



Transport Asset Management Plan 2011 – 2016

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Foreword

We have an extensive highway asset valued at over £6.5 billion which is used by all members of the community. The way it is maintained and managed has a direct impact on the county's residents, businesses and visitors. We all depend upon a good reliable service from our highway network to sustain our economic and transportation needs.

This Transport Asset Management Plan 2011-2016 (TAMP) and its accompanying appendices link clearly to the council's overall vision for the county and describes how the highway assets contributes to the achieving of Corporate objectives. In these challenging times managing the work to get the best value outcomes with what we have has never been more important. This TAMP provides scenarios for different budget levels showing the effects on service levels of assets, which in the end are the primary concern of each user of the highway network.

Our additional investment of £30 million into highway infrastructure maintenance is ensuring service levels are much improved and this coupled with improved asset management will ensure higher service levels can be maintained into the future.

The information provided in this TAMP will allow us to make more proactive decisions to ensure that the standard of highway assets meets our desires both now and just as importantly in the next generation.



Councillor Mike Maryon
Cabinet Member for Highways and Environment
November 2010

Executive Summary

In brief, Asset Management is defined as a strategic approach that identifies the optimal allocation of resources for the management, operation, preservation and enhancement of the highway infrastructure that meets the needs of current and future customers. It is about demonstrating prudent stewardship of our valuable assets.

Staffordshire has around 6,000 kilometres of public highways distributed over a wide geographical area, both urban and rural. It contains two areas of landscape with high designation, namely the Peak District National Park and Cannock Chase Area of Outstanding Natural Beauty, and therefore measures that might be appropriate to maintain the highway asset elsewhere within the county are not always appropriate within these areas.

This TAMP meets this definition by documenting the information and practices which enable demonstrable and transparent evidence to be provided for justification of the distribution of resources to assets that have the greatest maintenance need over the long term. Multiple options and scenarios provide decision makers with evidence of the affects funding reductions and additions have on the long term condition and service level of Staffordshire's Highways.

We have seen some of the benefits asset management brings to the management of the asset over the last five years and are keen to continue the development of its knowledge and processes. We actively gain and share knowledge through participating in the Midlands Service Improvement Group (MSIG), a body of 18 authorities that focus on improvements in highway services. MSIG contributes on a national basis with their Financial Information Development sub group initiating the formation of the Highway Asset Management Financial Information Group (HAMFIG) which was set up to develop and implement the CIPFA Code of Practice

on Transport Infrastructure Assets being an example.

This TAMP provides a step forward from the previous TAMP 2006 – 2011 incorporating the improvements implemented in that period including the scheme selection and value based prioritisation approaches for assets which have provided better justification to members and customers for the development of asset programmes.

The development of this plan has included a thorough review of TAMP 2006 – 2011 culminating in a list of identified areas where opportunities exist for further improvement of highway management practices. These include the development of the data management process which will provide better information to enable more accurate decisions, and the development of long term asset programmes to enable budget holders to plan for the funding needs in the future. The Improvement Action Plan provides short, medium and long term actions to ensure that the standard of asset management continues to improve enabling a better service to users of Staffordshire County Councils Highways.

The main output for the TAMP is a long term programme of investment which targets achieving specific levels of service which have been identified in accordance with the strategies and targets detailed in Staffordshire's Local Transport Plan 3 (LTP3). This will require at least the current level of funding to achieve.

We are investing an additional £30 million over 4 years into the carriageway and footways infrastructure which shall enable us to achieve our target condition levels. This funding will address lengths that require maintenance but wouldn't qualify within the current investment level. Our TAMP specifies that reasonable level of funding would need to be maintained in the future to ensure current targets can be maintained.

1. Introduction

1.1 Definition of Highway Asset Management

The definition of asset management as contained within the County Surveyors Society Framework for Highway Asset Management, 2004, p.1. is:

“Asset management is 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”

The adoption of asset management means that we will:

- **Take A Strategic Approach**

Taking a longer-term view of how the authority manages its assets. Such a systematic approach may transcend annual budget cycles and is essential if we are to maximise the long-term benefits of the resources available.

- **Optimally Allocate Resources**

Local authorities have a statutory duty to make better use of resources. Expenditure must be prioritised to ensure corporate objectives can be effectively delivered within budgetary constraints. Asset management will assist us to manage the available budget effectively by enabling the allocation of resources based upon assessed need.

The use of lifecycle planning and decision making informed by an appreciation of risk and benefit are key asset management components that will help us to allocate our resources where they are likely to provide the best long-term benefits and help to reduce long term whole life costs.

- **Communicate More Effectively with Customers**

The development of levels of service for each of the highway assets will enable the council to communicate more effectively with customers about the service standards that can be afforded and expected.

1.2 Drivers for Highway Asset Management

We have produced this Transport Asset Management Plan (TAMP) to show:

- evidence of strategic thinking and long term planning with regard to maintenance and management of the highway infrastructure
- stakeholders and members of the public how limited operational, maintenance and improvement resources are allocated
- how financial forecasting and valuation information is compiled to meet the requirements of the Whole of Government Accounts (WGA) and Resource Accounting and Budgeting (RAB)

1.3 Our Transport Asset Management Plan

The purpose of this plan is to continue the development of Asset Management within Staffordshire. Significant progress has been made since the release of the last Asset Management Plan covering 2006 -11 but there is still plenty to achieve. The previous plan has been thoroughly reviewed and has highlighted a number of areas where current practice does not support an asset management approach.

Improvement actions required to address these issues have been identified within the relevant sections of the plan and are summarised and prioritised in the Improvement Action Plan in Appendix A.

This TAMP identifies the funding requirements of major asset groups, providing a number of service level options for consideration. It identifies the risks associated with the management of the council's highway assets and begins the task of identifying long term works programmes and investment strategies based on a whole lifecycle approach.

Our transport asset management plan is a five year plan lasting from 2011 to 2016. The majority of the plan will be reviewed in 2016. Other sections will require annual updating to validate the selected processes.

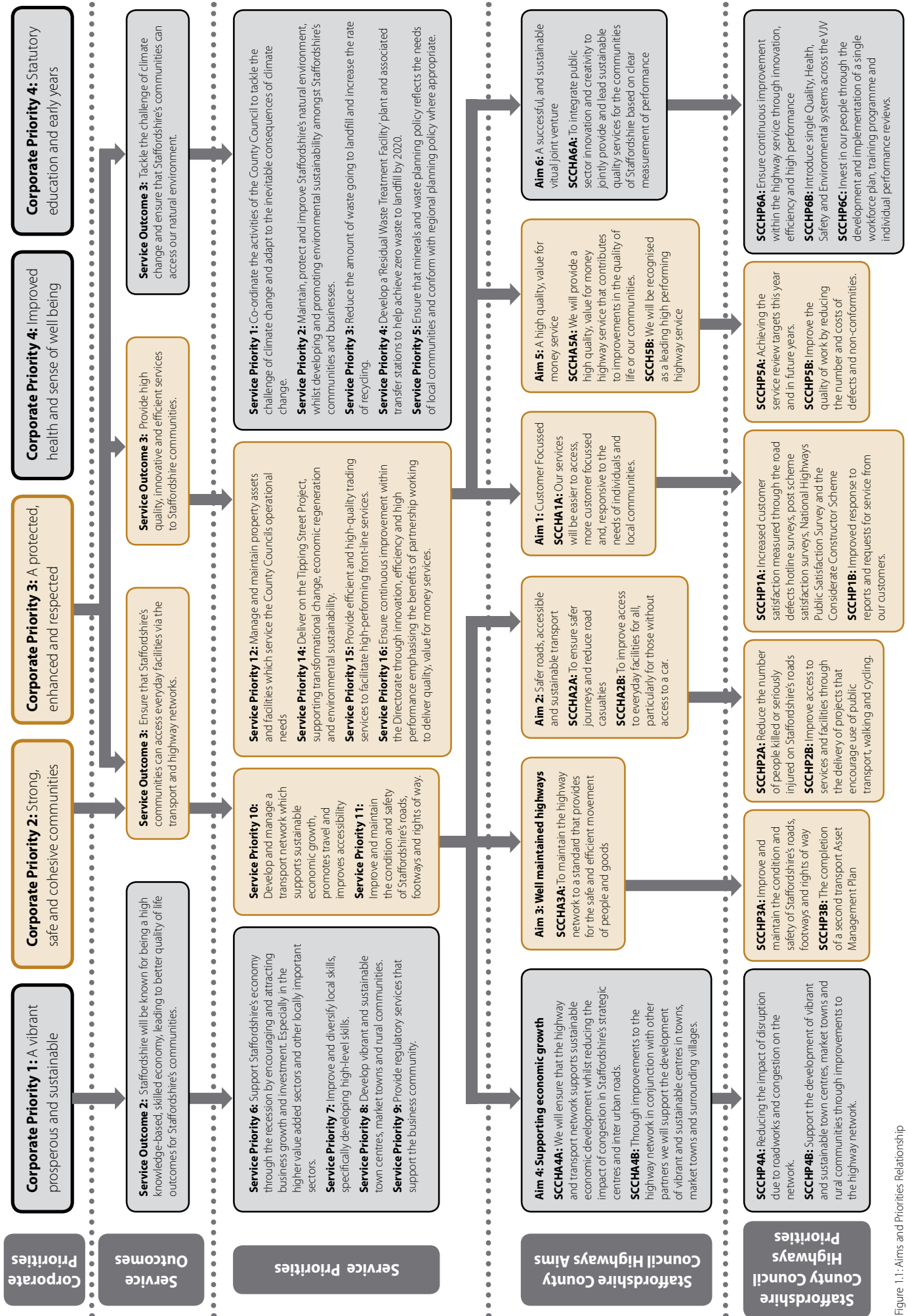


Figure 1.1: Aims and Priorities Relationship

1.4 Goals and Objectives of the Highway Asset

The Corporate Plan identifies a number of national and local outcomes and associated actions. Those that are of most relevance to the management of the road assets have been identified within the Highway Service Plan and include: see page 8

1.5 Corporate Asset Management

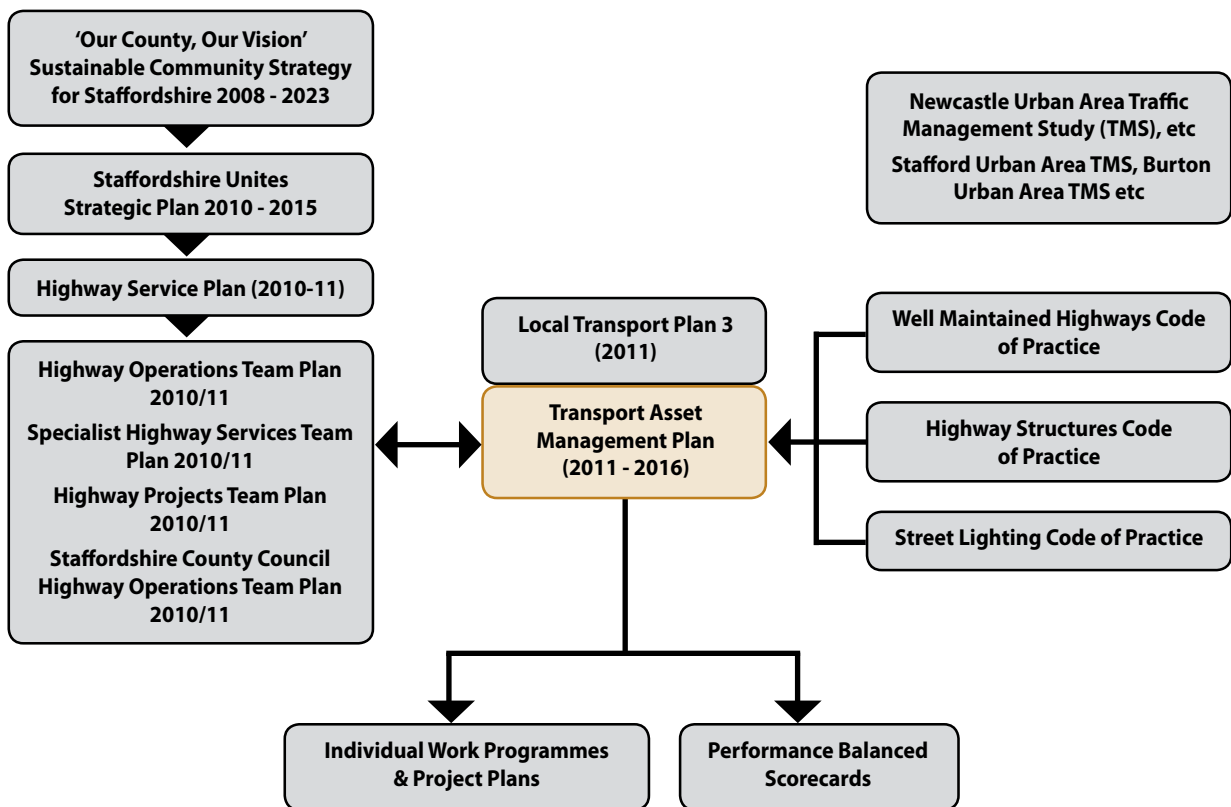
At Staffordshire County Council there is no overriding Corporate Asset Management Plan. The Property division have led the way in Staffordshire in developing and implementing an Asset Management Plan prior to 2006 when the first TAMP was produced.

There is an opportunity to learn from other infrastructure approaches to asset management and in Staffordshire, Transport and Property Asset Management Representatives have met previously to discuss the benefits and disadvantages of processes and systems that each other are using.

1.6 Strategic Document Framework

We have developed a strategic document framework that details the relationship between the various strategic documents within the council. How this relates to the transport asset management plan is shown in figure 1.2 below.

Figure 1.2 Strategic Document Framework



2. Asset Description

2.1 The Highway Asset

The highway assets covered by this plan are:

Table 2.1 Highway Assets	
Asset Group	Elements
Carriageway	Carriageway; including lay-bys, bus lanes etc.
Footways, Footpaths & Cycleways	Footway - adjacent to the carriageway Footpaths – remote from the carriageway Cycleways – constructed off-carriageway cycleways and shared cycle/footways; cycle/carriageways
Structures	Bridges, sign gantries, culverts, embankments, retaining walls, subways.
Lighting (incl. Illuminated signs and bollards)	Lighting columns, lamps, cabling, ducts, feeder pillars, subway lighting. Illuminated signs & posts, illuminated bollards.
Traffic Signals	Signalised junctions, signalised pedestrian crossings, detection equipment, cabling, ductwork and bollards.
Safety Fences	Vehicle safety fences.
Non-illuminated Signs	Non-illuminated signs, Warning, Regulatory and local direction/information posts, information boards.
Closed Circuit Television	CCTV Installations & Monitoring Equipment
Drainage	Gullies & linear drainage channels, highway drains (including pipework, manholes & outfalls), land drainage ditches and watercourses, roadside ditches, swales, etc.
Traffic Calming	Traffic Calming Features – including Tables, Humps, Chicanes etc.
Road Markings	All road markings.
Verges and Planted Areas	Verges, soft landscaped areas and trees.
Street Furniture	Cycle stands, bollards, etc.

2.2 The Size of the Asset

Table 2.2: Highway Asset Inventory				
Asset Type	Amount	Unit	Data Confidence	TAMP Reference
Carriageways	6060.6	km	High	Carriageway Lifecycle Plan (CWLCP)
Footways	4168	km	High	Footway, Footpaths & Cycleway Lifecycle Plan (FWLCP)
Cycleway	413	km	High	FWLCP
Bridges	1048	No.	High	Highway Structures Lifecycle Plan (HSLCP)
Culverts (1.0 - 1.5m span)	Unknown	No.	No Info	HSLCP
Retaining Walls	200	km	Low	HSLCP
Streetlights	90,589	No.	High	Not Included*
Illuminated Signs	11,560	No.	High	Not Included*
Illuminated Bollards	3394	No.	High	Not Included*
Subway Lights	700	No.	High	Not Included*
Belisha Beacons	304	No.	High	Traffic Signal Lifecycle Plan (TSLCP)
School Crossing Flashers	335	No.	High	TSLCP
Feeder Pillars	442	No.	High	TSLCP
Hatpins	311	No.	High	TSLCP
Car Parks	112	No.	Low	TAMP 2016 onwards
Traffic Signal Junctions	163	No.	High	TSLCP
Traffic Signal Pelican / Puffin / Toucan	287	No.	High	TSLCP
Dual Pelican / Puffin / Toucan	42	No.	High	TSLCP
Vehicle Actuated Signs (VAS)	98	No.	High	TSLCP
Variable Message Signs (VMS)	14	No.	High	TSLCP
Car Park Management Signs	7	No.	High	TSLCP
CCTV Cameras	30	No.	High	TSLCP
Non-illuminated Signs	Unknown	No.	No Info	TAMP 2016 onwards
Road Gullies	148,000	No.	Medium	Drainage Lifecycle Plan (DLCP)
Footway Gullies	Unknown	No.	Medium	DLCP
Rural Verge	5762	km	Medium	TAMP 2016 onwards
Urban Verge		m ²	Medium	TAMP 2016 onwards
Kerb	Unknown	m	No Info	CWLCP
Culverts	Unknown	No.	No Info	DLCP
Offlet kerbs, bypass kerbs & kerb drain	Unknown	No.	No Info	DLCP
White and Yellow Lining	Unknown	m	No Info	TAMP 2016 onwards
Safety Fencing	50,209	m	Medium	Safety Fence Lifecycle Plan (SFLCP)

Table 2.2: Highway Asset Inventory

Asset Type	Amount	Unit	Data Confidence	TAMP Reference
Pedestrian Guardrail	Unknown	m	No Info	SFLCP
Boundary Fencing	Unknown	m	No Info	TAMP 2016 onwards
Visibility Fencing	Unknown	m	No Info	TAMP 2016 onwards
Highway Drain	Unknown	m	No Info	DLCP
Bollards	Unknown	No.	No Info	TAMP 2016 onwards
Fingerposts	Unknown	No.	No Info	TAMP 2016 onwards
Trees	Unknown	No.	Low	TAMP 2016 onwards
Bus Stop Flag Posts	Unknown	No.	No Info	TAMP 2016 onwards
Street Furniture, bicycle racks etc	Unknown	No.	No Info	TAMP 2016 onwards
Grit bins	1057	No.	High	TAMP 2016 onwards

* Street lighting assets are managed through a Private Finance Initiative (PFI) arrangement. A PFI arrangement is a form of Public Private Partnership (PPP) by which a public sector organisation contracts with a private sector entity to construct a facility and provide associated services of a specified quality over a sustained period reducing the impact on public borrowing. Details on the processes for managing these assets are contained in separate confidential documents held by the Street Lighting Manager.

An estimate of the data confidence has being included in Table 2.2.

Note: The level of data confidence shown in Table 2.2 represents a combination of 'Extent', which represents the amount of data available and 'Accuracy'. Data is rated by three levels:

High	Greater than 90% of required attributes at better than 90% accuracy
Medium	Between 50% and 90% of required attributes between 50% and 90% accuracy
Low	No Information available; Less than 50% required attributes collected. Existing information below 50% accuracy

The Asset Data Management Team are currently developing an Information Strategy which when completed will be included as an Appendix to this document. The Information Strategy will provide a programme of data collection and quality processes to ensure that the accuracy of the data is accurately maintained in the future.

2.2 Assets Not Covered by this Plan

Assets upon the highway that are the responsibility of district or town councils to maintain e.g.:

- Street Name Plates
- Litter Bins
- Benches
- all other assets upon the highway that are the responsibility of other organisations such as utility companies e.g. Telephone equipment cabinets, Post boxes, Telephone poles.

2.4 Asset Growth

It is estimated that the carriageway asset will increase by 20km per year over the next five years, primarily as a result of residential housing developments. Other assets will also grow proportionally to the carriageway asset eg. for every kilometre of new carriageway in an urban environment a certain number of streetlights will also be constructed to meet the required lighting levels.

To understand future growth an exercise is to be completed to calculate the number of other assets which are added to the network as a result of the addition of one kilometre of new carriageway.

3. Community Requirements

3.1 Customer Consultation

Table 3.1 describes all forms of customer consultation undertaken for our highways.

Table 3.1: Staffordshire County Council Highways Customer Consultation				
Activity	Who will be consulted	Method	How the activity will shape service delivery;	Officer responsible for the consultation activity
National Highways and Transportation Public Satisfaction Survey	Residents within Staffordshire	Randomly selected postal survey carried out by Ipsos MORI	Outcome measures for Staffordshire Highways	David Walters
Integrated Transport Pre Scheme Surveys	Affected residents	Questionnaire	Outcome influences final scheme design	John Hooper
Member Satisfaction Survey	Members	Questionnaire	Results will be used to help demonstrate the effectiveness of the Community Highway Liaison teams	James Bailey
Parish Council Satisfaction Survey	Parish and Town Councils	Questionnaire	Results will be used to help demonstrate the effectiveness of the Community Highway Liaison teams	James Bailey
Post Scheme Satisfaction Surveys	Properties fronting onto or affected by highway improvement projects	Questionnaire	Results are used to identify best practice for communication across the highway service and, areas for improvement	Clive Thomson John Hooper Ian Turner
Road Defects Satisfaction Survey	Customers that have used the Road Defects hotline	Questionnaire	Results are used to identify best practice for communication across the highway service and areas for improvement	Ian Turner

National Highways & Transport (NHT) Survey

The National Highways & Transport (NHT) Survey is a random sample postal survey, carried out by Ipsos MORI. We have participated in all surveys since 2008 when this it was first undertaken. 30, 76 and 95 local authorities were surveyed in 2008, 2009 and 2010 respectively. The NHT Survey provides the opportunity to benchmark the different measures and monitor over time and to compare results with other authorities with similar characteristics.

The survey, is organised under themes linked to national Local Transport Plan 2 (LTP2) shared transport priorities and other important highway and transport related topics: overall public satisfaction, accessibility, public transport, walking and cycling, tackling congestion, road safety and highways maintenance and enforcement.

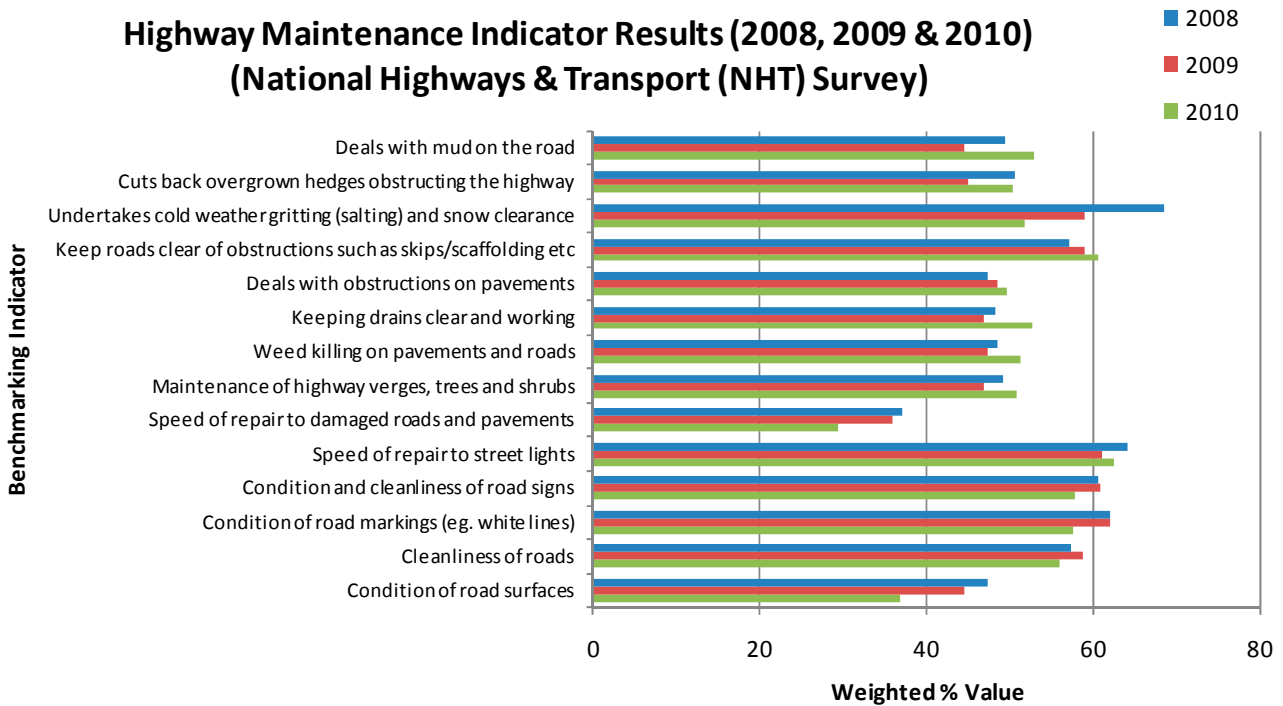
Weighting is used to correct for any imbalances between the survey sample profile and the profile of the general population. The results of the survey are all stored in a NHT Network performance database with standard reporting and analysis accessible via <http://www.nhtsurvey.org/> (Survey Results).

The summary of results are shown in Figure 3.1a (Highway Maintenance), 3.1b (Walking and Cycling) and 3.1c (Tackling Congestion). Between 2008 and 2009 the majority of changes are minimal. The most significant decrease is in the 'undertakes cold weather gritting (salting) and snow clearance' category which reduces from 68.57 to 58.98. The highest and lowest rated indicators from the latest 2009 survey are shown below.

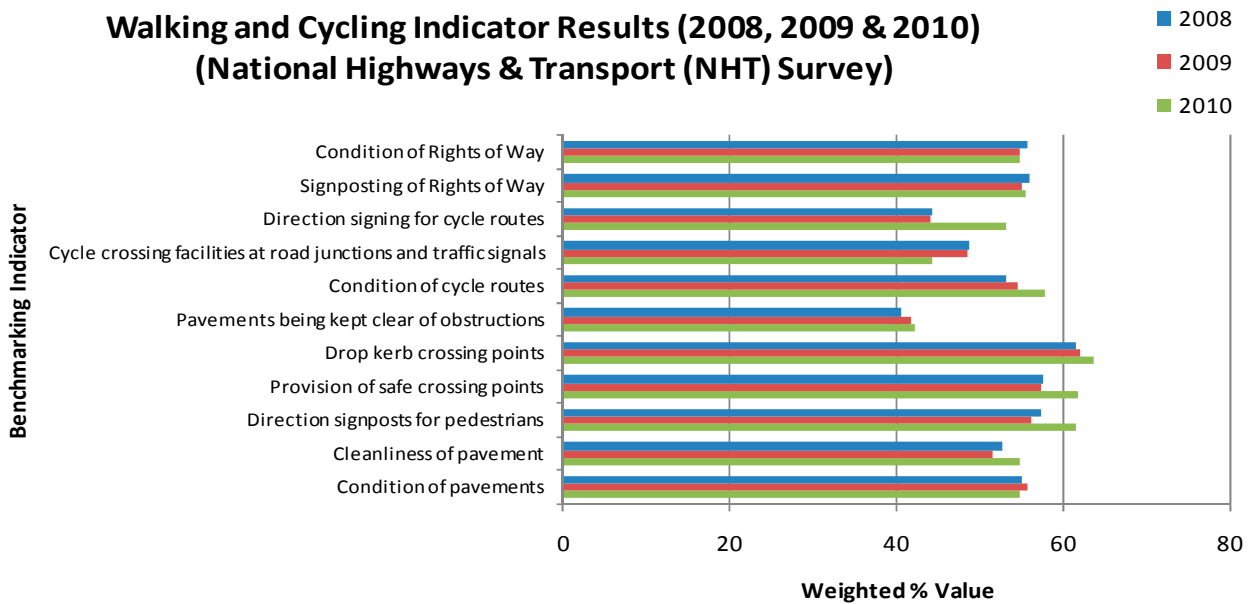
Highest Rated Indicators (2009)	Lowest Rated Indicators (2009)
Location of permanent traffic lights	Speed of repair to damaged roads and pavements
Waiting time at permanent traffic lights	Pavements being kept clear of obstructions
Condition of road markings	Direction signing for cycle routes
Drop kerb crossing points	Deals with mud on the road
Speed of repair to streetlights	Condition of road surfaces

This information is currently used only as an Outcome Measure for Staffordshire Highways. In future years it will also be used to assess what Level of Service is required to be provided to achieve the customer related priorities in the Corporate and Service Plans.

Highway Maintenance Indicator Results (2008, 2009 & 2010) (National Highways & Transport (NHT) Survey)



Walking and Cycling Indicator Results (2008, 2009 & 2010) (National Highways & Transport (NHT) Survey)



Tackling Congestion Indicator Results (2008, 2009 & 2010) (National Highways & Transport (NHT) Survey)

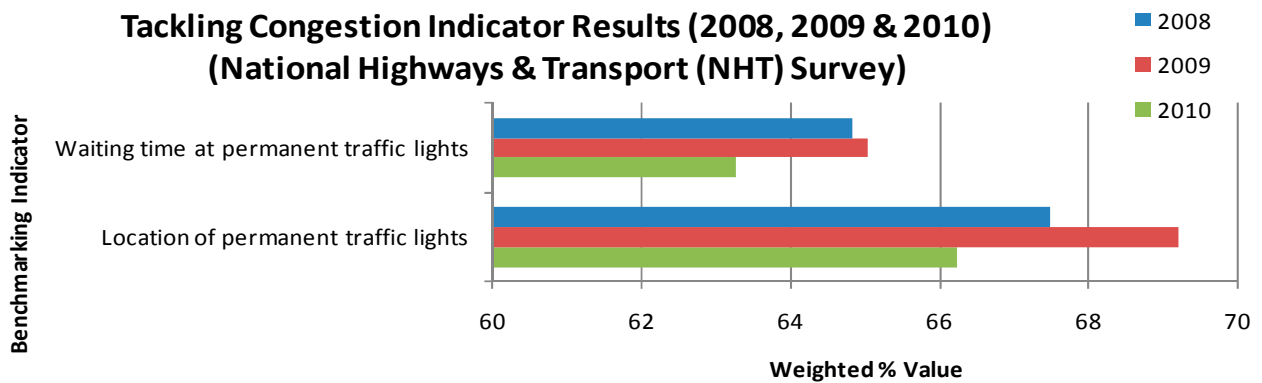


Figure 3.1a,b,c: National Highways & Transport (NHT) Survey Results (2008, 2009 & 2010)

Post Scheme Satisfaction Surveys

Post scheme satisfaction surveys were carried out on 3 schemes in 2009-10 and showed an average satisfaction of 84.3%.

Complaints and Compliments

A total of 17 compliments on highway activities were received during the Third Quarter of 2009-10. The majority were messages of thanks for works undertaken and the manner and efficiency of the service delivery.

As an example, positive comments were made at the Rural Locality Action Partnership meeting by all Newcastle Rural Parishes, who agreed unanimously that the new Highways approach which was introduced in 2009 as part of the formation of the Virtual Joint Venture (VJV) was beginning to work and they felt positive that communications were also improving and hoped it would continue.

4. Future Demands

4.1 Introduction

This section outlines the demands that we anticipate will be placed on the asset over the duration of the plan. These have been considered when formulating the plan and presenting the risks associated with it.

4.2 Traffic Growth

The following information in Figure 4.1 has been obtained from the Department for Transport who monitor traffic annually throughout the United Kingdom.

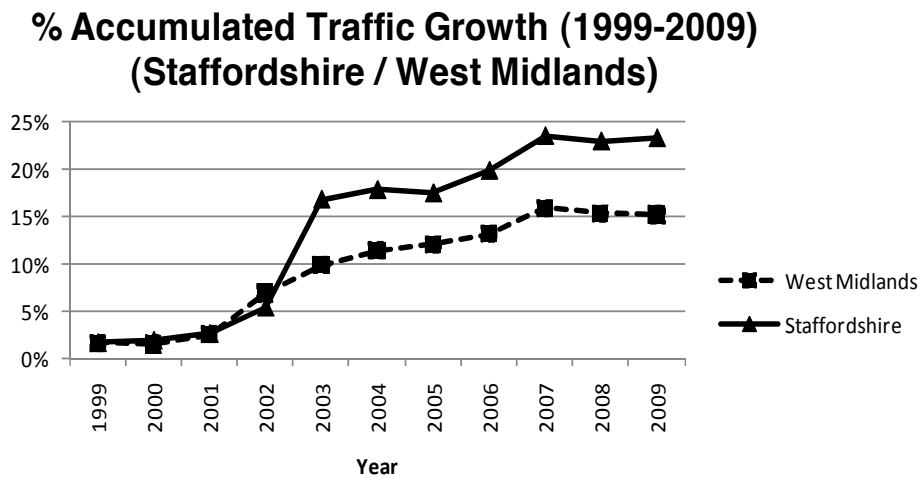


Figure 4.1: % Accumulated Traffic Growth (1999-2008)

Source: <http://www.dft.gov.uk/pgr/statistics/datatablespublications/roads/traffic/annual-volm/tra8903.xls>

Between 2000 and 2007 traffic growth increased consistently between 2 and 3% per year. Traffic has increased nationally with 2008 being the first time it had decreased since the 1970's. When there has been above normal growth then this is attributed to de-trunking if it occurred in that year.

The continued growth of traffic means that our roads are being required to handle levels of traffic significantly above historical levels. This creates an increasing need for maintenance if current standards are to be maintained.

4.3 Traffic Composition

We do not currently monitor the composition of the traffic flow and this has therefore been included as an Improvement Action Plan in Appendix A. Heavy Goods Vehicles (HGVs) do the most damage to the structure of the highways, especially where the

highway has not been designed for heavy goods. Highways with significant volumes of HGVs may therefore require further investigation and the adoption of a revised maintenance treatment regime. An Improvement Action to quantify the level of additional funding needed to cater for highways not designed for their current HGV loadings is included in Appendix A. This additional information should be considered in long term forecasting.

It is not expected that there will be any increase in the amount of HGVs using the regions roads or that the current loading limits will increase in the future.

4.4 Utility Activity

An increasingly important factor in the preservation of long term asset life is the appreciation of Statutory Undertaker Asset Management Plans and the priorities and constraints placed upon them by

their respective national service regulators. This has a direct impact on the life of highway assets and is another area being targeted for improvement. Increased understanding of these external constraints and vision of external party delivery objectives will be targeted through the life of this TAMP with all parties encouraged to share their longer term asset programmes. As well as ensuring that highway investment is not wasted by undermining excavations in the longer term, improvements in this area will also improve forward planning for disruptive works, improve public perception of partnership working and increase the potential for collaborative working on site.

Utility activity can have a major effect on the maintenance and management of the highway assets. Although not yet quantified it is believed that there is a significant increase in the number of defects found following the disturbance of the carriageway or footway surface due to utilities. This is apparent even when the utility has reinstated the surface to the required standard.

All statutory undertakers are responsible for carrying out their own reinstatements although these may be contracted and/or sub-contracted to others. This can cause programming problems where different contractors are responsible for different aspects of the reinstatement.

At present the authority enforces a 2 year guarantee period on all re-instatements and 3 years for those entailing deep excavations.

Utility works can also have an effect on the maintenance and management of electrical and drainage highway assets particularly buried cables or pipes, where they are damaged by the works. In some cases the damage to the apparatus goes unreported and is only found when problems occur.

Where statutory undertakers have caused damage to a highway asset it is our practice to endeavour to reclaim the costs of repair or replacement from the responsible party. However this is not always possible which results in an additional financial burden being placed upon the council.

4.5 Climate Change

Highway maintenance is programmed on the basis of maximising recycling and minimising transport journeys. In 2009/10, all construction material used below the road surface had been recycled. In situ recycling to surface course will be expanded over the course of the TAMP. A waste management plan is produced for all schemes over £300,000 and the majority of footway reconstruction is undertaken using recycling machines that re-use road planings from other schemes.

4.6 Changes in Legislation

The Comprehensive Spending Review is a Treasury-led process to allocate resources across all government departments, according to the Government's priorities. The Spending Reviews set firm and fixed spending budgets over several years for each department. It is then up to departments to decide how best to manage and distribute this spending within their areas of responsibility.

The budget values within this TAMP are correct at the time of completion but can change when spending reviews and priority changes by either the Government or ourselves occur.

5. Levels of Service

The introduction of meaningful levels of service (LoS) that can demonstrate prudent long-term management of the highway asset and where appropriate, meet user aspirations are a key element in the adoption of an asset management approach.

Levels of service can best be described as the defined service or performance level of the asset in terms that both the user (customer) and operator (asset owner) can understand and that performance can be measured against. Service levels or standards typically cover safety, availability, reliability, condition, environmental impact and cost. In short, levels of service represent how the asset is performing in terms of both delivering a service to customers and maintaining its physical integrity at an appropriate level.

The key challenge for adopting LoS is creating the linkages between the tangible (operations/maintenance) activities undertaken on the highway network back to the corporate goals and objectives that are generally less tangible. This challenge must be met however, to achieve good asset management practice because it is these less tangible outcomes that generally define the aspirations of the asset stakeholders.

5.1 Why use Levels of Service

The levels of service developed in this TAMP will be used for:

- Defining service standards that identify the total costs and benefits of the services provided
- Assisting with service prioritisation across all highway assets by directly influencing how funding needs are identified, prioritised and distributed
- Developing meaningful performance measures that ensure the expected levels of service are achieved or gaps in performance identified and corrected

- Creating linkages between users needs/aspirations, corporate goals and objectives and the actual works undertaken on the asset

In the future, as levels of service are further refined as part of ongoing improvements to asset management practice; they could also be used to:

- Better inform users (customers) by providing more detail about the service standard they can expect / cannot reasonably expect unless they are prepared to pay more.
- Improve customer consultation information in regard to highway service priorities, by incorporating questions not only on importance and preference, but also about cost for delivering differing levels of service.

5.2 Our Level of Service Status

We are currently in the process of developing a level of service framework which on completion will be implemented. The initial thinking is provided below.

5.2.1: Top Down: Identifying Level of Service Requirements

In the introduction we discussed the importance of linking asset levels of service back to an authority's corporate goals and objectives. These objectives should encapsulate the aspiration of the end user, be it local resident, business or member of the travelling public, and are normally contained in the Local Strategic Partnership (LSP) and other documents such as community strategies, local transport plans and the council's own corporate and service plans.

In addition to meeting user aspirations and council priorities the highway asset also needs to meet the needs generated by other external demands. These can take the form of legislative requirements (which would dictate minimum permissible standards), economic factors (e.g. increased HGV traffic) and other less tangible demands such as the impact from climate change and the environment.

In this section we take a top-down approach to firstly identify the various external demands and council goals and objectives (LoS Requirements) that can have influence over the highway asset and secondly determine how the asset can contribute to and or meet these many requirements through delivery of prescribed service standards.

To complete the top-down approach in developing levels of service the following needs to be identified:

T1: Level of Service Requirements eg. specific demands, objectives and policies that influence the highway asset from national, and local plans and documents.

T2: Level of Service Category eg. safety, network availability and condition

5.2.2: Bottom Up: Identifying Current Service Standards

The bottom up approach involves identifying the service standards that are currently provided by the highway asset. This is achieved by reviewing the current expenditure on the asset and understanding what service each of the budget items provides the authority. The process used for this TAMP is described below:

B1: Annual Budget

The annual budget for each asset is obtained and then subdivided into standard Asset Management Plan cost categories e.g. Reactive Maintenance, Cyclic Maintenance and Planned Maintenance.

B2: Service Level Measure

A measure that can be used for comparison purposes is selected for each budget item. The three most common forms of measures for consideration are:

- Performance Indicators
- Service Standards and / or Policies
- Output values

A description of how the measure is obtained and the current level is recorded. The description will be either a source for service standards and output values or a calculation for performance indicators.

B3: Identify Service Level Options

An array of options should be assessed for each measure. The important part of this step is to analyse the effect any change has on other asset management factors including cost and risk.

5.23: Combining the Top Down and Bottom Up

The final part of the level of service process is to link the Level of Service Requirements and the Current Service Standards in a table. In the initial framework only two Service Level Options will be considered for each Service Standard. The responsible officer will need to decide which options provide plausible alternatives to the current level option.

An example of the framework is shown in Figure 5.1. A draft budget can now be calculated based on levels of service by selecting the best options for each objective. This process will be used to calculate a selection of work types to make up the budget when a budget value is known and also to calculate a budget based on need when the budget value is unknown.

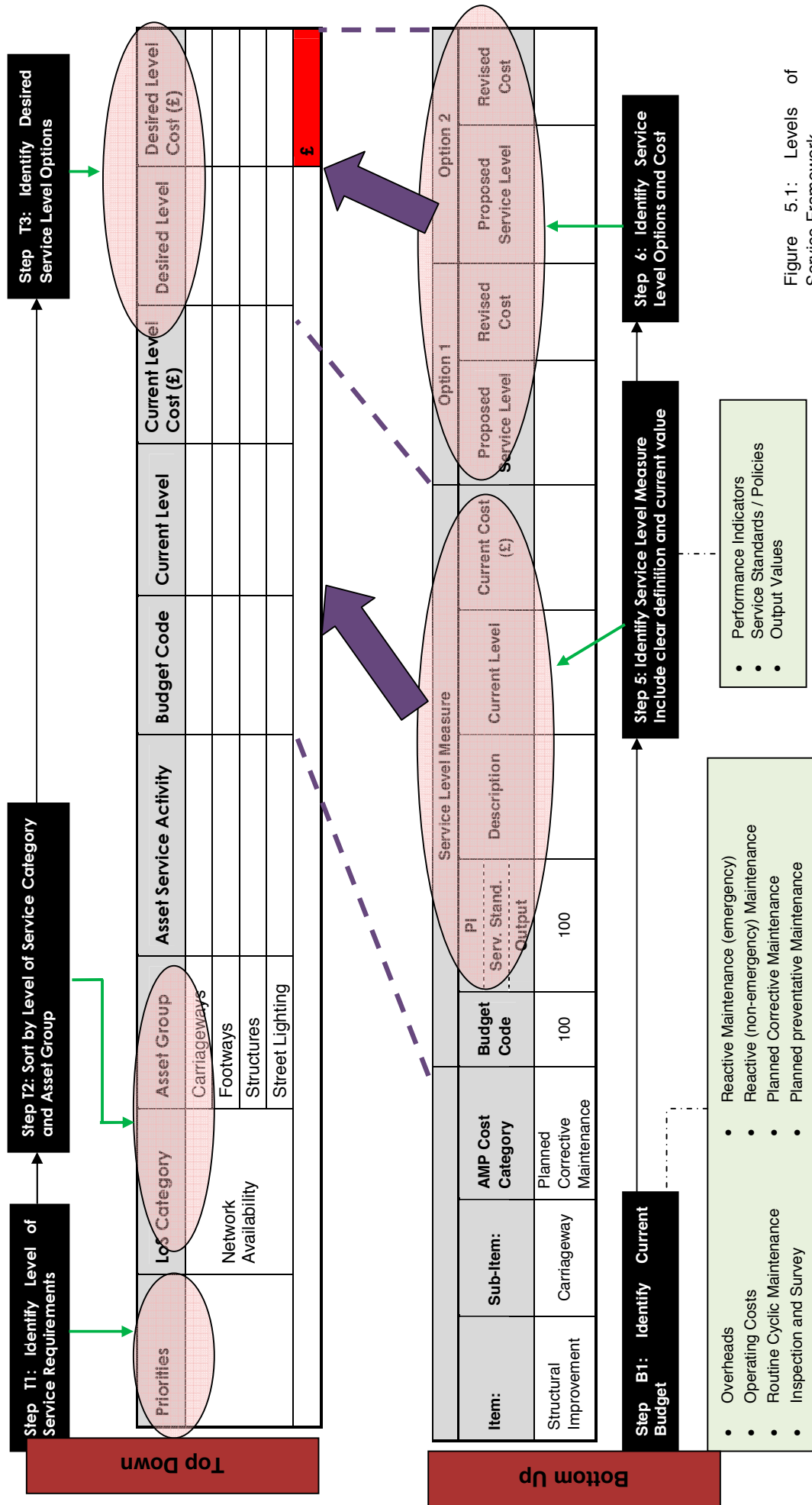


Figure 5.1: Levels of Service Framework

6. Lifecycle Planning

6.1 Purpose of Lifecycle Planning

As part of the development of this plan we have created lifecycle plans (LCP's) to document how each of the asset groups that make up our highway infrastructure are managed. Each lifecycle plan provides a definition of the standards that are applied to the management of the asset group in question and details of the processes that are used to ensure that these standards are delivered. Documenting the LCPs has allowed us to capture the knowledge of individuals, to record this and enable it to be shared and developed.

6.2 Output from Lifecycle Planning

The output from the lifecycle planning process is a long term prediction of the cost of the continued management and operation of the asset in question. This is in the form of financial projections (contained in Section 7.3) that are linked to target levels of service (Section 5).

6.3 Importance of Lifecycle Plans

Lifecycle plans are the core of our approach to highway asset management planning enabling us to manage the asset in the most cost effective method. They contain the detail that enables asset management practices, such as long term cost projection, performance management and risk mitigation and management, to be applied consistently across all asset groups.

6.4 Lifecycle Plan Contents

Lifecycle plans are living documents, updated as we gather and analyse information on each asset group. When fully populated each LCP will contain the information detailed in Table 6.1:

Table 6.1 Lifecycle Plan Contents

Section	Answers	Contains
The Asset	What assets do the council own?	Inventory details (type size, etc) Asset growth statistics
Service Expectations	What is each asset group is required to do?	Customer expectations Council objectives for transport Specific user requirements Safety considerations, 3rd party use Environmental requirements, Network availability Amenity considerations
Management Practices	How is this asset group managed?	Policies Inspection Regime Condition Assessment Asset Acquisition standards Routine Maintenance standards Operational/Cyclic Maintenance Planned Maintenance standards Disposal standards
Investment	How much should be and is spent on this asset group?	Historical Investment Output from historical investment Forecast Financial Needs Valuation: GRC, DRC & ADC
Works Programme	How are works programmed for this asset group?	Existing forward works programme 3yrs+ Works programme coordination Option Appraisal: treatment selection - At a project level - At a budget category level?
Risk	What are the risks associated with this asset group?	Risk identification and mitigation Major asset risks
Works and Service Delivery	How are works delivered or procured on this asset group?	Details of how the contract arrangements in place enable works to be delivered
Performance Management	How is the performance of this asset group measured and managed?	Performance indicators Current performance figures Target performance figures Performance Reporting
Strategies	What strategies are there for the future management of this asset group?	Details of specific strategies that direct where investment is targeted and what is expected to be achieved from them.
Service Improvement actions	What improvement would improve the council's management of this asset group?	Asset specific improvement actions

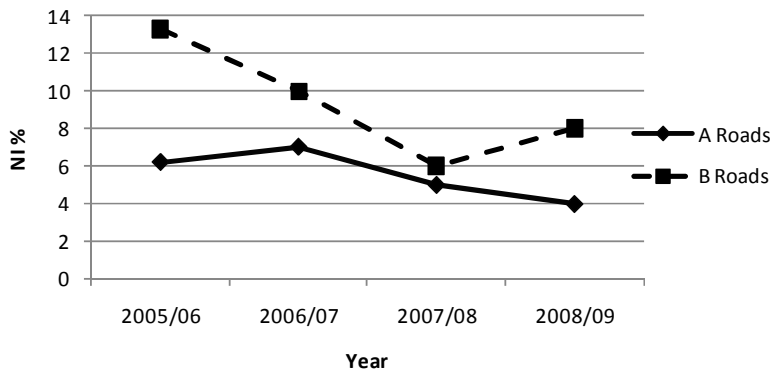
6.5 Asset Group Status Reports

Status reports for the asset groups are included below.

Asset Group: Carriageways													
Statistics					Commentary								
The Asset	Road Type	Urban (km)	Rural (km)	Total (km)	Lengths are as provided for R199b returns. Future growth in the asset is predicted to come from new developments								
	Principal (A) Roads (Cat 2)	276.3	332.6	608.9									
	Classified (B) roads (cat 3a)	130.4	201.6	332.0									
	Classified (C) roads (cat 3b)	324.6	1,130.2	1454.8									
	Un - Classified (C) roads (cat 4a)	2037.0	1,627.9	3664.9									
	Total	2768.3	3292.3	6060.6									
Customer Expectations	The National Highways & Transport (NHT) Survey is an annual postal survey. The following results show 2 of the 7 indicators have deteriorated in the latest survey				Key to the table is: <table border="1"> <thead> <tr> <th colspan="2">Overall Ranking</th> </tr> </thead> <tbody> <tr> <td style="background-color: #90EE90;"> </td> <td>Top 25%</td> </tr> <tr> <td style="background-color: #FFFF00;"> </td> <td>25% to 50%</td> </tr> <tr> <td style="background-color: #FF0000;"> </td> <td>Bottom 25%</td> </tr> </tbody> </table>	Overall Ranking			Top 25%		25% to 50%		Bottom 25%
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	Indicator Reference	Benchmarking Indicator	2008	2009		2010							
	HMBI 01	Condition of road surfaces	47.30	44.54		36.82							
	HMBI 02	Cleanliness of roads	57.28	58.73		55.91							
HMBI 06	Speed of repair to damaged roads and pavements	37.03	35.97	29.25									
HMBI 08	Weed killing on pavements and roads	48.34	47.34	51.33									
HMBI 11	Keep roads clear of obstructions such as skips/scaffolding etc	57.12	58.98	60.54									
HMBI 14	Cuts back overgrown hedges obstructing the highway	50.49	45.00	50.26									
HMBI 15	Deals with mud on the road	49.30	44.52	52.96									

Condition

Comparison of NI - A and B Roads



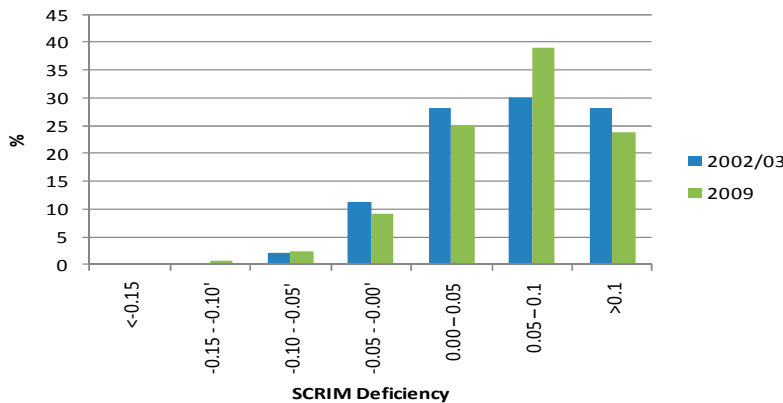
The national indicators represent the % of network requiring structural maintenance. They are measured once per year.

The method for calculating the carriageway condition indicator has changed a number of times between 2004/05 & 2008/09 making it impossible to undertake a comparison of the historical results in order to identify any trend.

Our future targets are:

- A Roads -4%
- B/C Roads
 - 6% - 2010/11
 - 5% - 2015/16
- U Roads – 6%

Comparison of SCRIM Results



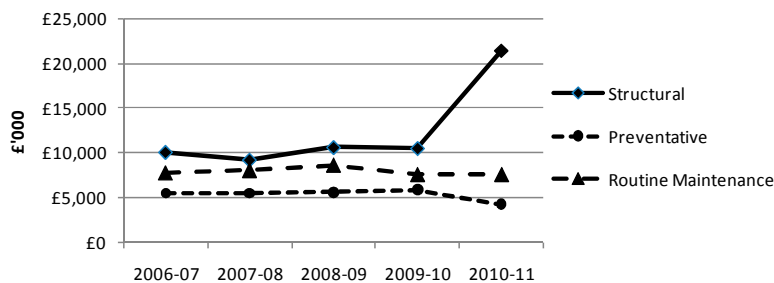
The lengths with SCRIM Deficiencies below zero don't have the required level of skid resistance to meet the needs of the user.

Results show in 2009 that a length of 52.3km had a SCRIM Deficiency below zero.

Of this, a length of 4.2km has a SCRIM Deficiency below -0.1 and this has been identified as requiring urgent treatment.

Investment Historical

Carriageway Historical Costs (2006/07 - 2010/11)



Preventative and Structural Maintenance is comprised of programmes of: reconstruction, recycling, overlay, resurfacing, junction/hotspot patching & surface dressing which are undertaken primarily to minimise cost over time.

Routine works are patching works undertaken as defects are identified throughout the year. To remove unsafe carriageway hazards.

Valuation	<table border="1"> <tr> <th>GRC (£m)</th> <th>DRC (£)</th> <th>AC (£)</th> <th>ESL (£)</th> <th>ADC (£)</th> </tr> <tr> <td>4,956.3</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					GRC (£m)	DRC (£)	AC (£)	ESL (£)	ADC (£)	4,956.3					<p>The Gross Replacement Cost (GRC)* has been calculated for 2009/10 WGA returns. It represents the cost of replacing the existing asset with a new modern equivalent asset. It is a theoretical figure but serves to illustrate the massive value of the road asset.</p> <p>Depreciated Replacement Cost (DRC)* and Accumulated Consumption (AC)* are to be provided in WGA returns in 2010/11</p> <p>* Definition of terms in Section 7.4</p>																																																																																												
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Current Issues			Current Strategies																																																																																																									
<p>There are few measured carriageway widths for any of our network. The remainder need to be obtained to allow the 2010/11 Valuation to be completed accurately.</p>			<p>An additional £30 million is being put into carriageway (and footway) maintenance over 4 years to enable the target Local Indicators to be achieved.</p>																																																																																																									

Asset Group: Footways, Footpaths & Cycleways																																																													
	Statistics	Commentary																																																											
The Asset	Total length of footway managed is 4,167 km	An improvement action has being included to develop a hierarchy for footways to ensure the correct resources are allocated where they are most needed.																																																											
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Future Investment	<p>Table A: Footway, Footpath and Cycleway Budget Breakdown 2009/10 to 2018/19</p> <table border="1"> <thead> <tr> <th>2009/10 (£000)</th> <th>2010/11 (£000)</th> <th>2101/12 (£000)</th> <th>2012/13 (£000)</th> <th>2013/14 – 2018/19 (£000)</th> </tr> </thead> <tbody> <tr> <td>2,583.1</td> <td>3,113.7</td> <td>3,113.7</td> <td>2,583.1</td> <td>2,052.5</td> </tr> </tbody> </table> <p>Table B: Footway, Footpaths and Cycleways Budgets (2008/09 to 2018/19)</p> <table border="1"> <thead> <tr> <th colspan="2">Current (2008/09)</th> <th colspan="2">Proposed Annual Budget (2009/10 to 2018/19)</th> </tr> <tr> <th>Budget (£000)</th> <th>NI</th> <th>Average Budget (£000)</th> <th>NI</th> </tr> </thead> <tbody> <tr> <td>2,048.2</td> <td>9.5%</td> <td>2,319.1</td> <td>6.7%</td> </tr> </tbody> </table>	2009/10 (£000)	2010/11 (£000)	2101/12 (£000)	2012/13 (£000)	2013/14 – 2018/19 (£000)	2,583.1	3,113.7	3,113.7	2,583.1	2,052.5	Current (2008/09)		Proposed Annual Budget (2009/10 to 2018/19)		Budget (£000)	NI	Average Budget (£000)	NI	2,048.2	9.5%	2,319.1	6.7%	<p>We have been allocated an additional £3.2m over four years from 2009/10 for footways. Footpaths and cycleways</p> <p>Table A shows the proposed budget which incorporates the required budget to achieve a steady state over ten years plus the additional £3.2m in the first four years only.</p> <p>Table B shows that the proposed budget enables the Footway Condition indicator to reduce to the target level.</p>
2009/10 (£000)	2010/11 (£000)	2101/12 (£000)	2012/13 (£000)	2013/14 – 2018/19 (£000)																				
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Forward Works Programme	We have three Forward Works Programmes:		<p>Currently all the identified schemes haven't being allocated to specific years.</p> <p>An Improvement Action has being developed to complete this table.</p>	
	Programme Year	Length (km)		Cost (£)
	Year 1	? km		
	Year 2	? km		
	Year 3 to 5	? km		
Level of Service			<p>The Level of Service Framework is currently under development and will be included in this document on completion.</p>	
Current Issues		Current Strategies		
<p>The Current Detailed Visual Inspection Survey using Section Lengths has not proved reliable in correlating with what is apparent on the network. A new survey will be introduced from 2011/12 onwards.</p>		<p>An additional £3.2 million over 4 years has being allocated to footway maintenance. This funding, along with the standard funding, is being used to provide the best whole life cost option footway schemes. These schemes consist of treatments which ensure the asset will meet its targeted life in the desired level for the most economical value.</p>		

Asset Group: Structures																																						
	Statistics					Commentary																																
The Asset	<table border="1"> <thead> <tr> <th colspan="2">Highway Structure Assets</th> </tr> <tr> <th>Asset</th> <th>Quantity</th> </tr> </thead> <tbody> <tr> <td>Road Bridges</td> <td>1048 No.</td> </tr> <tr> <td>Footbridges</td> <td>132 No</td> </tr> <tr> <td>Retaining Walls</td> <td>200 km</td> </tr> </tbody> </table>					Highway Structure Assets		Asset	Quantity	Road Bridges	1048 No.	Footbridges	132 No	Retaining Walls	200 km	<p>Over 90% of retaining walls on the highway network are still to be fully identified, ownership established and assessed for condition.</p> <p>In the near future ownership of 121 British Waterways Bridges could transfer to us. The condition of these structures are known to be poor.</p>																						
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Customer Expectations	No specific customer survey has being undertaken regarding the management of highway structures.					<p>At present customer feedback is only available for individual maintenance schemes.</p> <p>Structures, do not typically attract customer complaints so it is not value for money to complete a survey specifically targeting structures.</p>																																
	Condition	<table border="1"> <thead> <tr> <th colspan="6">County Road Bridge BSCI Scores</th> </tr> <tr> <th>Indicator / Year</th> <th>2006/07</th> <th>2007/08</th> <th>2008/09</th> <th>2009/10</th> <th>2010/11</th> </tr> </thead> <tbody> <tr> <td>Average</td> <td>88.14</td> <td>88.46</td> <td>88.04</td> <td>87.94</td> <td>87.78</td> </tr> <tr> <td>Critical</td> <td>80.25</td> <td>80.05</td> <td>79.29</td> <td>78.94</td> <td>78.60</td> </tr> <tr> <td>No. Structures</td> <td>709</td> <td>788</td> <td>962</td> <td>1019</td> <td>1037</td> </tr> </tbody> </table>					County Road Bridge BSCI Scores						Indicator / Year	2006/07	2007/08	2008/09	2009/10	2010/11	Average	88.14	88.46	88.04	87.94	87.78	Critical	80.25	80.05	79.29	78.94	78.60	No. Structures	709	788	962	1019	1037	<p>Structure Stock Condition Indicator (BSCI) average and critical have both trended downwards in the previous five years. Main reason is the continuous improvement in the quality of inventory which has seen the total number of road bridges included in the calculation of the BSCI rise by 46%. It will not be possible to establish a true trend of the BSCI until additional data has being collected. The cycle of inspections to report the BSCI is two years</p>	
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Future Investment	<p>Annual future investment required to sustain the current steady state is £5 million</p> <p>Additional investment would also be needed to address the maintenance backlog currently estimated at £13 million before a steady state position can be reached.</p>					<p>These values are based on County Surveyor Society (CSS) 'Funding for Bridge Maintenance' (Feb 2000) which recommended minimum annual investment of 0.5% of GRC.</p> <p>A review is to be completed on receipt of the CIPFA toolkit for Highway Structures which will provide a consistent approach all authorities can use</p>																														

Forward Works Programme	Highway Structure Future Investment (2010/11 to 2011/12)			
	Investment Categories	2010/11 (£000)	2011/12 (£000)	
	Total Capital Investment	5030	4080	
	Total Revenue Investment	929	945	
	Asset Management Staff	233	233	
	Total Investment	£6,192	£5,258	
Level of Service				The Level of Service Framework is currently under development and will be included in this document on completion.
Current Issues		Current Strategies		
<ul style="list-style-type: none"> For County road bridges the inventory is reasonably well established however for this and the other structures assets, further development and improvement will be required to further development asset management. The location of many retaining walls is still to be identified, hindering the implementation of a full inspection and maintenance programme. The current maintenance programme is predominantly reactive to address known defects. Better value for money is to be achieved by moving towards a preventative maintenance regime based on the principles of life cycle planning for the various forms of structure. The publication of the <i>Highway Structures Asset Management Planning Toolkit</i> which contains the detailed guidance for highway structures is still to occur which is impeding the implementation of the new financial requirements as set out by the CIPFA Guidance. 		<ul style="list-style-type: none"> To implement a programme of maintenance work that is delivered efficiently to prevent the deterioration of highway structures. To provide a high standard of maintenance which achieves optimum value for money, through timely intervention, using appropriate maintenance techniques which conserve and enhance the environment and achieve the lowest whole life cost. To ensure that all highway structures are capable of sustaining the loading requirements from the EC 40/44 tonne vehicle. Where social, economic or environmental needs deem this loading capacity is not required, weight restrictions or reduced access to parts of a structure can be imposed. To deliver a programme of measures in partnership with Network Rail to mitigate the risk of errant road vehicle incursion onto the live railway. To undertaken a routine and regular programme of Principal, General and Diving Inspections to road bridges. 		

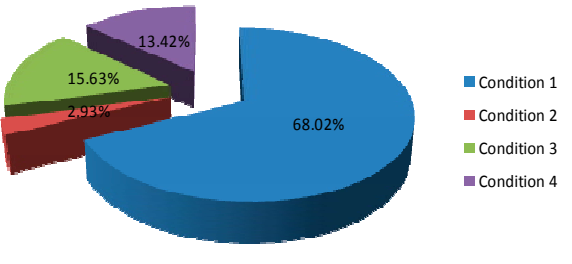
Asset Group: Traffic Signals																					
	Statistics	Commentary																			
The Asset	<table border="1"> <thead> <tr> <th colspan="2">Traffic Signal Inventory</th> </tr> <tr> <th>Description</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Controlled Junctions</td> <td>163</td> </tr> <tr> <td>Pelican Crossing</td> <td>95</td> </tr> <tr> <td>Puffin Crossing</td> <td>145</td> </tr> <tr> <td>Toucan Crossing</td> <td>89</td> </tr> <tr> <td>Fire Service Priority Equipment</td> <td>1</td> </tr> <tr> <td>Bus Priority Equipment</td> <td>3</td> </tr> <tr> <td>Total</td> <td>496</td> </tr> </tbody> </table>		Traffic Signal Inventory		Description	Number	Controlled Junctions	163	Pelican Crossing	95	Puffin Crossing	145	Toucan Crossing	89	Fire Service Priority Equipment	1	Bus Priority Equipment	3	Total	496	<p>New assets are entered into the asset database at the time of installation. There is a high confidence in the accuracy of the inventory data.</p> <p>Over the five year period (April 2005 to March 2010) there has been 95 new sites installed at an average of 19 per year.</p> <p>Currently traffic signal inventory is maintained in an Excel Database. This is to be transferred to the Integrated Highway Management System (IHMS) with the other asset inventories.</p>
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Benchmarking Indicator	2008	2009	2010																		
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Age / Condition	<p style="text-align: center;">Condition Survey Results 2010/11</p> <table border="1"> <thead> <tr> <th></th> <th>Very Poor</th> <th>Poor</th> <th>Average</th> <th>Good</th> <th>Very Good</th> </tr> </thead> <tbody> <tr> <td>Junction</td> <td>0</td> <td>7</td> <td>83</td> <td>25</td> <td>48</td> </tr> <tr> <td>Single Pedestrian</td> <td>0</td> <td>6</td> <td>117</td> <td>108</td> <td>59</td> </tr> <tr> <td>Dual Pedestrian</td> <td>0</td> <td>0</td> <td>25</td> <td>8</td> <td>9</td> </tr> </tbody> </table>		Very Poor	Poor	Average	Good	Very Good	Junction	0	7	83	25	48	Single Pedestrian	0	6	117	108	59	Dual Pedestrian	0	0	25	8	9	<p>The graph shows that the current level of investment which treats 11 sites per year is almost sufficient to maintain all sites at an average or above condition.</p>
	Very Poor	Poor	Average	Good	Very Good																					
Junction	0	7	83	25	48																					
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Future Investment	<p style="text-align: center;">Traffic Signal 15 year Condition Profile</p> <p>The graph shows the quantity of traffic signal installations in five condition categories over a 15-year period. The Y-axis represents Quantity (0 to 250) and the X-axis represents Time (2010/11 to 2024/25). The categories are: V Poor (teal), Poor (red), Average (green), Good (pink), and V Good (blue). The V Poor category shows a significant increase starting around 2015/16, reaching approximately 230 by 2024/25. The Poor category peaks around 2016/17 at approximately 210 and then gradually declines. The Average category starts at approximately 220 and declines to about 50. The Good category starts at approximately 140 and declines to about 50. The V Good category starts at approximately 110 and declines to about 50.</p>	<p>Examination of the long term condition profile indicates that the current level of investment has curtailed the occurrence of installations falling into the 'Urgent' requirement category for the immediate renewal of the associated system. This situation remains stable until 2015/16 when a number of installations will fall into the very poor category with a continued increase over the remaining period of the long term assessment.</p>																		
Forward Works Programme																				
Level of Service	<table border="1"> <thead> <tr> <th colspan="3">Traffic Signal Service Options</th> </tr> <tr> <th>Option</th> <th>Description</th> <th>Annual Costs / Savings</th> </tr> </thead> <tbody> <tr> <td>Do Nothing</td> <td>Reduce total funding level to committed revenue allocation</td> <td>£0 (Base Line)</td> </tr> <tr> <td>Steady State</td> <td>Overall condition of the assets does not deteriorate</td> <td>Costs - £350k (Above Base Line)</td> </tr> <tr> <td>Improved Service</td> <td>Enables improved operations and facilities to be provided to comply with Traffic Management Act</td> <td>Costs = £684 (Above Base Line)</td> </tr> <tr> <td>Reduced Service</td> <td>No refurbishment programme</td> <td>Savings = £174k (Below Base Line)</td> </tr> </tbody> </table>	Traffic Signal Service Options			Option	Description	Annual Costs / Savings	Do Nothing	Reduce total funding level to committed revenue allocation	£0 (Base Line)	Steady State	Overall condition of the assets does not deteriorate	Costs - £350k (Above Base Line)	Improved Service	Enables improved operations and facilities to be provided to comply with Traffic Management Act	Costs = £684 (Above Base Line)	Reduced Service	No refurbishment programme	Savings = £174k (Below Base Line)	<p>The service options will be incorporated into the Level of Service Framework currently under development resulting in a desired level of service which will become the target for traffic signal strategy.</p>
Traffic Signal Service Options																				
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Current Issues		Current Strategies																		
<p>With the advent of the forthcoming financial review it is anticipated that financial pressures will increase and therefore the operational and service standards presently delivered may need to be reviewed to ensure that adequate service standards in the critical areas can be maintained.</p>		<p>Since April 2009 maintenance works have being applied to the six worst ranked pedestrian crossing installations and the five worst ranked junctions for each year. This strategy was considered the most efficient use of funds to balance the demands for each respective installation type.</p>																		

Asset Group: Drainage																									
	Statistics				Commentary																				
The Asset	There is currently no electronic record of road drainage.				Drainage asset information is currently held on hardcopy plans only. The Flood Risk Management Project has started to capture this information																				
	The National Highways & Transport (NHT) Survey is an annual postal survey. The only indicator deteriorated in the latest survey.																								
Customer Expectations	<table border="1"> <thead> <tr> <th>Indicator Reference</th> <th>Benchmarking Indicator</th> <th>2008</th> <th>2009</th> <th>2010</th> </tr> </thead> <tbody> <tr> <td>HMBI 09</td> <td>Keeping drains clear and working</td> <td>48.18</td> <td>46.89</td> <td>52.65</td> </tr> </tbody> </table>				Indicator Reference	Benchmarking Indicator	2008	2009	2010	HMBI 09	Keeping drains clear and working	48.18	46.89	52.65											
	Indicator Reference	Benchmarking Indicator	2008	2009	2010																				
HMBI 09	Keeping drains clear and working	48.18	46.89	52.65																					
Age / Condition	No Condition Survey has being completed on drainage																								
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	Year	Revenue (£000)	Capital (£000)	Total (£000)																					
2006/07	650	0	650																						
2007/08	1100	0	1100																						
2008/09	1450	0	1450																						
2009/10	750	750	1500																						

Valuation	<p>The value of drainage was incorporated into the 2009/10 WGA Return as part of the composite carriageway rate. Linear Item</p> <p>The CIPFA Code of Practice on Transport Infrastructure Assets recommends that developing detailed information on existing drainage assets for valuation purposes is unnecessary due to the high cost.</p> <p>The two recommendations for drainage valuation are being implemented as follows:</p> <p>GRC - incorporate the drainage into the composite carriageway GRC which is completed.</p> <p>Depreciation – treat drainage assets as indefinite life assets and base annual depreciation on the average annual capital expenditure required to maintain them indefinitely. If, in any year the expenditure required was materially greater than allowed for in depreciation, the excess should be treated as impairment.</p>																							
Future Investment	<p>There is currently insufficient information available to predict future investment for drainage.</p>																							
Forward Works Programme	<table border="1"> <thead> <tr> <th colspan="4">Drainage Programme Types</th> </tr> <tr> <th>Programme Type</th> <th>Description</th> <th>Responsibility</th> <th>Annual Cost (£)</th> </tr> </thead> <tbody> <tr> <td>Refurbishment and Replacement</td> <td>Based upon known / recurring drainage issues</td> <td>Operations Planning Team</td> <td></td> </tr> <tr> <td>Reactive</td> <td>Minor drainage defects undertaken by revenue-based resources</td> <td>Operations Planning Team</td> <td></td> </tr> <tr> <td>Structural Maintenance and Improvements</td> <td>Renewals and Improvements</td> <td>Operations Planning Team</td> <td></td> </tr> </tbody> </table>				Drainage Programme Types				Programme Type	Description	Responsibility	Annual Cost (£)	Refurbishment and Replacement	Based upon known / recurring drainage issues	Operations Planning Team		Reactive	Minor drainage defects undertaken by revenue-based resources	Operations Planning Team		Structural Maintenance and Improvements	Renewals and Improvements	Operations Planning Team	
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Structural Maintenance and Improvements	Renewals and Improvements	Operations Planning Team																						
Level of Service	<p>The Level of Service Framework is currently under development and will be included in this document on completion.</p>																							
Current Issues		Current Strategies																						
<ul style="list-style-type: none"> There is no financial model for drainage that informs future strategies and investment 		<ul style="list-style-type: none"> With the exception of road gullies, the drainage asset is currently managed using a reactive regime where defects are identified and repaired when the asset reaches a poor condition. 																						

Asset Group: Safety Fences			
	Statistics	Commentary	
The Asset	Road Type	Length of Safety Fences (linear metres)	
	Principal (A) Roads (Cat 2)	43,009.3	
	Classified (B) Roads (Cat 3A)	2,723.5	
	Classified (C) Roads (Cat 3B)	3,091.8	
	Un-classified (C) Roads (Cat 4a)	1,384.8	
	Total	50,209.4	
Customer Expectations	No customer consultation has being completed for Safety Fences.		
Age / Condition	<p style="text-align: center;">Safety Fences Condition 2005/06</p>  <p>■ Condition 1 ■ Condition 2 ■ Condition 3 ■ Condition 4</p>	<p><u>Definition of Condition Bands (Ratings based on length)</u></p> <p>Condition 1: No Defects Condition 2: Missing bolts Condition 3: Damaged Posts Condition 4: Total Replacement Required</p>	<p>This survey was completed in 2005. An Improvement Action has being included to complete annual safety fence condition surveys.</p>
Historical Investment	The current budget allocated to Safety Fencing is £100,000 pa.		

Valuation	<table border="1"> <thead> <tr> <th>GRC</th> <th>DRC</th> <th>ESL</th> </tr> </thead> <tbody> <tr> <td>£4.93m</td> <td>£3.35m</td> <td>40 yrs</td> </tr> </tbody> </table>			GRC	DRC	ESL	£4.93m	£3.35m	40 yrs	<p>The GRC* has remained the same as TAMP 2007 as the inventory hasn't being updated in this period. An action is included in the lifecycle plan to complete this task and at the same time recalculate the GRC*. The DRC* has being calculated using straightline depreciation and straightline condition deterioration. The condition survey was completed in 2005/06.</p> <p>* Definition of terms in Section 7.4</p>
	GRC	DRC	ESL							
£4.93m	£3.35m	40 yrs								
Future Investment	<p>There is currently insufficient information available to predict future investment for Safety fences.</p>			<p>Service life and cost are needed to complete this process.</p>						
Forward Works Programme	<p>Work on safety fences is reactive. Forward Works Programmes have therefore not being completed.</p>									
Level of Service				<p>The Level of Service Framework is currently under development and will be included in this document on completion.</p>						
Current Issues				Current Strategies						
				<ul style="list-style-type: none"> The safety fence asset is currently managed using a reactive regime where defects are identified and repaired when the asset reaches a poor condition 						

7. Financial Summary

7.1 Funding Categories

7.1.1 Revenue

Revenue funding is raised from local tax initiatives and is allocated within the council based on a resource allocation model. The total monies allocated to the Highways Section are based on contracts and reactive works on a county wide basis.

7.1.2 Capital

Capital Investment is provided as a block sum from central government. The Local Transport Plan Allocation is automatically allocated to the Council.

Additional funding can be requested on an annual basis through the Capital Strategy which addresses the capital investment needs identified in the Strategic Plan, Improvement Plans, Service Plans and Asset Management Plans. Each proposed project is assessed following the Project Appraisal and Prioritisation Processes.

Highway revenue and capital funding is split between Highways headings, based primarily on historical precedence. Individual budget holders are encouraged to make a case for any additional funds that are required to enable the ongoing maintenance and management of the assets such that the funding split can be adjusted to reflect current priorities.

Each of the budget holders is then responsible for determining how the funding is used within their service area, although the opportunity for major deviation from previous spending regimes is very limited.

7.2 Historical Expenditure

The historical expenditure on highway maintenance for the period 2006/07 to 2009/10 is shown in Table 7.1

Table 7.1: Historical Expenditure on Highway Maintenance between 2006/07 and 2009/10)

Funding (£m)	2006/07	2007/08	2008/09	2009/10
Street Lighting & Illuminated Signs	6.554	8.727	8.997	10.670
Traffic Signals & Traffic Control	0.790	0.888	0.948	1.079
Routine Maintenance	9.163	9.792	10.319	9.293
Preventative	6.332	6.332	6.353	6.667
Structural Schemes	11.210	10.323	13.883	13.670
Winter Service	2.594	2.505	2.874	2.830
Bridge Maintenance	3.651	3.749	3.885	3.652
Term Contract Indirect Costs	4.319	4.378	5.593	5.494
TOTAL FUNDING	44.613	46.694	52.852	53.355

7.3 Future Cost Projections

A long term projection of anticipated costs will enable us to plan more effectively. We can use them to enable an appropriate assessment of the future risk and benefits of alternative investment strategies. The length of the projection should be a minimum of ten years depending on the confidence in the chosen asset model. The key information required to successfully achieve this function are current condition data and long term performance and treatment strategies including expected service lives and costs.

We are aware of the importance of this task in planning for the future. At the time of writing cost projections had been completed for carriageways, footways, footpaths and cycleways. Insufficient information is available for the other assets and an Improvement Action to gather the relevant information has been identified.

Table 7.2 shows the results of the financial model developed for projecting the costs for carriageways, footways, footpaths and cycleways. In the analysis the following four scenarios were assessed:

1. Determine the budget to maintain current condition for the next 10 and 25 years (Steady State).
2. Determine the budget required to reduce all defect values to zero in 1 year.
3. Determine the budget required to achieve the proposed service levels of 4% Principal Roads, 5% for Non-Principal Classified Roads, and 6% for Unclassified Roads over 10 and 25 years.
4. Determine the service levels achieved after ten years if an additional £30m is invested in the network over the next four years.

Scenario Four was selected for this document as it includes the additional £30m over four years which had already been approved. It must be remembered that these cost projections provide the level of budget required to reach a certain level of condition. When this TAMP, including the long term projection,

is approved the annual budget will still depend on the CSR and other budget providers.

The 'Use of a Model for Estimating the Budget Required for Staffordshire County Council to achieve Predefined Pavement Conditions on their Road Network' WDM (2009) provides details on the model, and all scenarios considered.

Table 7.2: Cost Projections (2010/11 – 2019/20)

Road Type	Average Annual Expenditure (2010/11 – 2019/20)
A Roads	£4,248,887
B Roads	£1,636,508
C Roads	£7,431,460
U Roads	£4,455,958
Footways	£2,319,136
Total	£20,091,949

7.4 Asset Valuation

During the period covered by this TAMP we will be required to carry out a valuation of our highway assets. Asset valuation is the calculation of the current monetary value of an organisation's assets. The value is reported annually in the organisation's Balance Sheet."

The current asset value is determined by undertaking a Depreciated Replacement Cost (DRC) valuation. A DRC valuation is a method of assessing asset value which provides the current cost of replacing an asset after deducting an allowance for the wear and ageing arising from the consumed service life of the asset. The DRC is derived from:

$DRC = \text{Gross Replacement Cost (GRC)} - \text{Accumulated Consumption (AC)}$, where

- GRC = the cost of replacing an existing asset with an equivalent new (modern equivalent) asset. The GRC does not make any provision for improvements to the capacity of the asset.
- AC = the consumption of an asset during its life due to ageing, usage, deterioration, damage, a fall in the Level of Service and obsolescence.

The numbers involved calculated are highly dependent upon the estimates of the service life of components of the asset. Good asset management practice provides all the information required for asset valuation.

Current Status

In 2009/10 a GRC was required to be completed by all Councils as part of their WGA returns. This is shown in Table 7.3.

Table 7.3: 2009/10 Gross Replacement Cost Return		
Asset	GRC ('000)	Calculation Basis
Carriageway	£4,956,306	Default Widths and Values
Footways and Cycletracks	£601,657	Combination of Actual and Default Values
Structures	£907,226	Combination of Actual and Default Values
Lighting	£80,300	Actual Inventory
Traffic Management	£33,000	Actual Inventory
Street Furniture	£342	Sample Inventory
Total	£6,545,864	

In 2010/11 we will be required to calculate the DRC and the AC as part of our WGA return.

8. Risk Management

Managing risk is an integral part of the management of the highway asset. All activities from identification and prioritisation of repair of defects to the establishment for budgets have risk associated with them. The purpose of this section is to introduce a process for managing these risks in a holistic manner.

The objective of applying risk management within the asset management plan is to identify the specific risks associated with the management and operation of the network and by doing so ensure that these are managed in a structured, appropriate and auditable manner.

The assessment of comparative risk is a key asset management tool. It can be used to assist with option appraisal and selection by assisting with the assessment of:

- The comparative risks of providing differing levels of service
- The comparative risk of funding works on different assets
- The comparative risk of funding improvements to the network as opposed to maintenance works

8.1 Undertaking Risk Management

Risk management follows a structured process involving the following:-

- Risk Context
- Risk Identification
- Risk Assessment / Evaluation
- Risk Treatment & Management
- Risk Reporting / Communication

8.2 Risk Context

Any work carried out as part of this TAMP will be aligned with the corporate approach to risk.

The consequence of an adverse event on the highway network can have a wide range of impacts. The impacts are assessed using the following criteria:

- Image / Reputation
- Financial / Cost

- Service Delivery / Customer
- Health and Safety

8.3 Risk Identification

Risks are identified from local authority and contractor experience within the Staffordshire County Council Highways joint venture. They are notified by the councils insurers during audits of the Council's systems, drawing from their expertise within the risk management insurance sector. In 2007, we appointed Transport Research Laboratory (TRL) to examine and review our maintenance strategies, policies and practices, to compare them against recognised best practice in the UK and to make recommendations for improvements or alterations to lessen the risk of indirect or direct contribution to a road death through the actions of the Council's staff, its suppliers and its contractors.

For each identified risk on the register an "owner" will be identified. This is the person responsible for ensuring that the risk controls are carried out and reported upon.

8.4 How are identified risks categorised?

A 3 tier model is used to categorise risk based on strategic, tactical and operational risks.

Strategic Risk – overarching service wide risks identified and managed by the Senior Leadership Team as part of the corporate planning processes, strategy development and service best value reviews.

Tactical Risk - affect the authority's ability to deliver annual programmes to desired budget and are identified and managed by the Asset Management, Network Management and Programme Board as part of the annual planning process.

Operational Risk - encountered on a day-to-day basis and managed by the delivery teams.

8.5 Risk Rating

An assessment of each risks likelihood and impact is carried out in the following consistent manner to give a balanced view of the risk levels associated with different activities and options. A final rating (number) is produced (see Table 8.2) which enables comparisons to be made between each risk.

**Table 8.2: Risk Impact
(Overall Risk = Likelihood x Impact)**

Net Risk Score	Risk Rating	Risk Mitigating Action
16 to 25	Red	Action required
10 to 15	Amber	Should consider action
1 to 10	Green	May consider action

Table 8.1: Likelihood Impact

Risk Rating Score	Likelihood Classification	Risk Description
1	Remote	Likely to occur greater than 10 Years
2	Unlikely	Likely to occur within 5 to 10 Years
3	Possible	Likely to occur within 3 to 5 Years
4	Likely	Likely to occur within 1 to 3 Years
5	Very Likely	Likely to occur within a year

Table 8.3: Risk Impact

Risk Rating Score	Impact Classification	Health, Safety and Welfare	Customer Service	Finance	Reputation
1	Insignificant	Minor injury cleared with first aid treatment	Adverse impact on service for up to 1 day.	Up to £100,000	Managed / reported to Business Unit Local media (Short Term duration)
2	Minor	Reportable dangerous occurrences (near misses)	Adverse impact on service between 1 day and 1 week.	Up to £250,000	Managed / reported to Departmental Management Team Local media (Medium / Long Term duration)
3	Moderate	Reportable over-three-day injuries or reportable diseases	Adverse impact on service between 1 week and 1 month.	Up to £1m	Managed / reported to Corporate Management Team and Members Regional media (Short Term duration)
4	Significant	Major reportable injury or injuries	Adverse impact on service between 1 and 3 months.	Up to £5m	Managed / reported to Members and Cabinet Regional / National media (Medium / Long Term duration)
5	Catastrophic	Fatality or permanent disability	Adverse impact on service for over 3 months.	Over £5m	Third Party intervention Public Interest Group National / International media (Medium / Long Term duration)

8.6 Risk Treatment / Control

“Control is a response to Risk – to contain the risk to an acceptable level and to reduce the likelihood of an unwanted outcome”.

Each Risk should have an associated Control Measure – such as a document or process (existing or required) which can be introduced to minimise the Risk.

If the existing Control Measure is not considered to be adequate or effective, or a Control Measure does not exist, a Mitigating Action(s) should be identified to enhance the existing Control Measure or to put the required Controls in place. These actions must be specific tasks allocated to a responsible Lead Officer with a specified timetable for completion.

8.7 Risk Reporting

Progress against Actions should be regularly monitored and recorded in accordance with the agreed reporting regime or operational necessity. Should any significant progress be made or progress deemed to be unsatisfactory, the Risk should then be reassessed (scope, score, etc.) or new Actions identified, and the Risk Register updated accordingly.

The members and management of the authority will be informed of the risks identified and what is done to manage them via reports to members and the highway management team.

8.8 Risk Management and Option Appraisal

The outputs from risk assessments will be considered as an integral part of the options appraisal to determine the correct selection of procedure and / or maintenance treatment required.

Key Improvements

Over the duration of this plan the key improvements to risk management will be:

- The development of risk assessments for all policies and procedures
- The development of risk assessments for all scheme selections in accordance with models that will be developed / further developed to assist in this process.

- Reporting of risks to relevant stakeholders, including all those involved in the decision making processes to enable them to make decisions with the full appreciation of the risks involved as a consequence of those decisions.

Risk Management as an Activity

Currently risk management is generally applied only to individual projects and schemes. A risk assessment is carried out for instance when evaluating the options for strengthening weight restricted bridges or undertaking target cost maintenance schemes.

- A service wide risk register has been created and assesses the comparative risks of different activities.
- The service has provided input into the corporate risk register; however this highlights risks only at a very high council business level and needs to be complemented with a more detailed risk assessment for this to be of use to an asset management process.

Proposed Risk Management Procedure

- A service wide risk register will be developed as part of the evolving development of this plan. Regular monitoring of the actions identified in the register will be undertaken and a formal updating will take place at least annually.

8.9 Major Asset Risks

Table 8.4 below details the major risks identified within the Transport Asset Risk Register.

Table 8.4 Transport Asset Major Risks								
Risk	Likelihood Score	Impact Score	Uncontrolled Risk Score	Current Controls In Place	Revised Likelihood Score	Revised Impact Score	Controlled Risk Score	
Structures Failure to deliver plan due to insufficient funding	4	4	16	Development and implementation of asset management and financial planning techniques in line with national requirements and guidance. Regular financial and budget reviews. Provision of asset data requested by Department for Transport. Seek other funding opportunities. Plan for reduced programme in anticipation of outcome of Comprehensive Spending Review October 2010 through prioritisation of maintenance works to target most critical defects.	3	4	12	
Carriageways Lack of funding for maintenance works may lead to a backlog of required works, the continued deterioration of the network and the need for higher cost remedial works in the future	5	4	20	No Controls	5	4	20	
Footways Lack of funding for maintenance works may lead to a backlog of required works, the continued deterioration of the network and the need for higher cost remedial works in the future	5	4	20	No Controls	5	4	20	

9. Improvement Plan

9.1 Milestones

An improvement action plan has been created to support this plan and is included in Appendix A. It consists of all actions from this document and the individual lifecycle plans. For the duration of this plan the key milestones have been identified in Table 9.1. An action for the Improvement Action Plan is to compile an integrated programme of these actions with dates and responsible officers for monitoring purposes.

Table 9.1 Improvement Action Milestones

No.	Milestone	Priority	Improvement Action Plan Reference (see below for key)
Priority: 1 = Within 6 Months; 2 = Within 6 – 12 Months; 3 = 12 – 24 Months; 4 = 24 – 48 Months.			
1	Develop an asset information strategy to determine the information required to be held, the information currently held, where and in what format, the missing information, the collection methods for the missing information and any proposed changes to the storage method.	1	CW-IA1, FW-IA1, DR-IA1, DR-IA2, SF-IA1
2	Complete the valuation requirements documented in CIPFA's Code of Practice on Transport Infrastructure Assets – Guidance to support asset management, financial management and reporting, March 2010. Specific tasks are 1. Calculate Gross Replacement Costs for all asset groups. 2. Calculate Depreciated Replacement Costs for all asset groups	2	CW-IA5, FW-IA7, BR-10.3a, DR-IA14, SF-1A8
3	Develop a long term programme of asset works required and a process for annually reporting and updating the programme.	2	CW-IA6, FW-IA8, BR-10.4
4	To collect a mechanical bearing Inventory for highway road bridges and to implement a maintenance programme	2	BR-10.1a
5	Undertake an enhanced programme of principal and diving inspections with risk based inspection intervals	1	BR-10.2a
6	To quantify and predict the future performance of highway structures for variations in levels of maintenance funding. This strategy is dependant on the publication of the Structures Financial Planning Toolkit	2	BR-10.3b
7	Implementation of Structural Eurocodes following the withdrawal of British Standards in April 2010	1	BR-10.4d

Table 9.1 Improvement Action Milestones

No.	Milestone	Priority	Improvement Action Plan Reference (see below for key)
Priority: 1 = Within 6 Months; 2 = Within 6 – 12 Months; 3 = 12 – 24 Months; 4 = 24 – 48 Months.			
8	Complete the development and implementation of the procedure/policy for categorising defects in order to define their appropriate reaction time and introduce performance indicators against them.	2	DR-1A9
9	Develop individual prioritisation processes for selecting the order of completion of drainage and safety fence maintenance for drainage and safety fence.	2	DR-1A11, SF-IA5
10	Develop a formalised process for establishing the ongoing, long term, budgetary requirements for the maintenance and management of the asset.	2	DR-1A13, SF-IA9
11	Complete the biannual condition survey of the safety fences.	2	SF-1A3

Note: Key for Improvement Action Reference

CW-IA_n (n = number) –Table 10.1 Improvement Actions (Carriageways), Carriageway Lifecycle Plan

FW-IA_n – Table 10.1 Improvement Actions (Footways, Footpaths and Cycleways), Footway, Footpath and Cycleway Lifecycle Plan

BR-n – Section 10: Future Strategies and Improvement Actions, Highway Structure Asset Management Strategy

DR-IA_n – Table 10.1 Improvement Actions (Drainage), Drainage Lifecycle Plan

SF-IA_n – Table 10.1 Improvement Actions (Safety Fence), Safety Fence Lifecycle Plan

9.2 Progress Reporting

The strategic actions will be included in Service Plans that are owned, developed and implemented via team plans overseen by the Operations Board.

Where improvement actions are consistently falling behind their intended progress the Operations Board will make a decision as to whether additional resource or other actions are required in order to rectify the situation.

An Annual progress report on the status of the TAMP and its associated Improvement Actions will be presented to the relevant Scrutiny Committee.

10 Management & Control of the Plan

10.1 Introduction

Throughout this TAMP, issues and corresponding improvement actions have been established. These actions will need to be prioritised, programmed, resourced and implemented in order for an asset management approach to be fully introduced.

10.2 Ownership of the TAMP

The Transport Asset Management Plan is a document with named officers responsible for:

- distribution to appropriate staff, members and the public
- monitoring of improvement actions and the implementation plan
- authorising and actioning updates to the plan

The persons charged with the delivery of this Transport Asset Management Plan and their roles within the process are detailed below in Table 10.1.

10.3 Updating the TAMP

It is anticipated that the review and updating cycles for each part of the plan will be as follows:

- a. This Transport Asset Management Plan will cover the period 2011 – 2016 after which a full review will be undertaken.
- b. The Appendices: will be “living” documents. They will be updated as their contents demand them to be changed; this will typically be either annually, quarterly or monthly. Updating will be linked to the management processes introduced to manage the implementation of the plan.
- c. Implementation Plan: it is anticipated that the implementation plan will have a duration that mirrors the plan i.e. it will contain proposals that will target the embedding of transport asset management practice within SCC.

Table 10.1: TAMP Ownership

Position	Name	Role
Elected Members - Admin Budget Working Group - Executive - Council		Approval of the TAMP
Transport Asset Management Champion	James Bailey	Champion of Transport Asset Management within the authority
Transport Asset Management Manager	Nick Miller	Day to day implementation of Transport Asset Management, monitoring improvement actions, informed decision making & ensuring updates to the documents.
Highway Network Data Manager	John Mansfield	Development of data management systems for all assets & ensuring their integration.
Pavements Manager	Paul Boss	Ensuring data management procedures are followed and that all information is kept up to date. Providing requested information outputs to other parties.
Head of Business Improvement	David Walters	Producing integrated forward work programmes, both long and short term, and ensuring their availability to all interested parties. Identifying conflicts and opportunities for rationalisation of works.
Head of Business Improvement	David Walters	Provides a link to Corporate strategies and identifies where improvements to the service can be made under the continuous improvement agenda.
Head of Business Improvements	David Walters	Identifying and actioning policy updates. Collecting and interpreting performance measures and providing relevant output to other personnel.
Asset Owner Carriageways	Paul Boss	Updating lifecycle plans, ensuring implementation of improvement actions. Identifying asset specific investment requirements; works programmes and changes to procedures and documentation.
Asset Owner Footways	Paul Boss	
Asset Owner/Champion Structures	Chris Plant	
Asset Owner Street Lighting	Steve Bradbury	
Asset Owner Traffic Signals	Steve Bradbury	
Asset Owner Drainage	Matt Bulzacchelli	
Asset Owner Safety Fences	Andy Parrish	
Asset Owner Street Furniture	Dave Botfield	

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