Response procedure for Councillor contact with the Highways department.
- Councillors should have an input into the repair programme.
- Information fed to Councillors on complaints and work being carried out in their area.
- Quick and efficient repairs to footpaths, pavements and potholes.
- Traffic calming and speed enforcement measures.
- Parking issues.

There were also a number of additional comments made, which can be found in the spreadsheet of raw data.

## Road Condition Surveys

### Methodology

Authorities have traditionally used Coarse Visual Inspections (CVI) to determine road surface condition. These can be subjective and, in addition, many authorities contract out with different inspectors annually. There has therefore been a great deal of inconsistency in survey results (and hence BVPI data) across the country. Road structural surveys use a machine to measure the deflection of a road under a standard load.

[WCC has been using the same in house survey team since 1998 and have consequently achieved consistent year on year results.]

*DfT has now insisted that authorities use machine surveys. In 2004 TRACS Type Surveys (TTS) were introduced for the production of the Best Value Performance Indicator for the condition of Principal roads. TTS readings include Wheel path rutting, texture Depth measurements, Longitudinal Profile Variance (ride quality) measurements at 3m, 10m, and 30m frequencies, General Cracking Intensity, Wheel Track Cracking Intensity, Crossfall, Gradient and Curvature of Radius*

*In 2005, following a change in the survey machine specification that allowed for an introduction of additional defects, TTS was renamed to SCANNNER (Surface Condition Assessment for the National Network of Roads). In terms of statutory BVPI reporting SCANNNER data can only be used for the production of the Road Condition Indicators for Principal (BVPI 223) and Non – Principal Classified (BVPI224a) roads. CVI surveys continue to be used for the production of BVPI 224b the indicator for the condition of Unclassified roads*

### SCANNNER Surveys

(SCANNER) measures the texture depth and roughness of the road surface and are attached to vehicles that usually travel at 50km per hour. They cost £35/lane/km surveyed. [CVIs cost £12/km.] The SCANNNER technology is still developing and the data that comes out of it has a health warning. For example the SCANNNER can record road markings or iron works as cracks in the surface. Although the SCANNNERS produce consistent BVPIs for comparison between authorities, they are not necessarily the best tool for maintenance management. *Another issue is that the SCANNNER only scans a 3.2m width swathe of the carriageway, not the footways on either side.*

Red amber and green are categories assigned by SCANNNER (not CVI) data – On B roads we only have SCANNNER data in one direction (50%) and an overall small percentage (5%) of C roads.

Many in the industry have reservations about the quality of the data produced by SCANNNER and members noted its introduction could be deemed a waste of money. Pete Burnham noted that the technology had not been sufficiently repeatedly tested before being implemented, although ongoing research into technical discrepancies was continuing.

For these reasons CVIs (of principal and non principal roads) have been maintained in Worcestershire.

## UKPMS

UKPMS, the United Kingdom Pavement Management System, is an 'industry standard' for a computer system that supports the management of programmed maintenance, the monitoring of condition and of the need for funding on local authority road networks. There is no single UKPMS, but a range of commercial highway management systems have been tested and accredited as meeting the UKPMS standard.

### Process

Defects in the carriageway identified by surveys, and their size, are input into UKPMS. The system then calculates condition indices for each type of defect. The condition indices are weighted using the Local Authority Code of Practice hierarchy, which is based on road usage (rather than on classification).

The only sites that the council considers for inclusion in any planned works programme are Principal road sites with an overall condition index of 60+ and Non-Principal roads with an overall CI of 70+ treatment.

UKPMS also calculates an indicative cost of the treatment, based on the costs of the treatment itself and an estimate of some on costs. To enable consistency in comparison with previous years 1999 prices are used.

The Pavement Management Engineer then identifies planned maintenance schemes for principal and non-principal roads. (Previously, non-principal roads schemes were identified locally).

Additional scheme justification for principal roads is provided by results of the SCANNER or SCRIM surveys. SCRIM is the Sideways force Co-efficient Reinforcement Investigation Machine which assess the road's resistance to wet skidding (i.e. its safety).

### **Geographic Information System (GIS)**

Survey data from UKPMS is input into the Geographic Information System to enable detailed maps of road condition. It should be noted that the condition of unclassified roads changes very quickly and some of the data was relatively old. Members requested a link to the website so they could look in detail at their areas.

GIS shows planned maintenance and where this had been carried out – the data was supplied annually by HPUs. It was explained that the data was not 100% accurate because of the difficulties of collating the information.

**Coarse Visual Inspection (CVI) Scores** - A CVI Survey provides a visual condition assessment of the highway. It is a simple and efficient survey and is one part of UKPMS. It is a cost effective and reliable method of assessing the 'coarse' condition of a network. Undertaken from a slow moving vehicle, the survey team use a laptop computer linked to a digital trip meter. As each defect is observed it is recorded for distance, position and extent using a Condition Index (CI) score.

There are 4 categories within a CVI:

1. **Surface properties** – a high CI score means the road needs surface dressing or slurry seal
2. **Wearing course** – a high CI score means rip off top (50ml approx) and re surface top layer
3. **Structural condition** – a high CI score means strengthening is needed at base layers of road
4. **Edging** – a high CI score indicates either patching or fully reconstructing the edge is needed

Each category has a numerical range – and combined, gives the overall Condition Index. For example a Condition Index (CI) of 40 – 60 indicates the need for surface dressing – a CI over 70 indicates the need for some structural work.

**CVI - equivalents of red amber green**

a Condition Index score above 80 is roughly the equivalent of red

a Condition Index score between 60 – 80 is roughly equivalent to worst amber

a Condition Index score between 40 – 60 is roughly the equivalent to better amber

**County Council Highway Maintenance Revenue Budget**

<b>2004/05</b> <b>£'000</b>	<b>2005/06</b> <b>£'000</b>	<b>2006/07</b> <b>£'000</b>
	<u>Structural maintenance.</u>	
1733	1272 Structural Footways.	1800
n/a	500 BV187 Schemes.	225
600	n/a Impact Schemes	n/a
1434	1824 Carriageway Maintenance.	1186
809	658 Drainage.	210
166	226 Surveys / testing / maintenance software.	226
1195	678 Specific Schemes.	475
	<u>Routine maintenance.</u>	
2100	2319 Safety Repairs.	1033
n/a	n/a Jetpatcher.	232
104	104 Bridges.	104
390	366 Gullies emptying.	330
263	119 Gullies jetting.	186
	<u>Environmental Maintenance.</u>	
673	673 Verges.	673
n/a	n/a Arboriculture.	87
100	100 Parish Lengthsman.	135
	<u>Safety Maintenance.</u>	
259	120 Signs.	91
480	348 Markings.	170
n/a	n/a Safety fencing.	129
n/a	n/a Incident response.	132
	<u>Street Lighting.</u>	
1186	1186 Energy.	1600
1551	1551 Street Lighting Maintenance.	1551
268	268 Traffic Signal Maintenance.	268
54	54 Community Safety.	54
	<u>Other Headings.</u>	
1100	1108 Winter and Depots.	1100
175	175 Traffic Management.	175
100	100 Locally Determined works.	100
0	0 Local Material Testing.	30
260	323 Contingency.	600
n/a	1477 TMC Fee and Operational costs.	2555
<b>15000</b>	<b>15549</b>	<b>15457</b>

**County Council Highway Maintenance Capital Budget**

<u>2004/05</u>	<u>2005/06</u>		<u>2006/07</u>
<u>£'000.</u>	<u>£'000.</u>		<u>£'000.</u>
		<u>1a. Major Schemes:-</u>	
40	33	Broadway Bypass.	20
348	163	Wyre Piddle Bypass.	74
3137	509	Chadbury - Twyford Link.	95
		<u>1b. Local Transport Plan Related:-</u>	
8257	6575	Structural Maintenance of Carriageways.	6885
4381	2345	Structural Maintenance of Bridges.	2490
4451	4538	Integrated Transport Block.	4081
		<u>1c. Composite sums and Other Schemes:-</u>	
100	100	Advance Design Fees.	100
0	405	Minor Works.	390
0	300	Highways Depots Improvements.	700
11	0	Stanford Depot	0
0	0	Hill and Moor Access Road.	690
485	39	Home Zones Challenge	0
188	0	Tagwell Road Traffic Calming	0
0	0	Geraldine Road Traffic Calming	0
45	169	Delamere Road Retaining Wall	0
100	100	Street Lighting Column Replacement.	100
<b>21543</b>	<b>15276</b>		<b>15625</b>

**Highways Capital Budget 2006/07**

	<b>£000</b>
Principal	3320
B&C	1432
Unclassified	1258
Bridges	2255
Safety Fence Replacement	150
Design Contribution	250
TMC Fee allowance	625
Lighting	100
Minor Capital Schemes	400
<b>Total</b>	<b>9790</b>

## APPENDIX 11

### Possible Resource Allocation Options with Existing Budget

Option	Description	Compliance with Asset Management (Prof Snaith approach)	Compliance with "Worst First" approach	Likely impact on BVPI scores	Economy of working	Likely public reaction	Likely impact on "tsunami effect" in South Wychavon
Option 1	Concentrate carriageway spending in those areas of greatest need (C roads in S Wychavon)	None	Total	1 improvement 1 constant 2 deteriorate	Optimal	Poor (except South Wychavon rural areas)	Good, but will assist towards development of the problem elsewhere in the county
Option 2	Allocate carriageway spending on CI=70 basis as previous years	Some, in north of county	Slight	2 constant 2 deteriorate	Poor	Fair	Negative
Option 3	Restrict spending in north of county to surface dressing / slurries and restrict spending in S Wychavon to reconstruction	Some, in north of county	Some	2 improve 2 constant  (But large deterioration in future years)	Optimal	Good  (But large deterioration in future years)	Fair, but will assist towards development of the problem elsewhere in the county
Option 4	Reduce spend level on footways and transfer say £1m to carriageway spending specifically in S Wychavon	Some, in north of county	Some	1 improve 3 constant  (But large deterioration in footways not covered by BVPI )	Optimal	Bad (except South Wychavon rural areas)	Fair, but will assist towards development of the problem elsewhere in the county
Option 5	Reduce spend level on Principal roads and transfer as Option 4	Some, on B, C and U/C in north of county. Runs directly counter for the most important roads in the county.	Some	1 improvement 2 constant 1 deteriorate  (But costly deterioration in future on A roads)	Optimal	Fair (but good in South Wychavon rural areas)  (But deterioration in future years)	Fair, but will assist towards development of the problem elsewhere in the county
Option 6	Spend in order to maximise compliance with Asset Management	Maximum	None	2 constant 2 deteriorate	Poor	Very bad (Why have you resurfaced all the good roads and left the bad ones to get worse?)	Negative