

Transport Asset Management Plan

2nd Edition



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Abbreviations and acronyms

ADEPT	Association of Directors of Environment, Economy, Planning and Transport
AMP	Asset management plan
BVPI	Best Value Performance Indicators
CIPFA	Chartered Institute of Public Finance and Accountancy
CSS	County Surveyors Society (now ADEPT)
CVI	Coarse visual inspection survey
DfT	Department for Transport
DRC	Depreciated replacement cost
DVI	Detailed visual inspection survey
EA	Environment Agency
FNS	Footway Network Survey
GIS	Geographical Information Systems
GRC	Gross replacement cost
HMS	Highways Management System
ITS	Information technology systems
LA	Local Authority
LHMIS	Leicestershire Highways Management Information System
LTP	Local Transport Plan
MSIG	Midlands Service Improvement Group
MTFS	Medium term financial strategy
NI	National indicator
PFI	Private finance initiative
PI	Performance Indicator
PMS	Pavement Management System
SCANNER	Surface Condition Assessment of the National Network of Roads
SCRIM	Sideways-force Coefficient Routine Investigation Machine
TAMP	Transport Asset Management Plan
TPC	Third Party Claims

TUL	Total useful life
UKPMS	United Kingdom Pavement Management System
VAT	Value added tax
VFM	Value for money
WGA	Whole of Government Accounts
3 CAP	3 Counties Alliance Partnership



Chapter 1 Introduction

1.1 Background

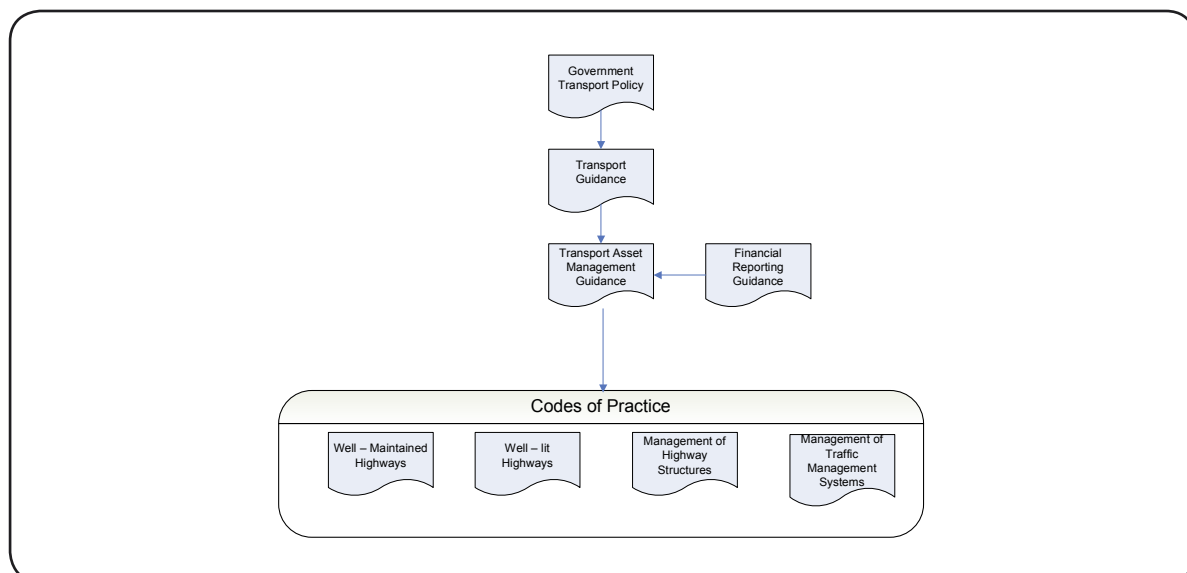
2004 saw the launch of the CSS document “Framework for Highway Asset Management” the main aims of this document being to:

- Introduce the concept of asset management as it applies to UK road networks.
- Provide a reference for authorities who wish to introduce an asset management approach to their business processes.
- Assist with the preparation of asset management plans.
- This document will be revised following publication of the CIPFA Transport Infrastructure Asset Code.



The theme of asset management was strengthened by Government guidance encouraging authorities in England to draw up Transport Asset Management Plans (TAMPs), as part of their preparation for the second round of Local Transport Plans (LTP). In July 2009 the guidance for the third round of LTP was published, encouraging authorities to integrate TAMPs with LTP 3.

The hierarchy of guidance relating to local transport planning, asset management and the Codes of Practice is shown below.



In 2007 Leicestershire County Council produced its first transport asset management plan, or TAMP. We are convinced that good asset management is essential and we have been following good practice in managing our transport assets for many years. However, this was the first truly systematic analysis, intended to identify the best maintenance practices to minimise whole-life costs of the assets and at the same time meet as far as

was possible the levels of service demanded by our customers within the funding likely to be available.

Given the importance of the highway network to the economic, social and environmental well-being of the community the Department for Transport (DfT) encouraged local authorities to develop an asset management approach to managing that network. As a highway authority we aim to introduce and embed asset management principles throughout our organisation to ensure that budgets are based on clearly identified service standards and spending is both need and outcome based.

There are a number of other areas of work to complete before the TAMP can be considered a fully comprehensive document. It is anticipated that the TAMP will develop over the coming years as analytical and maintenance techniques advance and the availability of funding fluctuates.

These changes will require further editions of the TAMP to be produced in later years, though with the core content perhaps little changed after 2011.

1.2 Goals and objectives

Our strategic objectives are set out in our LTP3 and indicate what we will do, in transport terms, to deliver our local transport goals and the wider economic, social and environmental ones.

The TAMP addresses LTP Objective 8:

To protect and enhance the quality of life for individuals and communities and the environmental quality of our settlements and historic assets. (Goal 5)

It will do this by implementing asset management to maximise the availability, capacity, resilience and performance of our transport system

TAMP Goals

We want to move away from setting Performance Indicator (PI) targets for assets, but have reported the Midland Service Improvement Group (MSIG) PI bandwidths for roads in chapter 6

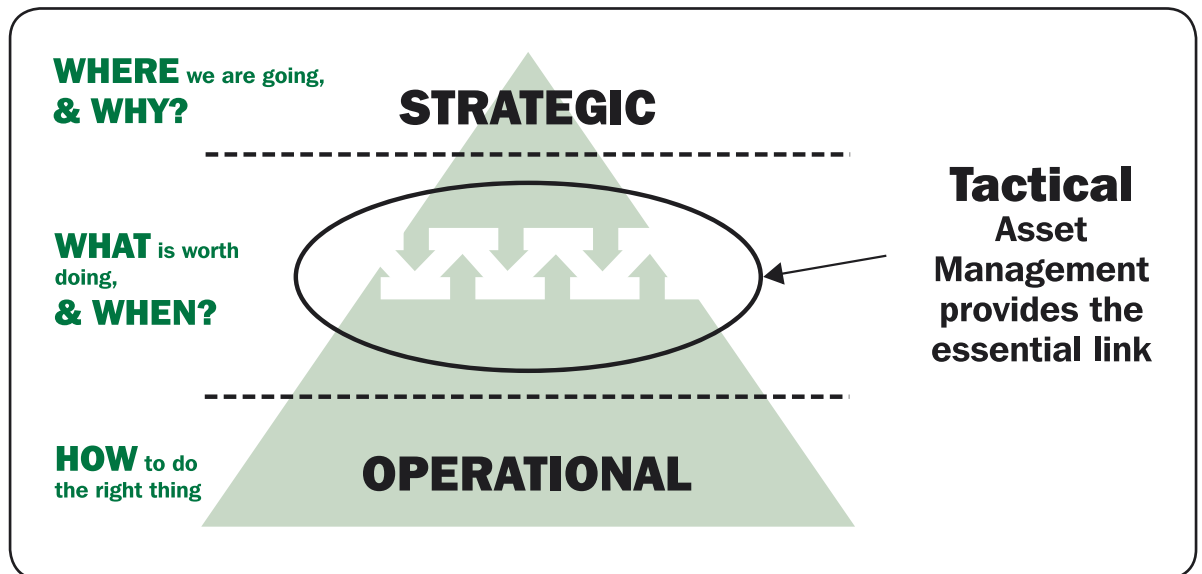
The funding that is allocated to an asset will be determined by the use to which it is put and for which it is intended, and the current service levels.

When funding is tight, it might not be prudent to set a target for replacing a street-lamp, for example, if it requires a trip out just for that one lamp.

However, some specific targets may be set for some assets. **For example:**

- Ensure no more than 4% of traffic signal installations are over 20 years old
- Ensure that all future traffic signal installations are carried out with LED / ELV (Light emitting diodes / extra low voltage) equipment to reduce the energy costs and carbon dioxide emissions.

Asset management is also the link between our strategic objectives and our operational activities.



For this model to be effective it has been essential for this organisation to rethink and introduce new ways of working, managing information, and allocating resources.

1.3 What is Asset Management

Within the context of transport asset management, what is an Asset? - Anything of material value or usefulness that is owned by a local authority. The highway is not simply the road surface; it also includes its immediate surroundings which together, form the 'highway'. Components of the highway include such wide and varied aspects as footways and verges, road lighting, road markings, traffic signs, drainage, trees and hedges, traffic signals, catseyes, kerbing and crash barriers - to name but a few.



Asset management is not a new concept, however in relation to highway assets, an asset management approach will account for the status of these assets, identify the needs of the systems, and indicate what investment is needed to maintain performance. The CSS framework for Highway Asset Management (2004) defines asset management as:

"a strategic approach that identifies the optimal allocation of resources for the

management, operation, preservation and enhancement of the highway infrastructure to meet the needs of current and future customers”.

In simpler terms it is the way an organisation manages its assets to deliver its strategic priorities and service needs effectively. The following information is essential to achieve this:

What we needed to know	How we did it
What are our assets?	Comprehensive analysis to determine what assets we had and a gap analysis to understand where we were short of asset data.
How many do we have?	We carried out analysis of existing data bases and completed an asset data collection survey to gain an accurate count of our assets.
Where are they?	By confirming the accuracy of existing data and adding newly surveyed data. We then produced asset location data in GIS format for mapping purposes.
What condition are they in?	By analysing our various condition surveys and combining them with our safety inspections & customer reports.
Do we still need them?	This exercise is still ongoing, but the object is to identify those assets that are no longer required and remove them from the network, therefore saving on annual maintenance costs and liability.
What do they cost (install / maintain / replace)?	By identifying and monitoring spend against specific assets, for both reactive and planned maintenance; whole life costs can be determined.
What is an acceptable Level of Service?	By constantly measuring our performance against the national indicator set and responding to our customers needs we were able to reach a good level of service.

Answering these questions provided the foundation for this Asset Management plan.

1.4 Why we need TAMP 2

As a highway authority with over 4000km of highway to maintain Leicestershire County Council has to manage this network under increasing pressures such as:

- Growing traffic volumes, increasing network demands
- Reducing budgets, limited resources, and the need to deliver efficiencies
- Increasing demand for public accountability
- Higher user expectations regarding levels of service
- Environmental and climate change issues

Therefore it was necessary to adopt a coordinated approach to managing infrastructure assets in such a way that demands, expectations, and performance are achieved whilst

providing justification for actions and responsibility for results. It is clear that there is a need for Local authorities to be managed more like a business operation in terms of gaining best value against available budgets and resources. This is what TAMP 2 provides.

1.5 Where We Are Now

The asset management plan is a part of the authority's wider work on asset management and reflects the authority's over arching objectives and goals set out in our third Local Transport Plan (LTP).

In terms of asset management we have:

- Produced our first transport asset management plan, or TAMP, in 2007.
- Completed a survey to ascertain what asset data systems are currently being used within the authority and how they will be used in the future.
- Consulted with asset managers to ascertain what asset data (type and detail) is required to manage the asset better, thus providing efficiencies and savings.
- Developed a strategy and process to manage asset data within our Highway Management System (HMS)
- Consulted with highway operational services to ensure that asset management will be used effectively to maximise efficiency gains.
- Started to develop operational systems to allow the monitoring of revenue spend against individual assets.

In terms of network condition and performance we continue to monitor the condition of our roads, footways, bridges and street lighting and report against the levels detailed within our current Local Transport Plan (LTP).

Indicator	Description	% (2009/10)	Total length / Number	Defective length / number
NI 168 / LTP 40	% Principal roads where maintenance should be considered	2%	300km	6km
NI 169 / LTP 42	% Non-principal classified roads where maintenance should be considered	4%	1557km	62km
BVPI 224b / LTP 43	% unclassified roads where maintenance should be considered	10%	2310km	231km
LTP44 (BV187a)	% of the total length of Category 1 & 2 footways where maintenance should be considered	14%	146km	20km
LTP45	% of the total length of Category 3 & 4 footways where maintenance should be considered	5%	3420km	171km
LTP47	% of bridge spans with a critical indicator (BCI) below 75	10.4%	689	69
LTP48	% of street lighting columns needing replacement	11.43%	66,000	7,544

1.6 Where we want to be

In simple terms we want to be in a position to provide a reliable, safe, and efficient network and in doing so optimise the available resources, provide value and accountability. To do this the culture of the organisation needs to change so that our systems, procedures, and methods of working are fully coordinated. Our first TAMP laid down the foundations to achieve this and this TAMP reinforces those principles and therefore we are in a strong position to achieve our TAMP goals, which again, in simple terms are:

- To manage the condition and serviceability of our assets.
- To manage the network more efficiently.
- To meet the needs of current and future network users.
- To mitigate and adapt to the effects of climate change.

Our LTP3 will continue to inform the development of the TAMP by incorporating the outcomes of consultation and user aspirations. Over the period of LTP3 the TAMP will evolve through assessing, the demands for the use of the network and adjusting resources accordingly; enabling the best use to be made of the existing network and any improvements by reviewing operational policies and working procedures; provide a process for the most cost effective maintenance regime by constantly reviewing the

use of treatments and performance; and within available funding, ensure that assets are maintained in a condition that is ‘fit for purpose’ by analysis of inspection and survey data.

1.7 Effective Asset Management

To be effective our TAMP follows these principles:

- **It is policy-driven** - resource allocation decisions are based on a well-defined set of policy goals and objectives.
- **Performance based** - policy objectives are translated into achievable performance measures that are used for both day-to-day and strategic management.
- **Analysis of options and tradeoffs** - decisions on how to allocate funds within and across different budgets (e.g., reactive maintenance versus programmed maintenance, carriageways versus bridges) are based on an analysis of how different allocations will impact achievement of relevant policy objectives.
- **Decisions based on quality information** - using credible and current data such as routine condition surveys, safety inspections, customer reports, demographic data.
- **Continuous monitoring** - performance results are monitored and reported for both impacts and effectiveness of treatments and actions.

1.8 Responsibility for Asset Management

To obtain the full benefits of asset management, the process and its principles must be embraced by an organisation and become the normal way of doing business. Embedding asset management within the highways department at Leicestershire County Council will greatly advance the making of sound investments in operations as well as overall transportation.

Chapter 2 Challenges of TAMP 2

The aim of this chapter is to identify the challenges that are facing this authority in progressing infrastructure asset management.

In recent years there has been a move away from new-build therefore we are managing an ageing transport network while trying to accommodate an exponential growth in demand. This means we have to derive more out of our existing assets. There is an increasing demand from our customers for safe and reliable journeys, which will mean careful planning of highway works to minimise disruption. Increasing financial scrutiny and accountability requires funding requirements to be clearly justified. The maintenance culture, which was based on “bottom-up” decision-making, with a focus on specific projects rather than on broader outcomes, challenged the TAMP strategy and did not deliver value for money. Therefore the challenge is to change mindsets, historical decision making processes and working practices. There is also a major challenge in achieving our efficiency targets, we aim to do this by optimising our existing operations and reducing resources.

2.1 Spreading the word - gaining buy-in

Leicestershire, like many authorities, face very real and technical challenges progressing asset management. Each one of these challenges represents a potential opportunity to work with stakeholders to encourage broader implementation of asset management principles.

Maintaining leadership direction and understanding of asset management principles can be particularly challenging, therefore senior management have set the organisation-wide direction to ensure that all parts of the organisation are working together in a coordinated fashion. We recognise that there are differences in perspectives and approaches to asset management that must be reconciled. We must move away from the historical proportional allocation process, and the high cost short life reactive maintenance processes. This TAMP highlights the need to allocate scarce resources as effectively as possible. Demonstrating results and performance to our partners provides strong motivation and support for overcoming these challenges. A comprehensive, performance based approach to investment decisions is essential.

Recognising and removing the barriers to progress

Many large organisations suffer from a general reluctance to change, particularly in terms of structure and ways of working. This asset management plan will continue to challenge what we do, why we do it, and when we do it, in doing so breaking down the barriers to progress by ensuring:

- The requirements of asset management are clear.
- The expectations are realistic and achievable.
- It is not just another initiative.
- The strategy is sound, in theory and in practice.

2.2 Delivering efficiency savings through TAMP

It has been well documented that we are in a position that sees the council having to reduce its annual spending by £95m between 2010/11 and 2014/15, with the expectation that about 70% of the total saving is to come from efficiency savings. Asset Management is expected to contribute significantly to the delivery of efficiency. The process of how this will be gained is detailed in Chapter 6 Asset Management strategy. However, in addition to this the table below shows areas where potential savings will be pursued.

Action	Benefit
Accurate asset inventory	• Improved contract preparation • Improved contract management • Procurement of highway assets to maximise the economies of scale • Estimated annual savings £20,000
Importing asset data into existing systems	• Adds value to existing systems and widens user accessibility to asset data • Reduce duplication & combine data sets
Providing new data on existing assets	Adds value to existing data sets
Financial reporting	Clearly demonstrates benefits of investment
Improved maintenance programming (reactive and planned)	• Reduces reactive maintenance and whole life costs • Estimated annual savings £20,000+
Whole life costing	Allows analysis of treatment against cost therefore better asset costs.
Complete network video data	Allows staff to view network from their desktops / hand-helds and draw off asset inventory and condition information. Therefore: • reduced staff travel • saving in staff time • reduced carbon footprint • Estimated annual savings £40,000
Quality checks against other data	Improve integrity of other data sets
Data mapping	Production of both physical asset data maps and asset layers on GIS

2.3 Customer Expectations

The physical appearance and condition of streets, and public transport infrastructure has a significant impact on people's quality of life. It does therefore impact on people's perceptions of the 'usability' and 'acceptability' of the transport network. Using survey data it is also possible to examine peoples' perceptions of road and pavement repair, and public transport in Leicestershire, in addition to this, data from the annual 'Transportation and Council Satisfaction Survey' identifies which transport assets most affect satisfaction with Highways Services overall.

One aspect of the transport infrastructure that can have associated effects on traffic congestion is the condition of transport assets. Transportation is inextricably linked to virtually every aspect of our culture, and the performance of infrastructure needs to be at the centre of our political and economic thinking. Therefore our asset management strategy aims to maintain a good level of network serviceability. In terms of the transport network this means managing:

- **Availability** - This is the availability of the asset/s for use, and will vary according to the asset type, location, and need.
- **Network integrity** - This refers to the safety and serviceability of the network. Safety describes the risk to the customer in using the asset and will in all cases be required to meet very high standards. Serviceability describes whether the asset actually delivers what service users and the Council require of it.
- **Condition** - This is the managed condition of the asset and is judged relative to minimising the long-term cost of maintaining the asset and customer requirements.



Levels of service describe both what the customer wants from the asset and what is necessary to ensure that a proper maintenance regime is in place. A clear understanding of customer views is therefore fundamental in defining them, as is a comprehensively planned maintenance regime. Both aspects will be influenced further by legislative requirements, the Council's objectives, and policies and best practice from elsewhere. A critical part is of course played by available funding, since aspirational levels of service will have to be compromised if there are insufficient funds to afford them. Environmental sustainability is growing rapidly in importance and the Council already takes many steps to minimise the environmental damage done by its management of highway assets.

All aspects of level of service include elements of risk. As examples, the collapse of a bridge immediately makes the service unavailable; inadequate monitoring of skid resistance may increase the risk of road accidents. The analysis of levels of service needs to take such risks into consideration.

2.4 Climate Change and Sustainability

Climate change is happening now and will lead to changes in our climate over the next 40 years. The general predictions for the UK are higher average temperatures, more severe winds, floods, winters and droughts. These conditions could cause greater damage to transport infrastructure and disruption to users. Flooding will be exacerbated if new developments are not required to control run-off. The Flood and Water Management Act 2010 creates clearer roles and responsibilities and instills a more risk-based approach. This includes a new lead role for first tier local authorities in managing local flood risk (from surface water, ground water and ordinary watercourses) and a strategic overview role for all flood risk for the Environment Agency (EA).

The following items have been identified for consideration, so far:

- Suitability of surfacing materials / treatments;
- Managing the capacity of drainage and watercourse systems and drain cleaning to cope with higher rainfall;
- Alterations to horticulture maintenance to cater for longer growing seasons; and wet spots gritted on cold dry nights.

This will be a gradual process over a number of years as climate change becomes evident. Environmental and financial implications will have to be considered. Work has already commenced to incorporate the findings of the 3CAP's study on the effect of climate change into our maintenance policies and operational standards.

Sustainability

Sustainability appraisals are fundamental to highway maintenance to stimulate innovation and creativity. Materials, products and processes are routinely appraised for environmental and wider sustainability contributions. Relaxation of technical standards will be considered where this would bring benefits to sustainability. Maintainability and sustainability checklists will be reviewed to keep maintenance operations and the design of future schemes up to date. Our depots and materials are being managed to mitigate visual intrusion and avoid pollution.

Guidance for sustainable drainage systems (SuDS) is imminent. SuDS will help to control flooding and should allow the use of retained water for maintenance activities.

Waste management plans for individual schemes are being implemented to ensure that construction waste is minimised and to make recycling normal practice.

2.5 Network Management Duty

The Traffic Management Act 2004 places a network management duty on local transport authorities to *“secure the expeditious movement of traffic on the authority’s road network; and facilitating the expeditious movement of traffic on road networks for which another authority is the traffic authority”*. The duty applies to all road users as the term “traffic” includes pedestrians and cyclists as well as motorised vehicles - whether engaged in the transport of people or goods.

This duty is a key objective of this TAMP and underpins the strategy and lifecycle planning. It is also visible throughout the Local Transport Plan.

Specific attention has been given to the following areas:

- Considering the needs of all road users
- Co-ordinating and planning works and known events
- Gathering and providing information needs
- Incident Management and contingency planning
- Dealing with traffic growth
- Working with all stakeholders - internal and external
- Ensuring parity with others
- Providing evidence to demonstrate network management

Leicestershire’s current Network Management Plan sets out the way in which Leicestershire County Council performs the network management duty, most, if not all, of those functions required to perform the duty are already carried out by the County Council, but the Network Management Plan provides evidence of this.

Chapter 3 External Asset Management requirements

The local highway network and other local transport infrastructure assets together represent by far the biggest capital asset that the UK public sector holds. The road network is the most valuable asset for which local authorities are responsible.

3.1 New Legislation

Legislation has been an important catalyst in bringing about current thinking and practice of asset management. In February 2008, this document 'Building on Strong Foundations - A Framework for Local Authority Asset Management' stated that LAs were responsible for assets worth £239 billion. Infrastructure was valued at £21.9 billion, but with a footnote which stated: 'At present, the value of local highways is not fully reflected in the Capital Finance returns, and the asset values presented in this Framework therefore understate the real value of local authority assets'.



A simple spreadsheet valuation has subsequently put the gross replacement cost of the LA infrastructure asset at approximately £300 billion. The actual reported value is liable to be even more.

3.2 Central Government - Comprehensive Spending Review (CSR) 2010



Following the CSR the government has released the UK's first ever infrastructure plan, signalling a shift in the focus of investment towards maintenance and the smarter use of assets, while projects to tackle network stress points will be given higher priority. The review also recognises that the strategy for spend is better controlled at a local level and therefore will be changing the way local authorities receive transport funding, local authorities will now be free to decide what their own priorities are and will be able to set their budgets according to local, not national priorities.

However we will be required to provide a network that continues to be maintained in a safe and serviceable condition, but at a lower cost. Government believes this can be achieved by:

- Investing in our asset management systems to predict our maintenance needs better.
- Reviewing technical standards to specify new assets at lower initial cost and extend the life of the assets we have.
- Reviewing when and where maintenance takes place, looking closely at where less costly maintenance practices - such as day time works - should happen.
- Review of renewal works leading to less frequent replacement of non-critical assets.

Chapter 4 Asset Management Finance

Funds for maintaining our assets are allocated from both the Local Transport Plan capital allocation and from the Council's revenue budget. The Council also uses prudential borrowing to support specific initiatives, and external funding is also used when available. This section analyses the use of these funding sources.

The level of Government debt is forecast to grow to nearly 80% of GDP. It is universally acknowledged that public expenditure will need to be reduced significantly, certainly for the foreseeable future and probably at least 2 spending rounds. Whilst the Government have stated that some services would be protected local government was not mentioned in this context and we can expect to bear the full impact of any reductions. This authority has to make savings of over £95m over the period through to 2014/15 by a combination of efficiency savings and service reductions. This is likely to translate into a reduction in specific grants related to specific initiatives and in capital funding in general.

This version of the TAMP sets out to provide the analytical background to support the decisions on allocating funding between asset categories which will need to be taken in line with the Medium Term Financial Strategy (MTFS).

Local Transport Plan (LTP) funding

Capital allocations

The table below shows the actual allocations for the authorities 2010/11 and the indicative figures for 2011/12.

Transport Asset Management	2010/11	2011/12
	£000's	£000's
Principal road carriageways	2,215	1,670
Non-Principal classified road c/ways	3,446	2,597
Unclassified road carriageways	1,295	976
Category 1&2 footways	75	60
Category 3&4 footways	1,680	1,402
Rights of Way (excl improvements)	125	98
Bridges	1,475	1,319
Street lighting renewal (part)	370	291
Traffic signal renewal	185	146
Total Transport Asset Management	10,866	8,559

Revenue / reactive maintenance

The rate of spend on reactive maintenance has increased in recent years. This has put pressure on other budgets. This, in turn, has posed questions about the benefits of reactive maintenance and its impact on the whole life cost of assets. One of the aims of the Transformation of Highway Works project is to provide data about reactive maintenance for individual assets.

Through asset management opportunities exist to optimise expenditure by:

- Providing an asset profile:

Profile type	Derived from
Asset condition	Existing data held within Pavement Management System (PMS) and Highway Management System, Routine condition surveys, safety Inspections, and customer reports.
Expenditure per asset	Management information systems e.g. LHMIS,HMS
The history of defects / emergency repairs	Management information systems e.g. LHMIS,HMS
History of claims	TPC database, HMS
Inspection history	Highway Management System (HMS)

- Optimising costs by carrying out treatments on a programmed basis where possible and reducing the amount of reactive / emergency works undertaken.
- Improved coordination of reactive maintenance activities.
- Closely monitoring maintenance needs e.g. treatments on pavements which have passed their forecast treatment life, but are not yet showing signs of surface cracking or distress.
- Investigating the use of special techniques to extend asset life at a reduced whole life cost.

This aspect of the authority's business is managed through a combination of its own in-house workforce and term contract partner TARMAC. However in seeking efficiencies the processes and procedures for delivering this work are currently under review.

Chapter 5 Asset Valuation

Along with the development of a TAMP every authority is required to produce a valuation of its highway assets in preparation for the introduction of Whole of Government Accounts. The government has now indicated that a valuation will need to be completed by 2011/12 and that a provisional valuation will be required for 2010/11. The Chartered Institute of Public Finance and Accountancy (CIPFA) produced a report in June 2008 on a 'Review of accounting, management and financing mechanisms for local authority transport infrastructure assets'. Further to government acceptance of all of the recommendations of this report,



CIPFA published the Code of practice on transport infrastructure assets. This code provides guidance on the development and use of financial information to support asset management, financial management and reporting of local highways infrastructure assets.

Supporting materials on the CIPFA website www.cipfa.org.uk/pt/infrastructure include spreadsheets with default values for calculating the gross replacement costs, GRC, of carriageways, footways and cycletracks, structures, street lighting and illuminated signs and traffic lights.

Using these spreadsheets, the following GRCs have been calculated:

Item	GRC £,000s	Depreciation £,000s	TAMP 1 £,000s	Depreciation £,000s ¹
Carriageway	3,637,633	74,577	2,836,000	40,000
Footway and cycletrack	391,972	10,494 ²	240,000	11,000
Structures	418,596		161,000	17,000
Street lighting	103,223		64,000	8,000
Traffic management	26,000			
Street furniture	184,800			
Land	3,574,765	NA		
TOTAL	8,394,823	85,071		

1 - refers to reportable, 'red' depreciation only.

2 - refers to proportion where defects have been identified only. The carriageway depreciation calculation in UKPMS is not currently available for footways and cycletracks.

Over the next few years, it is anticipated that the reportable condition of the whole Leicestershire road network will decline because the authority will have to make the same or less funding treat more of the network. There might be a requirement to spend proportionally more on footways, cycleways and bridges. In order to reduce the overall impact on the carriageway network there will be a refocusing of resources away from the PI driven worst-first approach. Appropriate treatments will be targeted at longer lengths of the network exhibiting defects which are below the reportable intervention levels, linking in to the move away from reactive maintenance into a more programmed approach for all but essential emergency repairs. This may result in small lengths of the network with defects, which are just below the intervention level, deteriorating further and adding to the reportable figure. The aim is to make the repairs more efficient by treating more of the network with defects. This approach will deliver better ride quality and consequently longer serviceable life, than doing patch-work repairs to much shorter lengths. Some patch-work repairs will be done to compare how the two approaches are perceived by road users and how long they actually last.

Chapter 6 Asset management strategy

6.1 Asset Management Strategy

The asset management strategy draws on the analysis set out in the lifecycle plans (Appendices A-F) to show:

- The way we will budget expenditure so as to provide the best overall maintenance of all our assets, judged against desirable levels of service.
- The techniques we will use to ensure that we manage the different assets in the most cost-effective way for the available level of funding.
- The optimum allocation of the capital budgets available between the asset categories. This is intended to provide the background for decisions on future spending which will need to be made once the implications of the government's comprehensive spending review are clear.

Our asset management approach will result in the 'measurable' condition of the highway network declining. However our principal objective is to ensure that the network will meet the needs of our stakeholders within the available budget. To assess our current performance in terms of both condition and user satisfaction we have used information gathered from recent customer surveys, national benchmarking data, and national performance indicators.

6.2 Performance, measuring, and monitoring

Management systems can provide a benchmark for performance monitoring, and house the information on system inventory and periodic condition inspections performed for all assets. Systems have been developed for both capital preservation and routine maintenance (using a level-of-service approach). Keying investments to asset performance enables the authority to effectively determine the resources they need to manage the network.

Our techniques for managing assets are long-established and adjusted regularly on the basis of developing national best practice which we pick up through membership of organisations such as the Midlands Service Improvement Group (MSIG). We believe this provides substantial assurance that our techniques are close to best practice and we have therefore not concentrated on this aspect of our work in this edition of the TAMP.

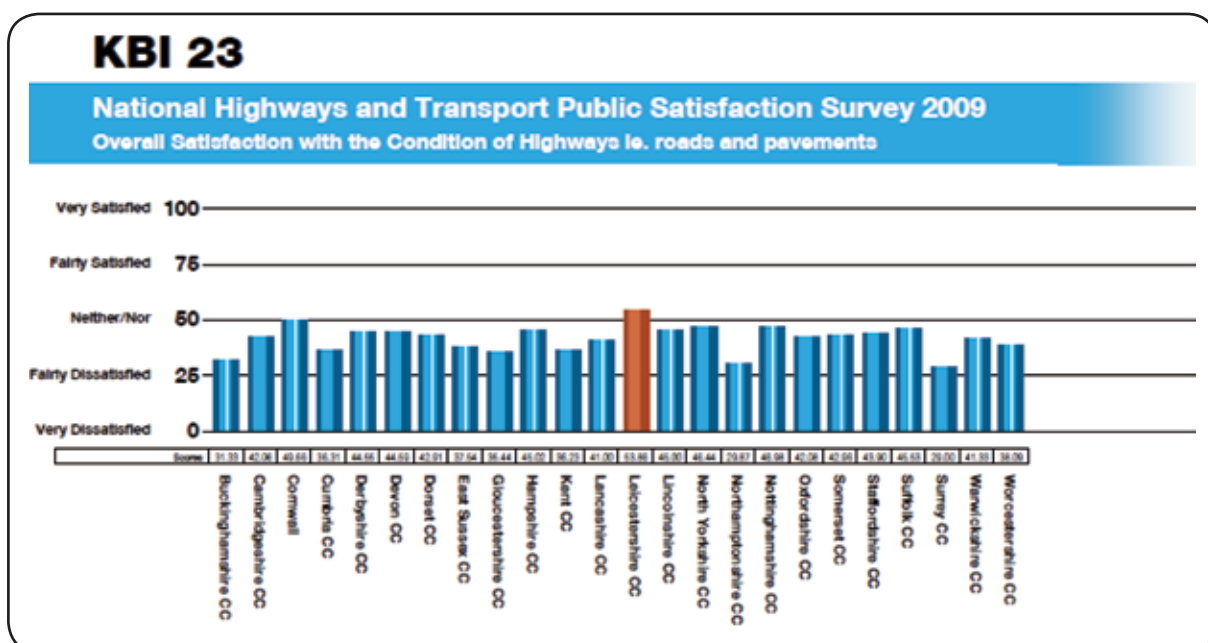
Customer surveys - 2009 Ipsos MORI Satisfaction in Leicestershire

This is a follow-up to similar telephone surveys undertaken at the same time in 2006 and 2008 and considers residents' attitudes towards transportation services (highways and buses) as well as wider issues such as waste management and contact with

the Council. Survey results show that 9 in 12 Leicestershire residents (75%) are satisfied with the condition of the overall road network, compared to only 2 who are dissatisfied.

National benchmarking

The NHT Survey is a postal survey, 76 English authorities took part in 2009 and 95 authorities are taking part in 2010. The recipient list is drawn up for each one by Ipsos MORI. In 2009 over 69,300 responses were received, an average response rate of 18.7%. The survey asks how important, if at all, members of the public regard different aspects of Roads and Transport Services and how satisfied or dissatisfied they are with each one. The results of the survey are all stored in a NHT Network performance database with standard reporting and analysis accessible via the NHT website.

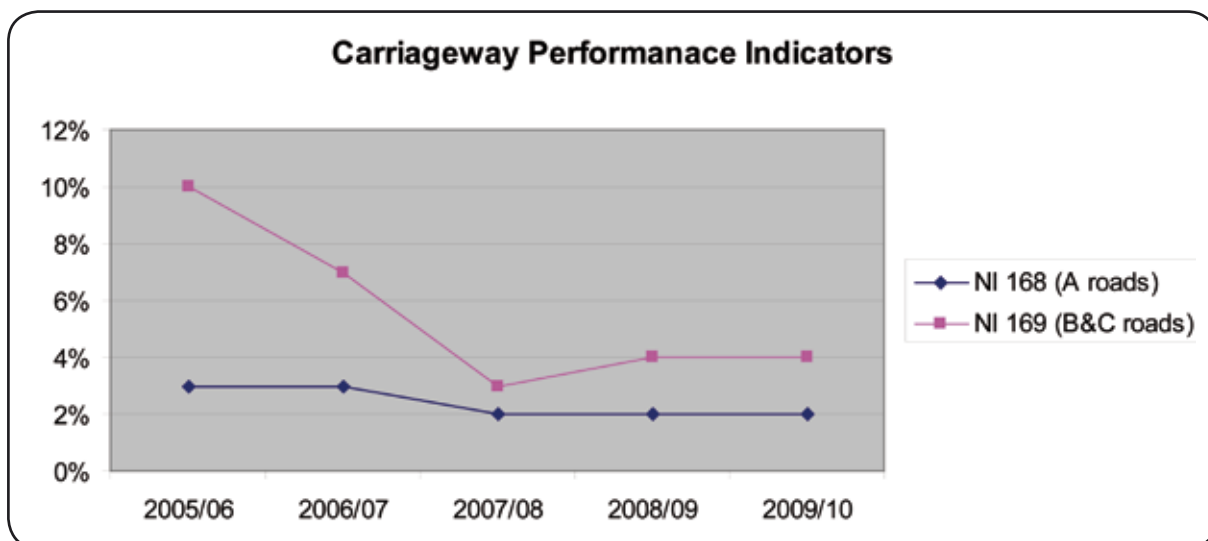


National Indicators (NI)

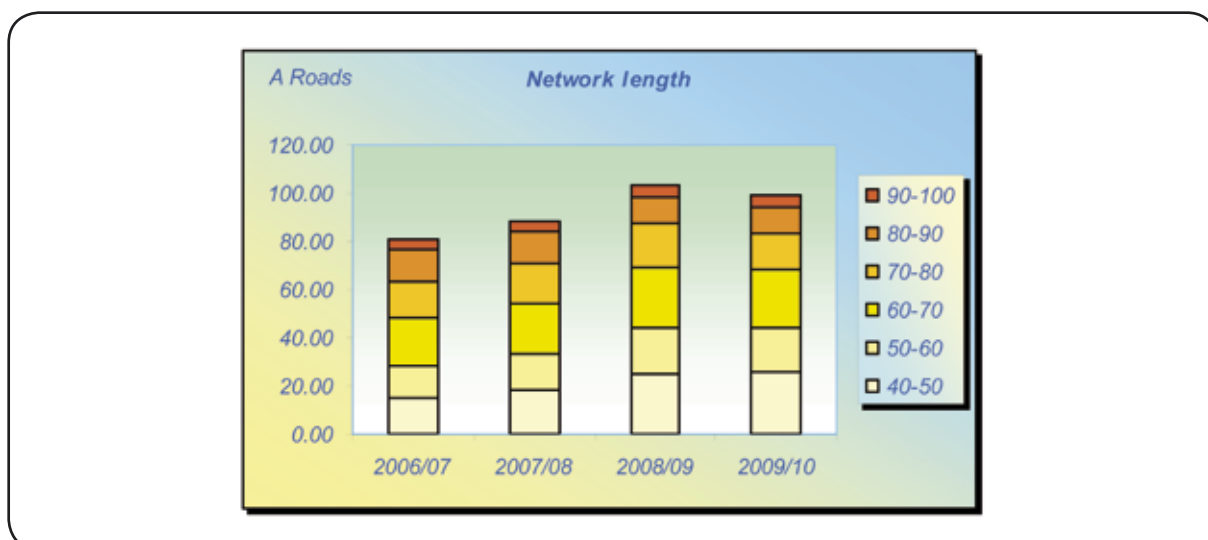
These indicators are an updated version of the former Best Value Performance Indicators (BVPI). Each indicator provides an indication of the percentage of the local authority's carriageways where maintenance should be considered, this is also referred to as the 'reportable condition' in this TAMP. This machine-based, optical survey is undertaken annually on every part of the English classified road network, using accredited vehicles.

The graph below shows that for the last 3 year period the measured condition of Leicestershire's classified road network has remained constant at between 2% - 4%, the unclassified network similarly has remained constant at 10%.

(lower % indicates improved condition)



However the underlying condition of the highway network has deteriorated and the future strategy will attempt to contain this deterioration. The increasing amount of underlying deterioration of the A road network is shown in the chart below (similar charts exist for the B & C roads).



The upper deterioration bands between 80 and 100 have remained steady at about 15 km per year; but the bands up to 80 have increased sharply since 2006 / 07.

The intention is to intervene earlier using appropriate treatments, which will allow a greater length to be treated. Provided that a sufficient length can be treated to arrest the 'up to 80' deterioration, the reportable condition will not increase by more than 5%, for Leicestershire's 'A' roads.

The B, C and unclassified road networks have similar problems and the inferences are that the C and unclassified road networks need attention more than the A and B roads.

Over the next 5 years, with the anticipated reduction in funding, the reportable condition will be allowed to decline. This 'decline in condition' was the subject of a workshop involving 14 of the 19 MSIG authorities, the objective was to agree / set appropriate future target ranges for each part of the network.

The results are shown in the table below.

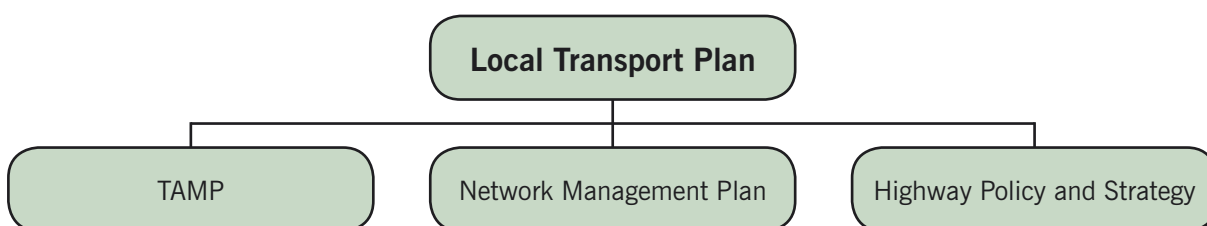
	Current LCC NI %	Equivalent length (km)	Future MSIG NI % range	Equivalent (km)
A roads	2	14	5 - 8	35 - 56
B roads	4	15	4 - 11	15 - 41
C roads	4	55	6 - 13	83 - 179
UC roads	10	215	13 - 18	280 - 387

As previously mentioned the strategy involves providing the best overall maintenance of all our assets, against desirable levels of service, acceptable condition, and available funding. Therefore if we accept the ranges in the above table, where the NI % of our roads fall within that range and we are satisfied with the condition we can consider reinvesting funding where it can be used to improve another asset area where the need is greater. For example some of the principal road allocation could be redirected to contain the condition of lower category roads, or category 3 & 4 footways.

6.3 Supporting Policy

This asset management plan is a policy document and as such sits alongside our Highways Policy and strategy document which in itself follows the requirements of the 'Well Maintained Highways' national code of practice. It also offers support to the duties set out in the Network management plan.

In future versions of the TAMP it is possible that these three documents will be combined to produce a single document for the organisation. But at present they remain as stand-alone policy documents that support the objectives of the LTP.



It is important to recognise that the anticipated reduction in funding will mean that levels of service will have to be reduced. The adoption of asset management techniques can only account for so much. This might result in relaxations of frequencies of inspections, tolerance and treatment of defects, and further departures from national codes of practice.

6.4 Asset information and management systems

Today, significant portions of our highway assets are deteriorating because of increasing usage, environmental impacts, and sheer aging. Carriageways and structures (primarily bridges) are valuable assets that must be preserved to maintain their integrity, and provide safe, economical, and efficient serviceability. To assess the status of our assets accurately we need to know what we have and where it is.

In December 2008 the DfT invited applications from all highway authorities to bid for funding in order to collect information regarding the highway assets. Leicestershire was awarded £300,000 in capital funding and £70,000 in revenue funding. This funding has allowed us to progress with the collection of asset data and introduce systems to manage this data.

A recognised asset video data collection contractor was employed to survey and deliver the following:

- Full video of the entire Leicestershire highway network
- A complete inventory of the road signs.
- A complete inventory of highway gullies.
- A complete inventory of Street lighting columns.

The benefits of asset video data collection:

- Updating asset inventories
- Route management strategies
- Mapping street furniture
- Verification and assessment of asset condition
- Reducing site visits - early designs
- Asset data reporting
- Statistical analysis



An inventory of the traffic signal installation asset is contained within a database held at our offices. This database is updated when a new installations is commissioned, a renewal is carried out or when any modifications are made. For each installation, a comprehensive profile of the equipment is listed. This relates to the controller type & age, number & type of signal heads, pedestrian facilities like push button units, type of detection and whether the installation is compliant in the provision of disabled facilities.

6.5 Managing information

Through the development of the TAMP a need has been identified for a step change in the way information on assets is stored, updated, communicated and utilised by and between the highway maintenance, network management and the capital programming functions. As part of our TAMP strategy we are using asset data software with GIS mapping interfaces that enable asset information to be shared between relevant service areas and with the wider Department.



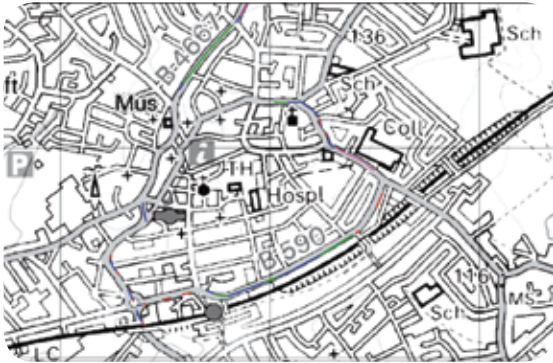
In terms of asset management it is essential that the data can be shared or accessed by all asset owners and operators. For this authority the asset data sits within the already well established Highway Management System (HMS). This will allow greater use of the data for operational purposes. The asset data is managed using the YOTTA Nano system within which more detailed data analysis can be carried out, measurements can be made and further asset inventories can be collected.

6.6 Asset condition

Increasing financial scrutiny requires the information provided through asset management to produce a rational decision process for capital investment and maintenance. The most critical information for decision makers is an understanding of the condition of the assets today and how well they are performing in relation to users' expectations. It is critical to know they are functioning as needed, functioning efficiently, and the costs of maintaining them.



We currently hold and manage several different types of asset condition information within our pavement management system; we intend to build upon this information by adding the newly collected asset inventory data. This will allow us to view and manage all the asset condition and inventory data on a single platform.



The benefits of this are:

- Opportunity to link condition assessment with the decision making process
- Evaluate the impact of all maintenance works
- Improve the modelling of preventative maintenance works
- Define performance measures

With regard to traffic signal installations, the conditions of these assets are contained in the Fault Management System (FMS) database. This database holds information on the controller age, fault history and type of controller as these factors influence the contract maintenance costs. Every fault, either reported or flagged through the telecommunication system is logged and defined into some 100 types. These types of faults can be translated into three main categories; namely controller, cable and lamp faults. The FMS database is interrogated periodically to rank and prioritise the traffic renewal strategy.

Chapter 7 Development and updating of the TAMP

In preparing this version of the TAMP a number of key issues have been identified and have led to a range of improvement actions aimed at creating long term solutions, there are also a number of 'quick wins', which are best defined as actions that require little change to existing processes, require minimal resource and have low associated cost. All of these actions have been formulated into an action plan.

Improvements action plan

Action	Priority	Target date
Quick wins		
Publicise the availability of asset data on GIS system (Geo map) to improve service delivery and improve efficiency	High	Dec 2010
Capture and record institutional knowledge	High	April 2011
Collaborative working and Information exchange between MSIG members	Medium	Jan 2011
Longer term		
Compare historical, actual, and forecast expenditure to evaluate asset performance, asset maintenance, and future spending profile	High	Dec 2011
Assess in more detail the relationship of revenue budget maintenance spending to the management strategy	High	Dec 2011
Review performance measures/indicators to ensure that the strategy is delivering the objectives	High	April 2011
Integrate the affects of routine maintenance with those of capital projects to evaluate affects of different treatment options	Medium	Dec 2011
Develop levels of service to match our long term lifecycle approach	Medium	June 2011
Develop deterioration models for selected asset groups to determine future funding needs	Medium	Dec 2011
Further explore innovative and sustainable ways of working	Low	Ongoing
Investigate the use of special techniques to extend asset life at a reduced whole life cost	Low	Ongoing

Updating

This plan will be updated annually to reflect any substantial changes to the authority's policies or long term objectives.

Chapter 8 Operations & Maintenance



Leicestershire County Council operates an in-house works group, Leicestershire Highways. Highway works are delivered from two main sites, one in the north of the county and one in the south. Recent reviews have identified that major efficiency benefits could be achieved by revising the way highway works are commissioned and delivered. This resulted in the Transformation of Highway Works project.

Transformation of highway works project

The Transformation of Highway Works project which forms part of the Department's Business Change Programme will deliver the following benefits:

- Service Improvements
- Improved Organisational Culture
- Streamlined processes
- Improved efficiency through better utilisation of existing resources
- Customer focused service delivery

This will be achieved by holistically and radically changing the way that business is conducted, managed, monitored and analysed within Highway Works. The customer will ultimately benefit from a more efficient way of working from the point at which the job is received through to its completion.

The structure is being reorganised to reflect customer-focused service delivery as well as the flexibility to manage resources effectively to deliver critical and non-critical business activities. The central management and organisation of all work will promote consistent standards across the work packages, and in the management and execution of work.



A supporting ICT infrastructure will help manage and track resources, record performance data, and allow direct transfer of jobs to the gangs on site. It will give visibility to the work in

progress and real-time updates of each project will be available, thus enabling Highway Works to manage performance.

8.2 Joint working / Partnerships

3 Counties Alliance Partnership (3CAP)

3CAP is collaboration between the three counties of Nottinghamshire, Derbyshire and Leicestershire and consultants, Scott Wilson. 3CAP was initially established in June 2007, to provide highway design and professional services by joining forces to achieve efficiency gains.



Midlands Highway Alliance

The MHA is a collaboration of thirteen councils and the Highways Agency who share a common goal, to improve performance and make efficiency savings in the delivery of highway services by working together. Leicestershire County Council acts as the lead authority.



Highway Works Alliance

The Highways Works Alliance (HWA) - This is a four year partnership agreement for Highways individual surface works, road works, carriageway and footway reconstruction, carriageway resurfacing and overlay, junction improvements / traffic calming, road markings, carriageway and footway patching, grass cutting and verge maintenance up to the value of £500k. It runs from 1st January 2008 to 31st December 2013. The partnership is with Tarmac Ltd and is envisaged to deliver savings of up to £800k over its life.

Chapter 9 Guidance and information

- LCC Highway policy and Strategy policy
- LCC Network Management Plan
- National Code of Practice 'Well Maintained Highways'
- 3CAP's study on the effect of climate change

The asset management working group of the UK Roads Board has produced guidance on asset management; the guidance comprises four documents that form a single suite to provide a good overview. (www.ukroadsliaisongroup.org)

- Highway Asset Management Quick Start Guidance note - getting started
- Highway Asset Management Quick Start Guidance note - risk assessment
- Highway Asset Management Quick Start Guidance note - levels of service
- Highway Asset Management Quick Start Guidance note - life cycle planning

ADEPT, together with the Local Authority Technical Advisors Group (TAG) have produced:

- The Highways Asset Management Framework (June 2004)
- The Asset Valuation Guidance (Atkins 2005)

Both documents are companions to the UK Roads Liaison Group suite of maintenance Codes of Practice. The first requires reviewing to bring it into line with the transport infrastructure Code and the second has been superseded by the Code.

Guidance on Local Transport Plans.

<http://www.dft.gov.uk/adobepdf/165237/ltp-guidance.pdf>

The latest document, commissioned by the department for transport (DfT), is the Review of Transport Asset Management Plans (January 2008).

(<http://www.dft.gov.uk/pgr/regional/ltp/guidance/localtransportplans/policies/highwaysasset>)

CIPFA Code of practice on transport infrastructure assets: Guidance to support asset management, financial management and reporting (March 2010).

(<http://www.cipfa.org.uk/pt/infrastructure/index.cfm>)

See also IHE's Drainage page on Flood Risk, SUDs etc.

Audit Commission Guidance draft due September 2010 - final version April 2011.

GLOSSARY

Asset

In the context of this guidance an asset is an integral feature of the highway infrastructure, such as roads, structures, lighting and traffic management systems.

Asset management

A strategic approach that identifies the optimal allocation of resources for the management, operation, preservation and enhancement of the highway infrastructure in order to meet the needs of current and future customers.

Asset management plan (AMP)

A plan for managing the asset base over a period of time in order to deliver the agreed levels of service and performance targets in the most cost effective way. This may be referred to as a highway asset management plan (HAMP) or transport asset management plan (TAMP) in other guidance documents and codes of practice.

Asset valuation

The procedure used to calculate the asset value.

Asset value

The calculated current monetary value of an asset or group of assets. It should be correctly referred to as the 'net asset value', but it is normally shortened to 'asset value'. Where the term 'asset value' is used in the Code it should be interpreted as the net asset value. 'Asset value' in this document is synonymous with depreciated replacement cost.

Depreciated replacement cost (DRC)

A method of valuation which provides the current cost of replacing an asset with its modern equivalent asset less deductions for all physical deterioration and all relevant forms of obsolescence and optimisation.

Depreciation

The systematic allocation of the depreciable amount of an asset over its useful life arising from use, ageing, deterioration or obsolescence.

Deterioration

The physical wear and tear on the asset; damage due to time, weather, etc that can be observed and measured through condition surveys.

Gross replacement cost / gross asset value

The total admissible cost of replacing either the whole of an existing highway network or some part of it with an equivalent new asset.

Levels of service

A statement of the performance of the asset in terms that the customers can understand. Levels of service typically cover condition, availability, accessibility, capacity, amenity, safety, environmental impact and social equity. They cover the condition of the asset and non-condition related demand aspirations, ie a representation of how the asset is performing in terms of both delivering the service to customers and maintaining its physical integrity at an appropriate level.

Life cycle plan

A plan to cover the expected life of the component from new to replacement or, for indefinite life components, the life of the treatment cycle from 'as new' condition back to 'as new' condition. The plan should include the timing, nature and cost of all treatments needed to maintain the service potential of the asset, component or group over its useful life.

Network

The highway network inclusive of all its elements, such as roads, segregated footpaths and cycle routes, structures and lighting.

Whole life cost

Systematic consideration of all costs and revenues associated with the acquisition and ownership of an asset, component or group over its complete life cycle.

Whole of Government Accounts

Full accruals based accounts covering the whole of the public sector. They consolidate the accounts of around 1300 bodies from within the central government, local government, health service and public corporation sectors.

