Meeting of the Executive Members for City Strategy and Advisory Panel **15 January 2007**

Report of the Director of City Strategy

STRATEGIC APPROACH TO HIGHWAY MAINTENANCE PROGRAMME FOR 2007/08

Summary

1. This report examines the most appropriate strategic approach to enable the programme of maintenance schemes to be prepared. The programme for 2007/08 is currently being prepared in line with procedures approved in the past but there is an opportunity to reflect the needs of other parts of the highway network asset, other than footway and carriageway surfaces, such as drainage, signs, road markings etc. The inclusion of schemes, to improve assets of this nature, can be incorporated in the full programme of work for 2007/08 and presented to Members in the Annual Highway Maintenance report, should the recommendation in this report be approved.

Background

2. The key purposes of the previous advance design reports has been to enable a number of schemes to be identified in the programme of works for the coming financial year at an early stage, so that design works could be well advanced for a start on site in April. Given the level of the capital budget in 2007/08, an advanced start is less of a problem and it is known that, if necessary, an accelerated programme can be delivered, as evidenced by the current level of activity around the city.

3. Pressure of work in the Highway Infrastructure Section in the first half of the financial year, due to preparation of the PfI Expression of Interest, has created some delays in the detailed surveys of the category 3 schemes, identified in the June survey, and full details of the Advanced Programme have not been able to be completed in time to be included in this report. The delay in getting the programme agreed will not affect our ability to deliver the programme throughout the course of 2007/08.

4. The intension is to provide the full detail on all programmes in the Annual Highway Maintenance report to be presented to this meeting in March 2007. This report will also examine assets such as bridges and street lighting and the allocation of funding to improve their condition using CYC and LTP capital.

Council Plan and Corporate Priorities

5. The Council Plan and the Corporate Strategy 2006-2009 set out the main priorities. There are three priorities to which a programme of highway maintenance works can contribute.

IS2 – assisting in reducing congestion by having a well-maintained network to help traffic travel around the city quickly and safely.

IS3 – improve the actual and perceived condition and appearance of the city's streets.

IS6 – whilst this focuses on the contribution that Science City York makes to economic property, economic prosperity is also assisted by reducing congestion and by improving the condition of the city's streets.

Surveys

6. In order to produce the programmes of highway works for the next year, information is drawn from a number of surveys which are carried out throughout the year.

- Visual condition survey of all roads and footways (June Survey)
- The United Kingdom Pavement Management System (UKPMS) visual surveys of all roads and approximately 22% of the footway network
- UKPMS Scanner machine survey of the classified road network
- SCRIM machine survey of the principal road network
- Deflectograph machine survey of the classified A and B road network
- Detailed Engineers condition survey of our roads and footways

<u>The 'June' Survey</u>

7. In June 2006 we again carried out a full coarse visual condition survey of all our roads and footways. This allows us to grade them into three categories, grade 1 (good), grade 2 (average) and grade 3 (poor). By comparison with previous years survey results the survey tells us whether the city's infrastructure is improving or deteriorating and identifies those streets which need to be looked at more closely. The results of the 2006 coarse visual survey of the highway network are shown in Annex 1. The comments on trends for each category of road are shown in Annex 2 and a full copy of the results is available in the Members library and will be available at the meeting.

8. Detailed outcomes by road type are provided in Annex 2. In general the network is relatively unchanged in its condition in terms of the change over 12 months (June 2005 to June 2006). In the longer term, over the last 5 years, principal road conditions are static, non principal classified roads have improved as a result of investment but unclassified roads show deterioration.

9. The condition of footways is relatively unchanged both over the 12 month period and the 5 year period. Investment has reduced the number of poor quality footways.

10. There is a long term deterioration in the general condition of back lanes.

<u>UKPMS</u>

UKPMS is a national accredited process that interrogates visual and machine surveys to determine a footway and carriageway condition indices and applied treatments. The treatments are generally divided into surface, wearing course, structural and edge repairs. The system is used to create annual Best Value Performance Indicators and assist engineers to identify programme of works to improve the network. Two of the indicators are also used in the transportation calculation element of the Council's CPA score.

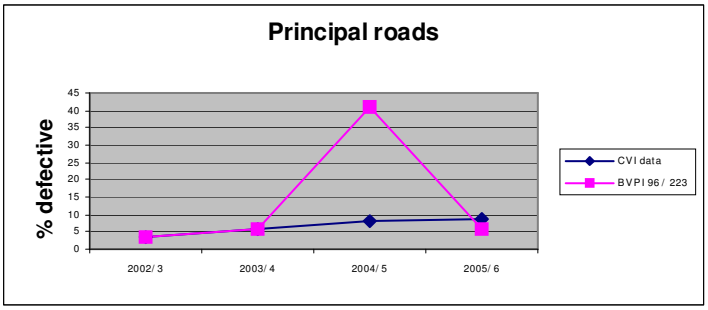
UKPMS visual surveys are undertaken in-house by the Council. A small survey team carries out a coarse visual survey of the classified and approximately 30% of the unclassified carriageway network each year. The same survey team also carry out detailed visual surveys of 50% of the category 1, 1a and 2 footways. The Council has 4 years of survey data that is used to support the scheme identification process, highlight condition trends and determine future maintenance strategy.

UKPMS SCANNER machine survey is undertaken by an accredited contractor on the classified carriageway network annually. The SCANNER survey was introduced in 2005/6 to replace the visual survey method. Although the survey is only applied to the classified network it is the intention of the Department for Transport (DfT) to expand it to the unclassified network when technology improves and smaller vehicles can be used. The machine survey records longitudinal profile, rut depth, texture depth, cracking, gradient and crossfall of the carriageway surface. Processing the data creates a traffic light banding of:

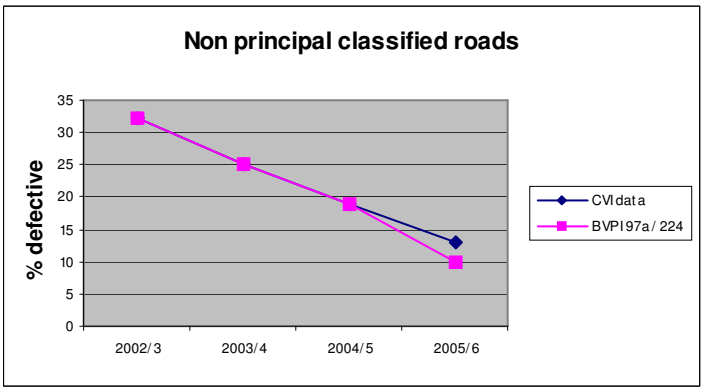
RED	– Plan Maintenance soon
AMBER	– Plan Investigation soon
GREEN	– Generally Good Condition

The reported BVPI is the percentage of the carriageway networks that is banded RED.

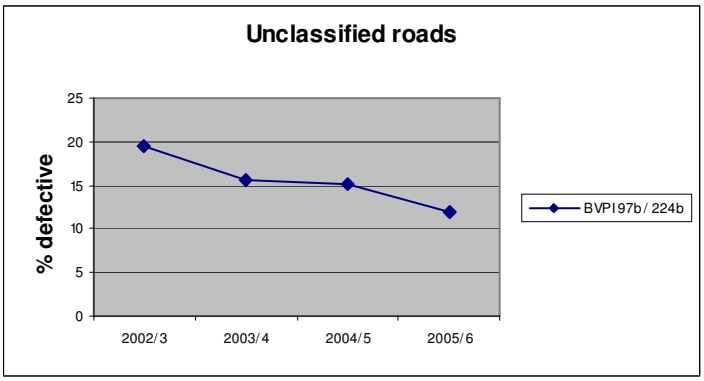
11. The graphs below show the BVPI's from the results of the UKPMS surveys and identify trends over the last 4 years. The lower the percentage that is defective, the better the condition.



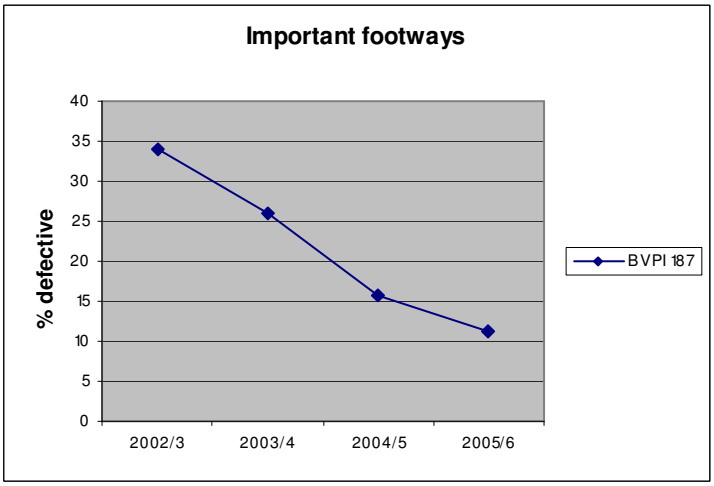
Note: In 2004/5 a prelude to SCANNER was introduced, and the BVPI result can be ignored where considering trends.
The results show a relatively stable condition showing just a slight decrease in condition over the last 3 years



Note: In 2005/6 BVPI survey method was changed from CVI to SCANNER. The results show a noticeable improvement in condition, which is to be expected due the allocation of funding



Note: 30% of the network is surveyed each year and it is therefore difficult to identify trends as yet, however there is perhaps a slight improvement in condition.



This graph shows a noticeable improvement in footway conditions, however this particular BVPI only covers categories 1, 1a and 2 footways, predominantly those in the city centre, making up about 20% of the total footway network.

Skid Resistance survey

12. A SCRIM survey is carried out to determine the skidding resistance of the surface of the carriageway. A Sideways Force Coefficient (SCRIM Value) is derived from the machine survey and compared with an intervention value that is determined by the event on the network. The events on the highway would include approaches to traffic signals, pedestrian crossings, roundabouts, bends and gradients all of which have different intervention levels. It has been identified in the Transport Asset Management Plan that a skidding resistance strategy is required to determine the process involved from identifying sites at or above intervention, investigation and treatment methods.

Skid resistance is measured on the principal road carriageways every 3 years. It is now measured using a machine known as a 'Griptester', a towed device which can work at normal traffic speed, is unaffected by road curvature and produces data that can be input directly into the highway management system.

Results of the Grip Tester Survey are used in the Detailed Engineers condition survey. The 2005 results have been included in the Transport Asset Management Plan, a copy of which is available in the Member's Library or on the Council website. This will be updated with the 2006 results.

The results show that various sections of principal road fall below the investigatory level and as a result of this a section of the A1237 has been included in the works programme for 2006/07.

Defectograph machine survey

13. Deflectograph surveys are undertaken to determine the structural condition of the carriageway network and the most recent York survey, in 2003, covered the A and B roads. The processing of the survey data can identify the life of the carriageway and recommends treatments from wearing course replacement to full reconstruction. With the introduction of SCANNER surveys, highway authorities are questioning the need to carry out multiple expensive machine surveys, and it is likely that Deflectograph will only be used for specific major schemes in the future.

The Deflectograph survey results are used to improve the engineers understanding of the condition of the network and form part of the Detailed Engineers condition survey. The 2003 results are included in the current version of the Transportation Asset Management Plan. The results highlight the need to pay particular attention to parts of the B1224 Wetherby Road and parts of the B1363 Helmsley Road.

Detailed 'Engineers' condition survey

14. From October through to December 2006, a detailed condition survey is undertaken of all the following highways:

- Streets identified as grade 3 in the June survey
- Streets where the UKPMS survey results showed that sections of them have an index greater than the UKPMS intervention level
- Streets where SCRIM or Deflectograph data identifies a need for site inspection
- Requests by Members
- Requests by customers

- Recommendations of the Council's safety and area highway inspectors along with other officers

15. Each road and footway is assessed and scored using a standard methodology based on engineering criteria and experience, with a treatment solution determined. More information on scheme assessment is provided later in this report. A listing is then compiled to enable those schemes assessed as being most in need of treatment to be identified.

16. Full details of the road and footway schemes assessed as being in need of priority treatment, will be presented to this meeting in March 2007 as part Annual Highway Maintenance report.

Programme Development

17. The various survey results indicate that there is still a need to continue investing in the public highway to attempt to halt the deterioration and that targeted investment does make an improvement in the conditions of specific assets. Programme development for 2007/08 has currently been based on that used in previous years using the methodology previously presented to Members and is in line with the Transport Asset Management Plan, which again has been presented to Members.

18. The criteria we have adopted when improving the footway or road surface are that they should be to the highest possible standard of quality in terms of appropriate materials and surface evenness. There should also be value for money consistent with a whole life costing approach whenever possible. We would expect, for example, that resurfacing of the footways should last 15 years and roads 20 years with only minimal repair work necessary, provided that they have not suffered damage from third parties in the intervening period.

19. Our normal approach to the preparation of programmes, and that being used for to date for 2007/08, is as follows:

- LTP funding is mainly restricted to the structural maintenance of our classified roads and footways. However, the category of Local Roads was introduced some years ago and we have applied this to mean all non-principal roads and footways. In previous years some of this funding was used on the more important unclassified roads and it is proposed to continue with this approach.
- CYC funding is primarily targeted at local and residential roads and footways including the city Centre.
- Up to the last 2 years the split in budget between footways and roads has been in the proportions of 70/30. In the previous two years the survey trends indicated that we needed to spend more on the road network if we are to try to halt the deteriorating trend. The funding has therefore been split on a 60% footway and 40% carriageway basis. It is proposed to continue this 60/40 split again for the programme of works in 2007/08.
- Through asset management we identify areas for forward planning so that we can target the rehabilitation of the radial routes and on an area basis.
- The City Centre, because of its high pedestrian use, should continue to receive special attention in the form of its own programme of maintenance.

20. In terms of surface material choices, the programmes are developed in accordance with the Council's current paving policy for footways. Although there

is no similar approved policy for road surface materials, a common practice has been developed and used in recent times which uses nationally recognised materials and techniques, as follows:

- Surface dressing on rural roads where turning movements and event sections are minimal
- Heavy duty slurry sealing on minor residential roads, mostly culs-de-sac where traffic numbers are low
- Thin overlays on minor residential roads and junctions where turning movements are more numerous and severe.
- Bituminous macadam on more heavily trafficked roads.
- Asphalt on urban principal and urban classified roads.

21. It is proposed to continue with the use of stone mastic asphalt (SMA) where laying difficulties are experienced in respect of hot rolled asphalt. SMA does not require a chipper and therefore means that work can be done quicker, with less disruption and in more safety.

Proposed Changes for 2007/08 onwards

22. Up to now the programme of schemes has been almost exclusively based on the renewal or rehabilitation of surfaces. Whilst it is important to concentrate on improvements to surfaces, as these are the main element of the overall highway asset, this does mean that any other associated assets on the network, such as drainage, signs and road markings may not receive the necessary attention. Our Transport Asset Management Plan actually covers 12 different asset groups, with surfaces being just one of these groups.

23. The pressure on revenue funding means that it is now extremely difficult to afford the programmes of work required to refurbish other types of assets. The current level of revenue expenditure can only deliver a reactive service to those parts of the network assessed as being most in need of treatment, with very little preventative or planned maintenance programmes. It is proposed to bring to Members, as part of the normal annual programme, a number of scheme proposals to allow some of the money traditionally spent on bituminous macadam R&R schemes to be spent on improvements to other specific parts of the highway asset.

24. We know that we do not have the detailed information about the condition of these non-surfacing assets. Obtaining this data and keeping it up to date is very expensive and therefore for the purposes of highlighting the worst cases we propose to make more use of the existing safety, reactive and June survey results. We are, however, aware from feedback from a number of sources that we are experiencing a gradual deterioration with these assets. It is proposed to amend the June survey slightly to enable these other assets to be more formally identified as in need of attention where their condition is approaching or has reached category 3 (poor). Other sources of data will also be used from other inspections and from customer concern statistics. It is not intended to amend the June survey in any other respect as it provides invaluable information to examine trends and provide data for next years programme of works.

An example of customer concern statistics is the Talkabout questionnaire number 26, conducted in June / July 2006. One of the topics in this questionnaire asked residents for their views on **York Pride & Safer City** - opinion of 'street' services and perceptions of crime.

The results show that

- Street name plates and road markings have a 68% satisfaction and continues to improve
- Grass verges have a 61% satisfaction and continue to improve
- Street furniture, lighting, railings, seatings and bins have a 56% satisfaction and whilst this has been improving, satisfaction has now dipped
- Road conditions have a 47% satisfaction and whilst this has been improving it has now dipped has dipped
- Pavements (footways) have a 49% satisfaction; this has been improving but has dipped
- Drainage has a 44% satisfaction; this is very variable and is at the same level as in 2004
- Satisfaction with the reliability of street lights is fairly static at 76%
- Greatest levels of concern about service standards are in areas covering Acomb, Holgate and Westfield.

From the above, and from other customer information, we know that the condition of the drainage asset is a concern and this will be taking into consideration.

Scheme Assessment Criteria for 2007/08 onwards

25. The criteria for assessment and selection of schemes are currently based on a number of weighting factors. It is not intended to alter this in any significant way other than to reflect the proposed changes already outlined. The table below examines each of the criteria used and demonstrates how they are linked to council priorities.

Assessment Criteria	Council Priority	Comment
Condition of asset This mainly relates to surfaces, but can cover other more specific assets such as drainage, road markings, speed control measures, signs etc	IS2, IS3, IS6	The assessment aims to achieve a reasonable balance of schemes between roads, footways and other assets in poor condition. The ability to intervene n the life of an asset at the appropriate time is crucial in providing the best whole life cost.
Safety Is the surface of the road, footway or other asset safe to use	IS2, IS3, IS6	The current level of safety is assessed as well as the likelihood that deterioration over the next 12 months will make the asset unsafe.
Location Proximity to schools, elderly persons accommodation, public buildings, shops, post	IS3, IS6	Targeting these sections of the network helps to improve public perception and supports the economy, local

offices etc		businesses and public services. The city centre has a specific maintenance programme due to the high level of pedestrian use and the link to the economy.
Usage Is there a heavy use by pedestrians, cyclists, and public transport?	IS2, IS6	To assist with congestion problems the schemes involving walking, cycling and the use of public transport are given a higher priority.
Accident Record Is there a history of pedestrian/vehicular traffic accidents, has there been a high level of third party insurance claims?	IS3	Targeting locations where we have accident records is important and contributes to improvement of the actual and perceived condition.
Hierarchy Importance of the road and/or footway to traffic management, public transport and the pedestrian priority route.	IS2, IS6	This criterion focuses on well-maintained assets and their importance in relation to congestion and the links to the economy of the city.
Affordability The cost of carrying out the scheme when balanced against other possible schemes and the potential maintenance liability if left.	IS3	A particular scheme may be expensive, due to engineering constraints for example, and this criterion assesses these types of schemes against others in relation to the need to carry out essential works.
Structural and preventative Obtaining the right balance to extend the life of the asset	IS3	Spending money on the surfaces in the worst condition is not necessarily cost effective. Intervention at the right time, normally a critical 2 to 3 year period in the life of a surface, allows the cheaper forms of maintenance to be carried out. When this opportunity is missed, the cost of treatment is much more expensive.

Consultation

No consultation has taken place.

Options

21. The following options are available:

(1) To retain the existing approach to scheme identification focussing almost entirely on surfaces.

(2) To expand the existing arrangements to incorporate proposals for schemes to rehabilitate other aspects of the highway asset such as drainage, signs, road markings, street furniture etc.

Analysis

Option 1

22. This option concentrates on footway and carriageway surfaces and as a consequence can only improve the other aspects of the highway asset where they fall within the confines of a specific surfacing scheme. There is a danger, given the reduced revenue funding, that these other assets will become overlooked for too long and will reach the stage where a huge amount of capital funding will be required to replace them.

Option 2

23. This option allows a limited amount of capital funding, typically up to 10%, to be allocated to the non-surfacing assets and whilst this will not enable wide spread improvement it will make a difference and if targeted correctly will assist with the perceived condition and appearance of the city's streets, i.e. more in line with corporate priorities.

Proposal

24. The highway asset is diverse and is the largest asset in the Council. Option 2 is proposed as the one that is most likely to achieve the most appropriate balance of work given the condition of the many different parts of the asset and the fact that there is insufficient funding to bring the whole infrastructure up to the desired standard over a short period of time.

Corporate Priorities

25. These are identified in paragraph 5 of the report.

Implications

Financial

26. There are no financial implications as the programmes will be aligned to the budgets available and will be designed to deliver the best value possible given the restrictions in place. CYC capital funding is expected to be reduced for 2007/08 but to some extent the impact of this will be offset by the improved scheme rates obtained under the recent R&R contract with Tarmac and the improved in-house working arrangements between City Strategy and

Neighbourhood Services, resulting in target costs schemes for the majority of the footway resurfacing programme.

Human Resources

27. There are no Human Resources implications in this report.

Equalities

28. There are no equality implications in this report.

Legal

29. There are no legal implications in this report.

Crime and Disorder

30. There are no crime and disorder implications in this report.

Information Technology

31. There are no information technology implications in this report.

Property

32. There are property implications in this report.

Other

33. There are other implications in this report.

Risk Management

34. There are no known risks associated with this report.

Recommendations

35. The Executive Member is recommended to accept option 2 for the assessment and preparation of highway maintenance works programmes for 2007/08 onwards.

Reason: To achieve the most appropriate balance of work for the whole highway asset.

Contact Details

Author: **Chief Officer Responsible for the report:**

Paul Thackray
Head of Highway Infrastructure
City Strategy
Tel No. 551574

Damon Copperthwaite
Assistant Director (City Development and Transport)

Report Approved ✓ **Date** 29 December 2006

Specialist Implications Officer(s)
There are no specialist implications

Wards Affected: **All** ✓

For further information please contact the author of the report

Background Papers:

None

Annexes

Annex 1 – Condition Assessment of the Highway
Annex 2 – Results of the June 2006 Survey of Highway Surfaces

CITY OF YORK COUNCIL **ANNEX 1**

Condition Assessment of the Highway

	% Grade 1 – Condition Good								% Grade 2 – Condition Average								% Grade 3 – Condition Poor						
	2000	2001	2002	2003	2004	2005	2006		2000	2001	2002	2003	2004	2005	2006		2000	2001	2002	2003	2004	2005	2006
All roads	33	32	32	32	31	29	26		50	50	52	51	50	52	57		17	18	16	17	19	19	17
All footways	31	37	34	36	38	30	31		55	50	55	53	54	62	62		14	13	11	11	8	8	7
Urban roads	34	34	33	32	31	29	28		52	49	52	53	56	54	57		14	17	15	15	13	17	15
Rural roads	29	39	30	31	31	28	22		45	28	50	46	53	47	55		26	33	20	23	16	25	23
Principal roads	35	40	44	50	47	35	34		42	46	44	36	37	49	51		23	14	12	14	16	16	15
Non-principal roads	24	29	28	29	32	35	28		57	43	49	53	52	48	58		19	28	23	18	16	17	14
Unclassified roads	35	33	33	30	27	26	25		49	52	53	52	52	54	57		16	15	14	18	21	20	18

	% Grades 1 and 2 - Satisfactory								% Grade 3 – Condition Poor						
	2000	2001	2002	2003	2004	2005	2006		2000	2001	2002	2003	2004	2005	2006
All roads	83	82	84	83	81	81`	83		17	18	16	17	19	19	17
All footways	86	87	89	89	92	92	93		14	13	11	11	8	8	7
Urban roads	86	83	85	85	87	83	84		14	17	15	15	13	17	15
Rural roads	74	67	80	77	84	75	77		26	33	20	23	16	25	23
Principal roads	77	86	88	86	84	84	85		23	14	12	14	16	16	15
Non-principal roads	81	72	77	82	84	83	85		19	28	23	18	16	17	14
Unclassified roads	80	84	85	86	82	79	82		16	15	14	18	21	20	18

ANNEX 2

Results of the June 2006 Survey of Highway Surfaces

Road Type	Condition	Change 2005 – 2006	Long term Trend 5yrs	Comment
Principal roads	Good 34% Average 51% Poor 15%	↓ 1% ↑ 2% ↓ 1% Stable	↓ 6% ↑ 5% ↑ 1% Stable	The principal network appears stable, with slight deterioration long term, in spite of the fact we have transferred investment from principal to non principal classified roads.. Principal road treatments are expensive, including strengthening and high quality materials to give extended life.
Non Principal Classified roads	Good 28% Average 58% Poor 14%	↓ 7% ↑ 10% ↓ 3% Stable	↓ 1% ↑ 15% ↓ 14% Improving	The long term improvement here reflects the targeting of investment through LTP funding. Treatments are expensive.
Unclassified roads	Good 25% Average 57% Poor 18%	↓ 1% ↑ 3% ↓ 2% Stable	↓ 8% ↑ 5% ↑ 3% Deteriorating	Although the current condition is stable, long term trends show deterioration, which reflects the level of investment. This trend could be influenced by more extensive use of low cost maintenance techniques, such as surface dressing, in appropriate locations.
Urban roads	Good 28% Average 57% Poor 16%	↓ 1% ↑ 3% ↓ 2% Stable	↓ 6% ↑ 8% ↓ 2% Stable	The long term trend continues to show some deterioration, reflecting the level of investment. Increased use of treatments such as heavy duty slurry seals, thin overlays and surface dressing has resulted in recent stability.
Rural roads	Good 22% Average 55% Poor 23%	↓ 6% ↑ 8% ↓ 2% Stable	↓ 17% ↑ 27% ↓10% Stable	The long term stable condition reflects the recent targeting of investment towards non principal classified roads. Treatments are relatively expensive due to the reconstruction of road edges. The economic designs used will give moderate life.
All roads	Good 26% Average 57% Poor 17%	↓ 3% ↑ 5% ↓ 2% Stable	↓ 6% ↑ 7% ↓ 1% Stable	Although there has been a slight deterioration in the long term trend in the overall network condition, investment has generally been sufficient to maintain the existing condition.
All footways	Good 31% Average 62% Poor 7%	↑ 1% → 0% ↓ 1% Stable	↓ 6% ↑ 12% ↓ 6% Stable	The annual trend shows a stable condition, but the long term trend shows a significant reduction in the number of poor quality footways as a result of the increased investment over the last 5 years.
All back lanes	Good 11% Average 70% Poor 19%	↓ 1% ↑ 2% ↓ 1% Stable	↓ 13% ↑ 15% ↓ 2% Deteriorating	This shows long term deterioration in the general condition of back lanes. A high proportion of these are in poor condition, and treatment is expensive due to access problems and the need for total reconstruction. The situation is being improved long term by the replacement of existing setts, in one or two lanes per year, with macadam.