A REVIEW OF THE STRUCTURAL MAINTENANCE FUNDING REQUIREMENTS FOR THE ROADS SERVICE

M. S. Snaith OBE, MA, BAI, MSc, PhD, ScD, FREng, FICE, FIHT

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By

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EXECUTIVE SUMMARY

1. It is widely accepted that the condition of Northern Ireland's roads and footways is of vital importance to the economic and social well-being of the country. For a number of years there has been concern, both within and outside the Roads Service, that the quality of service provided by the public road network has suffered due to insufficient funding. A number of major reports have addressed these issues including one by the Northern Ireland Audit Office. In addition in the 2008/09 Annual Report and Accounts the Chief Executive of Roads Service commented:-

> "I am concerned that the level of funding made available to Roads Service for structural maintenance is insufficient to maintain the road network in a satisfactory condition on an on going basis."

2. Against this background I was asked by the Roads Service to review the current situation regarding the condition of the road network in Northern Ireland. To that end I have looked at road condition and the likely effect of past expenditure on that condition. In addition I have probed the efficiency of the Roads Service as they have dealt with the conflicting demands of a satisfactory level of network serviceability and a declining budget, and finally derived what I believe to be a realistic annual budget for overall Structural Maintenance using techniques which are now well established and indeed Northern Ireland Audit Office approved.

3. The basic road condition parameters, ranging from those which give an indication of *structural* condition, such as "residual life" of the road structure, to others which provide a guide to the *functional* condition, such as skid resistance and the visual assessment of the roads surface, all appear to show that there is a decline in condition of all sub networks of the roads system of Northern Ireland except the Unclassified network which would appear to be "held" at the minimum condition commensurate with safety. These data are supported by an increasing rate of reactive patching, an increasing rate of Public Liability claims associated with vehicular as opposed to pedestrian activity, and an increasing level of backlog maintenance.

4. I therefore believe from the above objective observations that the concerns expressed by the Chief Executive of the Roads Service that insufficient maintenance expenditure has been possible on the roads of Northern Ireland, are justified.

5. I have demonstrated that both logically and in practice there is a linkage between road maintenance expenditure and road condition and furthermore asserted that appropriately timed, and hence planned, maintenance of a proper magnitude is able to maintain a road network in a steady condition more cheaply than using reactive techniques or ultimately reconstruction.

6. I felt it necessary to examine the operations of the Roads Service at this difficult time to ensure that it was trying its utmost to deliver a "fit for

purpose" road network as it would be all too easy to rely on the apparent underfunding as an excuse for declining network standards. I found that it has responded well to the situation, with both logic and innovation, to ameliorate the effects of a sustained sub-optimal budget.

7. Finally I have taken the evidence provided with respect to condition and funding levels over the years to derive a Structural Maintenance budget that should sustain and improve the road network to a proper standard so that it will provide safe and comfortable transportation in an economic manner. To that end I recommend that the overall Structural Maintenance budget be increased to c. £108 million per annum at today's prices, giving an equivalent per carriageway-km expenditure of around £4,300.

8. This would I believe halt the year on year increase in the length of roads of the country which are currently deemed not "fit for purpose", known as the Backlog. It would also be helpful for the economy at large if a time period and hence further annual budget could be provided to reduce this backlog of maintenance of around £700 million.

M.S. Snaith
7th September 2009

CHAPTER 1 – INRODUCTION

1.1 It is widely accepted that the condition of Northern Ireland's roads and footways is of vital importance to the economic and social well-being of the country. Indeed the Roads Service Corporate Plan 2009-12 (Roads Service, 2009a) states that the Organisation's vision is to have

> "A safe and efficient road network which meets the needs of all".

However, for this to happen it is vital that the road network is properly maintained.

1.2 For a number of years there has been concern, both within and outside the Roads Service, that the quality of service provided by the public road network has suffered due to insufficient funding. A number of major reports have addressed these issues including one by the Northern Ireland Audit Office (NIAO). In his last report on structural maintenance in 2000 (NIAO, 2000) the Comptroller and Auditor General for Northern Ireland found, amongst other things: inadequate funding; a sizeable maintenance backlog; and risks associated with making additional allocations late in the financial year[1].

1.3 In the 2008/09 Annual Report and Accounts (Roads Service, 2009b) the Chief Executive of the Roads Service commented

> "I am concerned that the level of funding made available to Roads Service for structural maintenance is insufficient to maintain the road network in a satisfactory condition on an on going basis".

1.4 Against this background I was asked by the Roads Service to review the current situation regarding the condition of the road network in Northern Ireland.

1.5 This review will look at:

- The current road condition – Chapter 2
- How condition and expenditure are inextricably linked – Chapter 3
- What has been done to date, *or living with a suboptimal budget* – Chapter 4;
- What should be done in the future – Chapter 5;

[1] This practice involves transferring unspent government department monies, just prior to the financial year end in February and March, to the Roads Service for major maintenance activities. Whilst helpful this practice means that asphalt is laid at times of inclement weather which may result in an inferior product with a consequently reduced working life.

Definitions

1.6 Much of the activity under discussion is, in Northern Ireland, described as "Structural Maintenance" and covers those activities that maintain and preserve the surfaces and structure of the road and footway network. The Roads Service Structural Maintenance programme, and that of many local authorities in Great Britain, comprise a mixture of planned, or periodic maintenance activities such as reconstruction, resurfacing, surface dressing and structural drainage of the carriageways and footways. In addition there is a proportion of "unplanned" but necessary maintenance such as reactive patching – a less economic activity but essential in order to ensure both roads and footways are fit for purpose at all times and also to protect the Roads Service from avoidable and hence wasteful public liability claims.

Road Length

1.7 For budgetary purposes the public road network in Northern Ireland consists of over 25,000 carriageway-km (c. 15,500 miles). This is divided into a Trunk Road Network (TRN), which comprises the motorways and a certain proportion of the A Class roads; other Classified and Unclassified roads as shown in table 1.1 below.

Road Classification	Road Length (carriageway-km)
Motorway[2]	27 (267)
A Class Trunk	1240
A Class non-trunk	1193
B Class	2885
C Class	4705
Unclassified	15164
Total	25214

Table 1.1 Northern Ireland public road lengths by Road type

[2] Motorways – from 2008 the maintenance of the majority of the motorway network has been undertaken by Design, Build, Finance Operate (DBFO) forms of contract and hence the principal figure here is that for which the Roads Service budget is concerned. The figure in brackets is the total motorway carriageway length.

CHAPTER 2 - THE CURRENT ROAD CONDITION

2.1 The actual situation on the roads is often portrayed merely by looking at one network, or sub-network, condition indicator. However in order to test the veracity of that indicator in Northern Ireland, it was felt advisable to look at other parameters to allow a "test of reasonableness" to be applied. To that end the following items are used:-

- Network Condition – judged by structural residual life and skidding resistance for the higher echelons of the network, the TRN and non-trunk road A Class roads; and the more subjective Coarse Visual Inspection (CVI) for the other roads;

With three other parameters to ensure "reasonableness"

- The level of Reactive Patching;
- The Level of Public Liability Claims; and
- The Maintenance Backlog.

Network Condition – Residual life of TRN and A Class Networks

2.2 The Roads Service monitors the structural strength (in terms of the remaining, or residual, life) of the motorways[3], TRN and non-trunk A Class roads using the well established road machine known as the Deflectogaph (Kennedy and Lister, 1978)

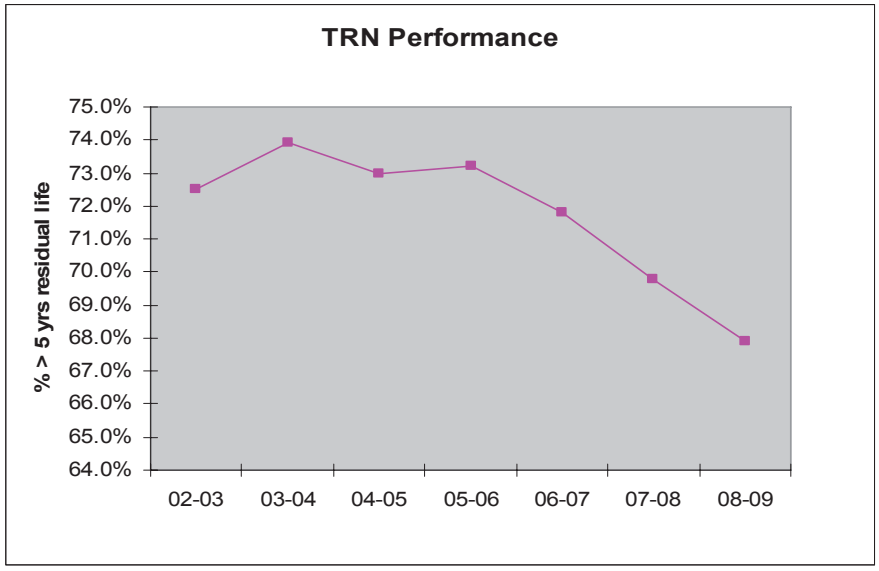

Figure 2.1 – Percentage of TRN (excluding motorways) greater than 5-years residual life

[3] The value of comparing, over time, the data from the Motorways is diminishing as most of that network is now covered by DBFO forms of contract with the private sector.

2.3 It may be seen from Figure 2.1 in 2008/09 that 68% of the TRN (excluding motorways) had a residual life of more than 5-years, but with a steady decline over some five years. Serious concern is also noted with regard to the non-trunk A Class road network, see Figure 2.2, which shows in 2008/09 that 58% of that network had a residual life of more than 5-years, again with a steady decline over the reporting period. Both examples exhibit a clear and continued downward trend in terms of performance. For reference the target minimum percentage for residual life on the TRN is 70%.

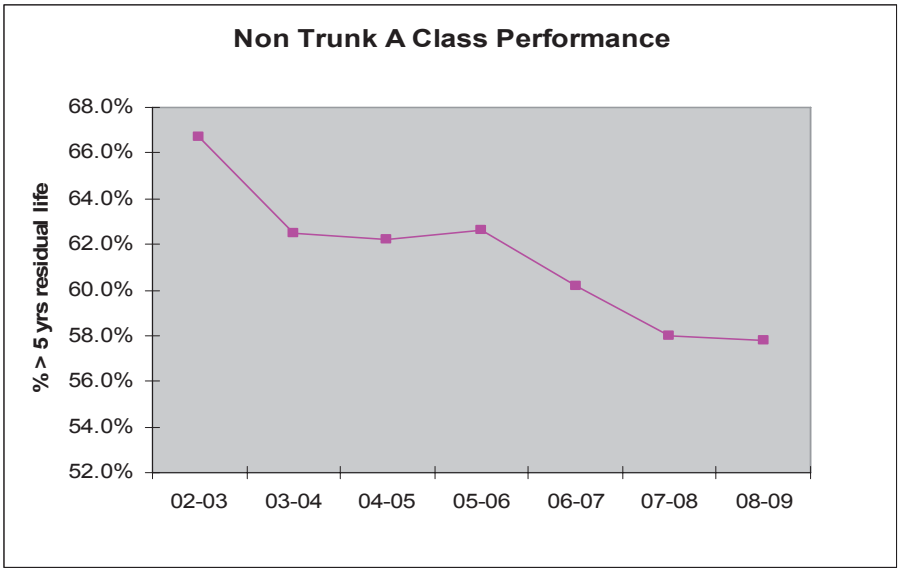

Figure 2.2 - Percentage of non trunk A Class greater than 5-years residual life

Network Condition - Skidding Resistance of TRN and non-trunk A Class Network

2.4 Figure 2.3 shows that 46% of the TRN in Northern Ireland is at or below (i.e. equal or worse than) the United Kingdom wide skidding resistance investigatory level[4] (cf. 35% in 2003), with 31% of the non-trunk A Class also breaching this threshold. Furthermore these are considerably higher than comparable figures from England which are just over 10% for the TRN and 24% for the non trunk A Class roads (Department for Transport, 2007).

[4] Investigatory Level (Department for Transport et al, 2009 - HD28/04) – The level of condition at which consideration is given of the need for maintenance. At this level, all available evidence (e.g. accident rates) would be taken into account to determine future possible remedial actions.

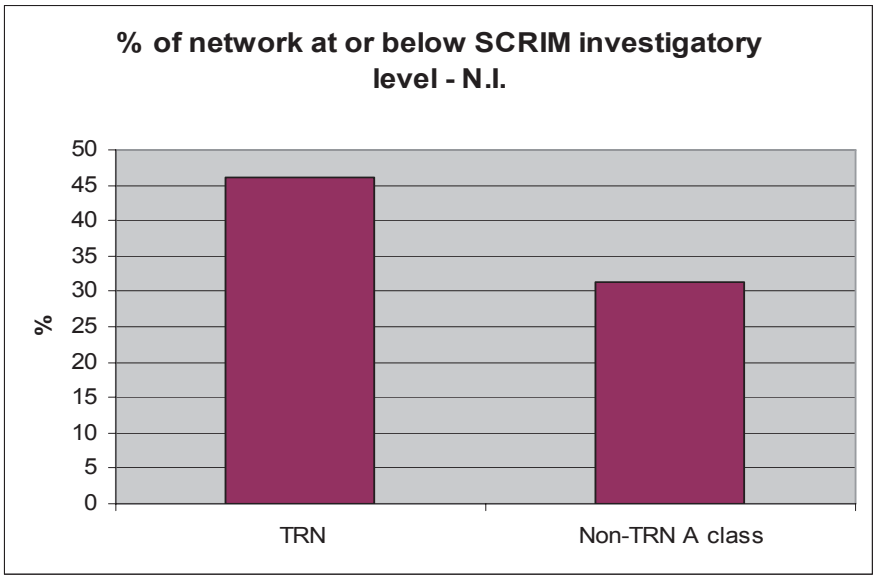

Figure 2.3 – Skidding resistance, percentage length at or below investigatory level.

Network Condition – CVI of Local Roads (B, C and Unclassified Classes)

2.5 All B and C Classes and Unclassified roads in Northern Ireland are monitored using CVI Surveys in accordance with the United Kingdom Pavement Management System and through the Best Value Performance Indicators (BVPI)[5] which in general terms give the percentage of roads which are unlikely to be fit for purpose. In other words, the higher the percentage the worse the condition of the sub-road network.

2.6 In 2003/04 maintenance expenditure on roads peaked and thereafter declined to the present day. This is reflected in the consequent condition of the classified roads where there has been a steady downward trend in road condition – particularly noticeable on the B & C Class networks as shown in Figure 2.4.

[5] Best Value Performance Indicator – Among the "Best Value" indicators are BVPI's for the condition of local roads. For example the BVP1 for the condition of unclassified roads which is measured using visual surveys and relates to the percentage of the local road network where major Structural Maintenance should be considered (Department for Transport, 2007).

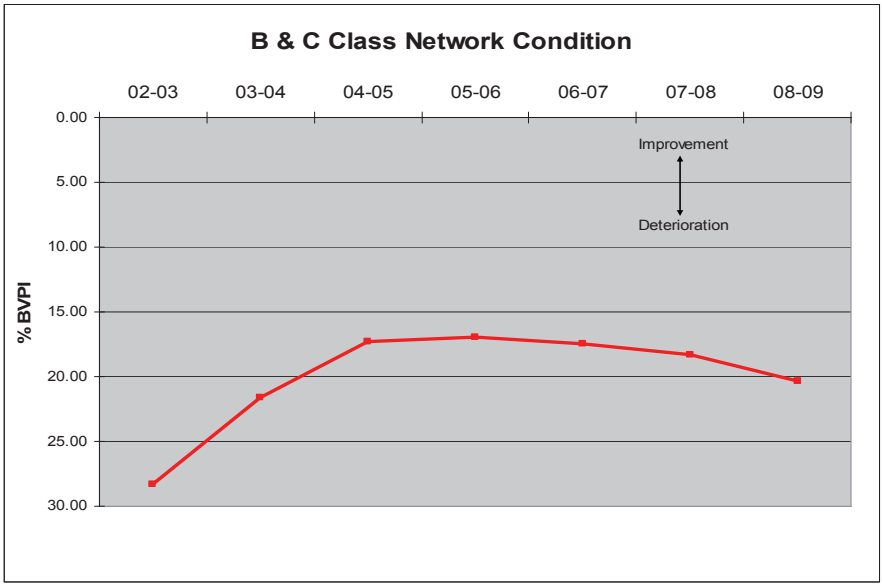

Figure 2.4 – Condition of Classified, B and C roads

2.7 As may be seen in Figure 2.5, the Unclassifieds are not so obviously declining in standard but it is suspected that the apparent condition is being held at these levels by reactive patching (cf. paragraph 2.8), and localised surface dressing, a situation which can only be sustained for a limited period of time. For reference purposes similar figures for England show for this equivalent network the BVPI moving from around 20 to 14, which is a steady "improvement" over the same period of time (Gallagher, 2009).

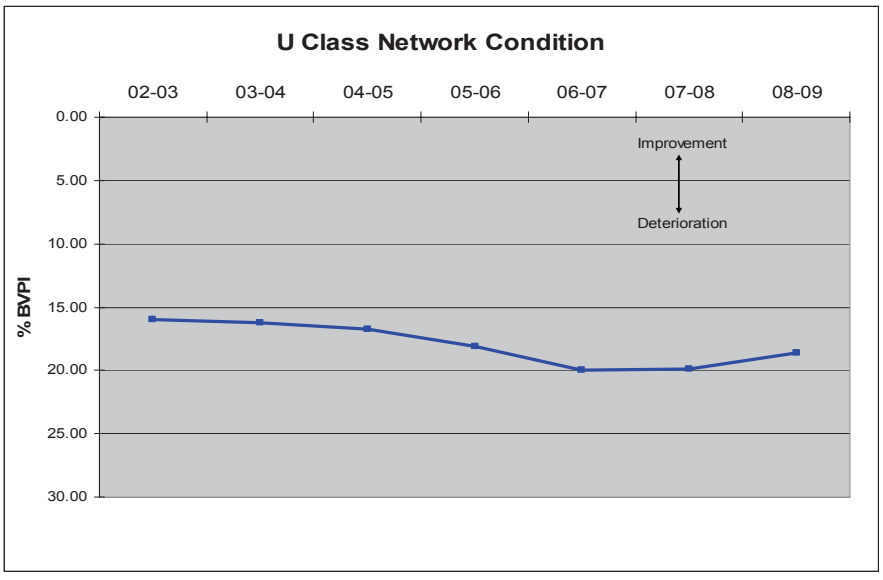

Figure 2.5 – Condition of Unclassified roads

The level of Reactive Patching

2.8 Unplanned Reactive Patching of the road surface is less efficient and usually provides poor value for money but nonetheless is, in the short term, essential to maintain the serviceability of roads and footways where localised failures may occur. In the past the Roads Service has estimated, and the NIAO has accepted, that a reasonable level of expenditure on such activities would be around 10% of the Structural Maintenance budget. The current level is £21.5 million representing around 30% of the Structural Maintenance budget. Figure 2.6 illustrates clearly that the relatively uneconomic Reactive Maintenance activity is rising to cope with increasing localised failures in line with decreasing planned Structural Maintenance and indeed necessarily drawing much-needed funds away from planned maintenance activities such as resurfacing to further exacerbate the situation.

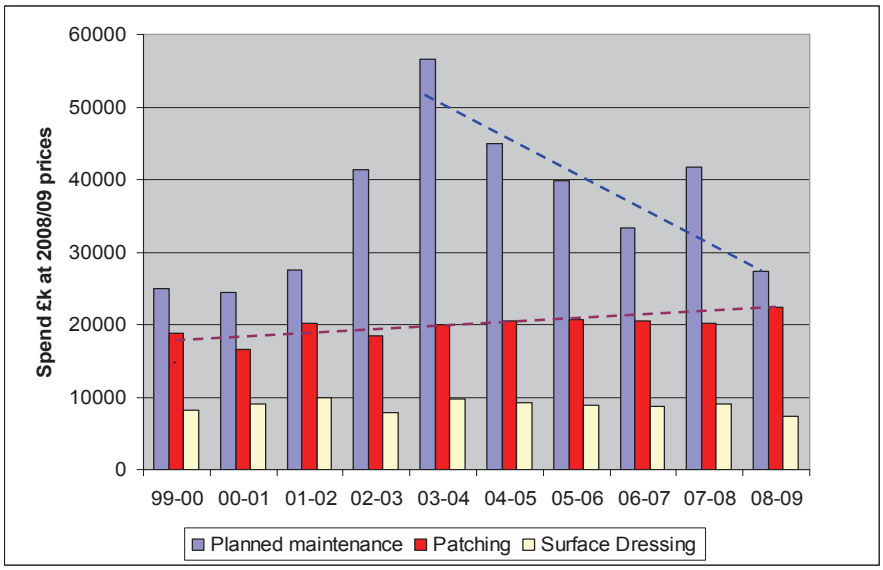

Figure 2.6 – Expenditure by method of maintenance

The level of Public Liability Claims

2.9 The Roads Service has over the years put a considerable effort into reducing footway claims by improved maintenance expenditure and systems which have resulted in a considerable reduction in wasteful Public Liability Claims. In the case of the carriageways, unlike footways, sound management systems have been in place for some 30 years. It is therefore very significant that carriageway claims are now starting to climb as may be seen in Figure 2.7. In 2008/09 there was a 15% increase on the number of claims compared with the previous year alone.

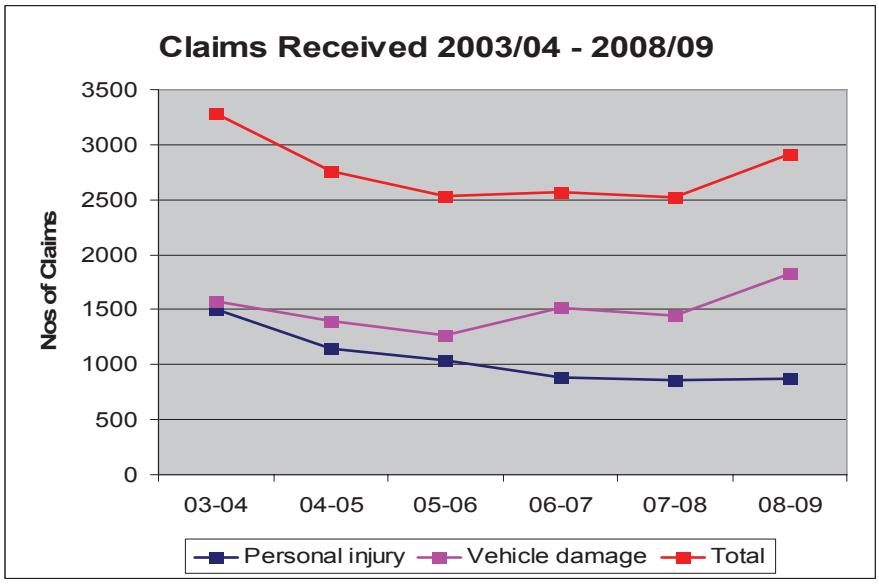

Figure 2.7 – Public Liability Claims received by the Roads Service

The Maintenance Backlog

2.10 "Backlog" represents that portion of the Network which has not been treated under the annual planned Structural Maintenance programme due to a lack of funds and has therefore deteriorated into a condition which requires major works to raise it to a level where the planned maintenance activities are again able to ensure its continued well being and hence ability to serve the public. By its nature it increases year on year with suboptimal budgets.

2.11 To quantify the Backlog at any point in time a methodology, previously agreed with the NIAO (NIAO, 2000), is employed by the Roads Service using information from all its inspection and survey systems. Whilst this is in part merely the "other side of the coin" shown above it does indicate perhaps more starkly, in Figure 2.8, the overall pattern of declining serviceability of all parts of the network since 2003.

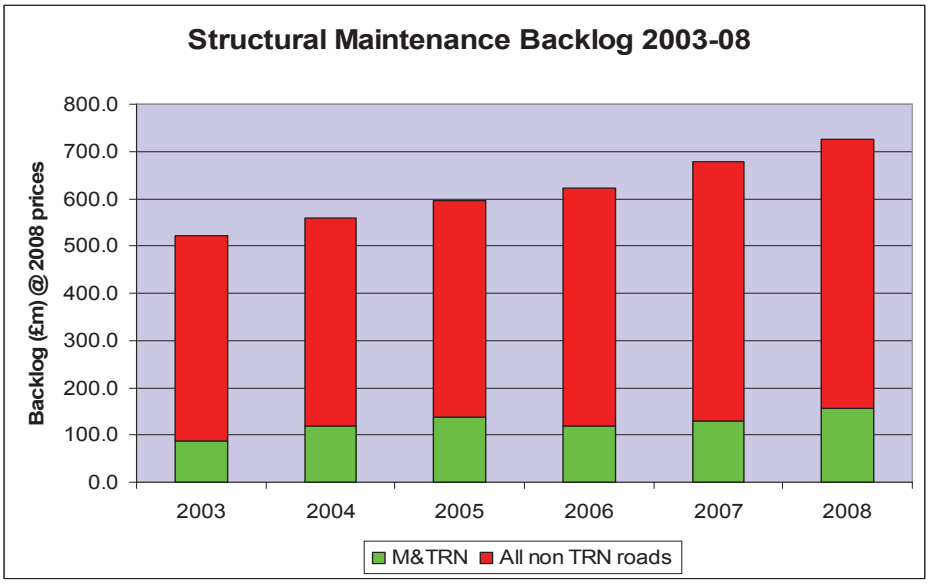

Figure 2.8 Structural Maintenance Backlog 2003 - 2008

Summary.

2.12 In summary the basic condition parameters all appear to show that there is a decline in condition of all sub networks of the roads system of Northern Ireland except the Unclassified network which would appear to be "held" at the minimum condition commensurate with safety. These data are supported by an increasing rate of Reactive Patching, an increasing rate of Public Liability claims associated with vehicular as opposed to pedestrian activity, and an increasing level of backlog.

2.13 I therefore believe that the concerns expressed by the Chief Executive of the Roads Service that insufficient expenditure was, and is, being permitted on road maintenance are justified.

CHAPTER 3 – HOW CONDITION AND EXPENDITURE ARE INEXTRICABLY LINKED

3.1 Research and observation over many years have shown that road pavements generally do not deteriorate in a uniform way over their service life. New and properly constructed pavements show little deterioration over the first half of their design lives and then increasingly deteriorate to a level where they are no longer fit for purpose and ultimately require reconstruction.

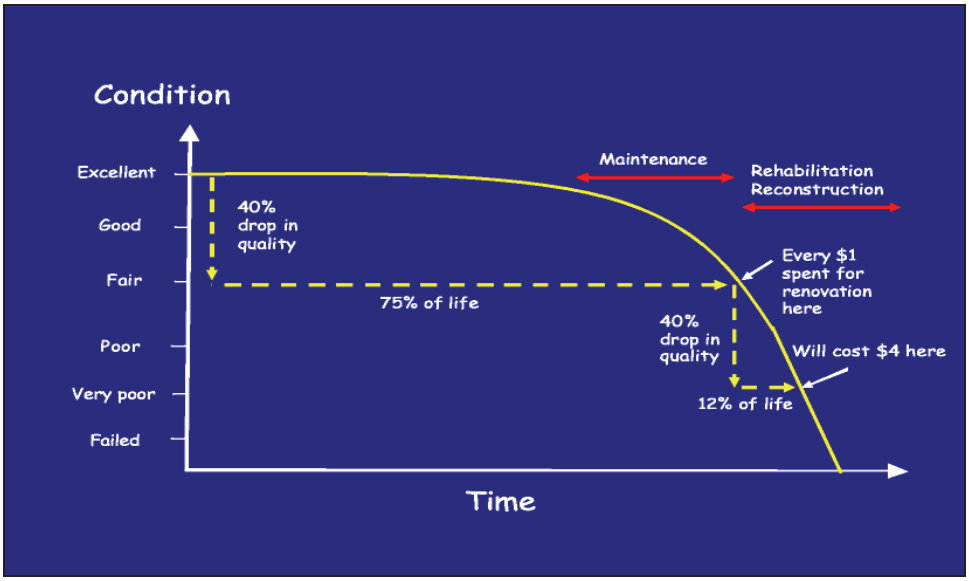

Figure 3.1 - Deterministic representation of serviceability decline (Shahin and Walther 1990)

3.2 The most cost effective practice is clearly to plan Structural Maintenance just at the end of this "first half" as indicated in Figure 3.1, and if this is not done then excessive Reactive Maintenance will become necessary, allied to an increasing backlog which ultimately has to be rectified by expensive major works. It may be easiest to see this as an example of the old adage, "a stitch in time saves nine".

3.3 Whilst a deterministic representation of a particular section of road is helpful, when discussing a network in which different parts are at different stages in the cycle, it is more accurate to consider the overall condition as a distribution of conditions around an "average" as is shown in Figure 3.2.

3.4 In the figure the "average" condition of the network will decline, or move to the right, as a function of the deleterious effects of environment and traffic, and improve, or move to the left, as a function of cash injected into the system through maintenance activities.

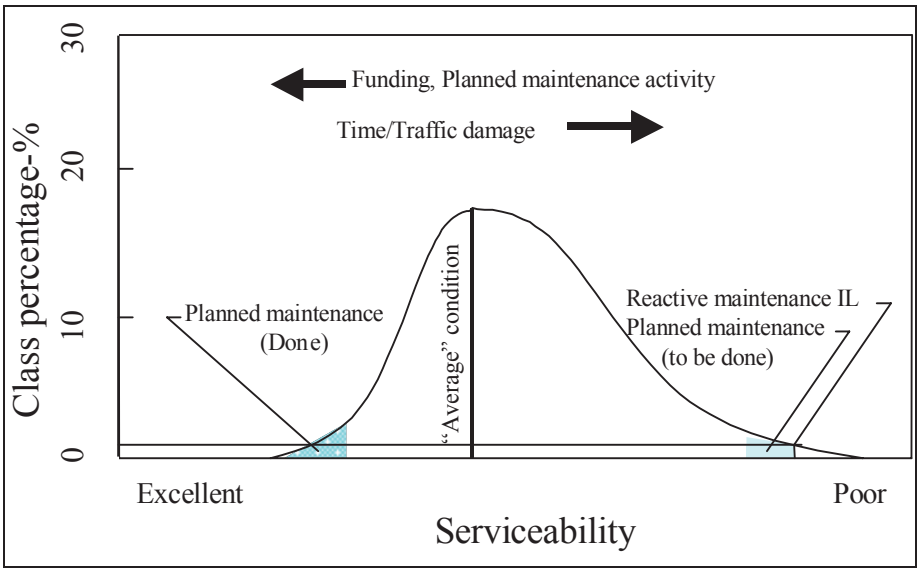

Figure 3.2 - Probabilistic representation of network condition.

3.5 What the average, or standard, should be is a matter for the Government on the advice of the Road Authority, in this case the Roads Service. What is clearly vital is that the average does not "drift to the right" with a consequent increase in Reactive Maintenance and backlog, as would appear to be happening in Northern Ireland.

3.6 It may be wondered why *some* Reactive Maintenance is required. It is a recognition that there is a "scatter" on behaviour which is impossible to predict at project, or individual road sectional, level. However as previously noted it should not be considered as a replacement for planned Structural Maintenance. In Figure 3.2 planned maintenance is shown by the (blue) shaded area at the "right hand" tail of the distribution.

3.7 In the previous chapter there was very strong evidence to confirm the intuitive relationship between expenditure and road condition. Figure 3.3 illustrates a further example of such a relationship from another part of the United Kingdom and shows that when expenditure is increased, the condition also improves, albeit with a "phase lag".

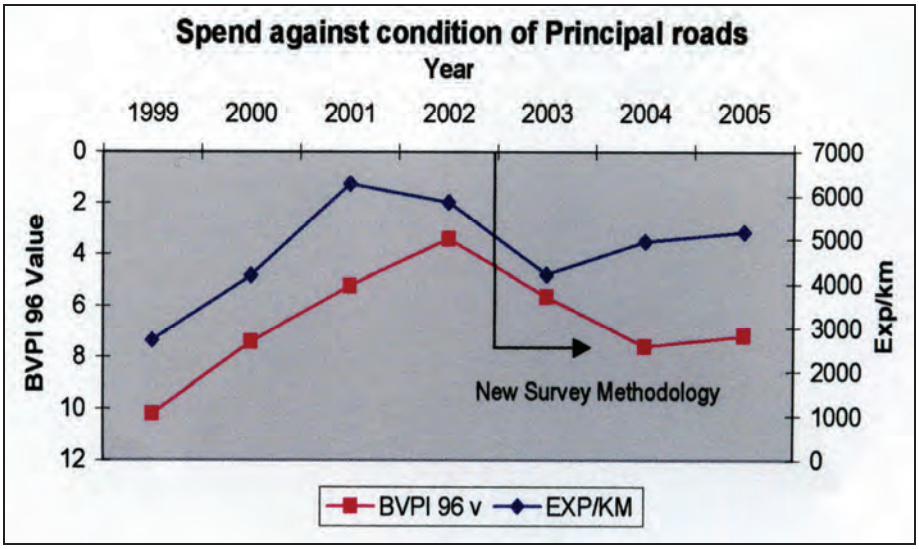

Figure 3.3 – Typical example from another part of United Kingdom on Spend versus Condition

Summary

3.8 It is shown that there is a linkage between road maintenance expenditure and road condition and furthermore that appropriately timed, and hence planned maintenance of a proper magnitude is able to maintain a road network in a truly steady condition more cheaply than using reactive techniques or ultimately reconstruction.

CHAPTER 4 - WHAT HAS BEEN DONE TO DATE, *Or living with a sub-optimal budget*

4.1 Unfortunately the road maintenance budgets provided from successive Comprehensive Spending Rounds (CSR) since 2003/04 (Department for Regional Development, 2007) fall short of that required to maintain the roads network at the "good practice" resurfacing frequencies (Roads Service, 1998). Consequently the Roads Service has adopted a sub-optimal budget strategy in order to preserve the fabric of the network.

4.2 This strategy targets its resources to:-

- Maintaining the TRN;
- Maximising surface dressing;
- Patching for safety reasons only;
- Minimum footway expenditure compatible with providing a safe environment for pedestrians.

4.3 The TRN represents around 5% of the public road network and carries some 37% of road traffic movements. Given its strategic importance Roads Service has quite rightly targeted its limited resources to that part of the network. However, it is nonetheless clear that this part of the network is suffering some major decline with only 68% having a residual life of greater than 5-years and needs some further injection of funds over an extended period to arrest the currently declining condition.

4.4 Surface dressing continues to be one of the most common and economic "preventative" maintenance treatments on the sub-road network in Northern Ireland, ensuring that the road surface is sealed against entry of water, delaying further deterioration and restoring skidding resistance. Some 12% of the annual Structural Maintenance budget is currently spent on this key activity treating around 1500 carriageway-km. Surface dressing can of course be carried out more than once at any particular site over a period of time. However, the use of multiple surface dressings, as a regular treatment, can build up a layer of relatively soft material which may result in excessive bleeding and rutting.

4.5 Reactive Maintenance, in the form of patching, which is relatively poor value for money, must continue in order to protect the Department against public liability claims. However this does result in less money remaining for good value "stitch in time" treatments such as resurfacing and surface dressing. As roads other than the TRN are largely receiving only surface dressing within the planned Structural Maintenance programme, more deterioration will undoubtedly accrue which will ultimately require further patching if this situation continues –a "vicious circle".

4.6 Footways do not have the same sort of pavement strength as carriageways, nor do they deteriorate under pedestrian loading. However, they are quite vulnerable to extensive utility activity and the general wear and tear problems this can generate. I am advised that the footway surface is being maintained in a safe condition through a system of regular inspections and defect repairs. I note that the level of budget attributed to footway maintenance has remained fairly constant over recent years, as has the level of personal injury claims (the vast majority of which would relate to footways). This would tend to indicate that footways are in a steady and satisfactory state commensurate with the budget allocated and that envisaged at table 5.1.

4.7 The strategy of trying to maintain a reasonable expenditure on structural maintenance activities within the confines of the limited budget has meant that it has been necessary to minimise, albeit consistent with safety standards, expenditure on routine activities such as grass cutting and, perhaps more seriously and less wisely, gully emptying.

4.8 However, the unit costs associated with these and other "routine" maintenance activities are increasing. For example, I am aware that the cost of street lighting is increasing as have winter service commitments due to the recent harsh winter conditions.

4.9 I have probed into various areas of the operations of the Roads Service and have found that it has achieved efficiency savings across many of its activities. I have been informed that in the three years 2005 – 2008 Roads Service recorded some £19.6 million of value for money efficiency savings to the Department of Finance and Personnel (DFP) Central Procurement Directorate database, as part of the overall £250 million target set for all Government Clients over this three year period (Department of Finance and Personnel Northern Ireland, 2008).

4.10 I am further advised that Roads Service is currently delivering over £450 million of capital improvements through the use of the Design, Build Finance and Operate (DBFO) form of contract. There are currently two DBFO packages and these include the operation and maintenance of around 350 carriageway-km of the TRN, of which 240 carriageway-km are motorway. This represents just over 20% of the TRN.

4.11 I note that the Roads Service has expanded its use of innovative and efficient "operational" maintenance processes such as the "jet-patcher" – a proprietary system of repairing potholes using bitumen and stone propelled by compressed air, which avoids the need to cut out sound material. There are now seventeen such machines working across the four Roads Service Divisions.

Summary

4.12 I felt it necessary to examine the operations of the Roads Service at this difficult time to ensure that it was trying its utmost to deliver a "fit for purpose" road network as it would be all too easy to rely on the apparent underfunding as an excuse for declining network standards. I found that it has

responded well to the situation, with both logic and innovation, to ameliorate the effects of a sub-optimal budget.

CHAPTER 5 - WHAT SHOULD BE DONE IN THE FUTURE?

5.1 In 1998/1999 when structural maintenance expenditure was running at £42.7 million (at 1998/1999 prices), the NIAO (NIAO, 2000) said in their report that

> "Roads Service developed...a Structural Maintenance Funding Plan in 1998. This indicated a requirement of some £80 million a year which excluded maintenance Backlog..... [which] provides the Roads Service with a more sound basis on which to develop and present its funding requirements."

5.2 To an extent this recommendation was followed initially, as may be seen in Figure 2.6, with reasonable "results" as may be seen in Chapter 2. However since then it is clear from the data presented in this report that the fitness for purpose of the various networks has declined in line with the declining budget.

5.3 If the values of the NIAO's recommendations (NIAO, 2000) are scaled to current prices the recommendation would be in excess of £100 million for the Structural Maintenance requirement.

5.4 These figures are of course only indicative as they do not reflect the downward spiral of condition on the one hand and the improving techniques used by the Roads Service on the other, and so I have sought an up-to-date figure, using NIAO approved techniques for the required budget. The methodology is laid out clearly elsewhere (Roads Service, 1998), but essentially relies on the known fact that certain treatments on certain road sections will last for given periods before needing to be repeated. These figures are shown in Table 5.1.

5.5 Using the road lengths and current unit rates provided to me by the Roads Service, I have produced, at table 5.1, an overall Structural Maintenance budget requirement of c £108 million per year (c. £4,300 per carriageway-km).

5.6 This assumes that Reactive Maintenance patching will reduce from the current level of 30% of the Structural Maintenance budget to around 10% of the budget level accepted by the NIAO (NIAO, 2000) as being a "proper" figure, commensurate with "proper" Structural Maintenance funding. However it is unlikely that the backlog of around £700 million will be reduced sufficiently quickly to achieve this and so it may be necessary to consider a balanced reduction in the Reactive Maintenance patching budget to run alongside any planned reduction in Backlog which Government may agree to fund.

Network	Treatment	Good Practice Treatment Frequency (years)	Total Length[1] (c'way km)	Annual Requirement (c'way km)	Treatment Cost - 2008 (£k/km)	Annual Cost (£k)
Motorways (inc. slips)	Resurfacing	1 in 20	27	1.35	137.55	186
Trunk Roads		1 in 20	1,240	62.00	194.74	12,074
Addit A class		1 in 20	1,193	59.65	152.86	9,118
B class		1 in 25	2,885	115.40	76.95	8,880
C class		1 in 25	4,705	188.20	76.95	14,483
U class		1 in 30	15,164	505.47	61.83	31,255
Bitmac carriageways	Surface Dress	1 in 10	20,654	1,982.8	5.81	11,522
(Treatment lengths for surface dressing have been adjusted to reflect supersession of resurfacing treatments over surafce dressing)						
Total Carriageway Resurfacing and Surface Dressing Requirement						**87,519**
C'way Patching						9,000
Concrete Roads (mainly in Belfast)						1,000
Structural Drainage						3,500
Footways						7,000
Total Structural Maintenance Requirement						**108,019**

Notes
1. Length of road network is a snap shot of the Road Maintenance Client System at April 2008.
2. Surface dressing frequency increased to 1 in 10 years (previously 1 in 8) which is consistent with asset valuation calculations and also reflects enhanced performance achieved on materials adopted.
3. The length of 20654km relates to length of B, C & U class roads that are of surface type bitmac or surface dressed. This is considered a 'conservative length' as it is acknowledged that this type of treatment could equally be applied to all surface types on B, C & U roads.
4. In respect of carriageway patching this is the estimated amount that is required at the good practice funding frequencies. It does not allow for dealing with any accumulated patching (backlog) costs.

Table 5.1 Roads Service Structural Maintenance Funding Plan.

5.7 This takes me onto the Backlog which, as noted at paragraph 2.11, the NIAO felt was around £100 million in 1998. Today the Roads Service compute that this figure is, in today's prices, around £726 million based on NIAO approved techniques for valuing the road assets of Northern Ireland (EC Harris, 2006 and Snaith and Orr, 2006), the dramatic increase due in part to the "vicious circle" referred to in Chapter 4. It is of course for the Government to decide on the length of time required to reduce this backlog, and in addition it is governed by the availability of contractors and materials to do this amount of work without increasing unit rates. However, and arguably, it would not seem unreasonable to aim at say twenty years, which would not put an undue strain on suppliers or budget.

Spending Comparisons

5.8 It is notoriously difficult to make comparisons of Structural Maintenance funding with other regions of the Anglo-Celtic archipelago because of different administrative and financial reporting arrangements.

5.9 Within Great Britain, for example, there is a split between expenditure on motorway and trunk roads and on local roads; and patching expenditure is not always recorded as Structural Maintenance.

5.10 Despite this some very broad comparisons were made for the Structural Maintenance requirement for Northern Ireland with known expenditure in

England and Wales (Department for Transport, 2007) and information from the Republic of Ireland.

Structural Maintenance	Northern Ireland annual Requirement	England[1] Outturn	Wales[2] Outturn	Republic of Ireland
All roads £/carriageway-km	4,300	13,000	7,600	4,500

1 Structural Maintenance outturn for 2006/07
2 Structural Maintenance outturn for 2005/06

Table 5.2 – Broad comparisons of Structural Maintenance Expenditure

5.11 Table 5.2 indicates that whilst there are significant differences in environments and traffic levels between the comparators the calculated required budget in Northern Ireland is clearly not excessive and in addition is comparable to that of the nearest neighbour, the Republic of Ireland.

Summary

5.12 I have taken the evidence provided with respect to condition and funding levels over the years in order to derive a Structural Maintenance budget that should sustain and improve the road network to a proper standard so that it will provide safe and comfortable transportation in an economic manner. To that end I recommend that the overall Structural Maintenance budget be increased to c. £108 million per annum at today's prices, giving an equivalent per carriageway-km expenditure of around £4,300.

5.13 This would I believe halt the year on year increase in the extent of the roads which are currently deemed not "fit for purpose", known as the Backlog. It would also be helpful for the economy at large if a time period and hence further annual budget could be provided to reduce this backlog of maintenance of around £700 million.

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Annex 1

SNAITH REVIEW OF STRUCTURAL MAINTENANCE FUNDING – 2009

TERMS OF REFERENCE

To carry out a review of (i) the overall position on funding available for roads structural maintenance; and (ii) the general condition of roads in Northern Ireland. In the course of the review to consider:-

a. Previous Snaith reports[6] and findings, the Structural Maintenance of Roads, Northern Ireland Audit Office Report 2000 and the follow up Public Accounts Committee report July 2001;

b. Structural maintenance expenditure patterns, including the proportion of structural maintenance funds spent on the different structural maintenance activities - resurfacing and reconstruction, surface dressing, patching, footways.

c. Use data currently available in Roads Service, to present condition of the road network;

d. The appropriate level of funding required to achieve good practice resurfacing treatment across Northern Ireland's entire road network;

To report, advise and make recommendations accordingly.

[6] Review of Structural Maintenance in Northern Ireland, M S Snaith, 1986. A further review of Structural Maintenance Procedures for DOE (NI), MS Snaith, 1989. A review of Structural Maintenance Needs in Northern Ireland, MS Snaith, 1993. The supplements to this review of 1994 and 2005.