

Highway Infrastructure Asset Management Policy, Strategy and Plan

Report of the Head of Highways, Capital Development and Waste

1. Introduction

The purpose of this report is to update Place Scrutiny committee on the emerging approach to Asset management for Highway Infrastructure with a view to:

- (a) Informing the committee on the approach adopted in revising the current Highway Infrastructure Asset Policy, Highway Infrastructure Asset Strategy and Highway Infrastructure Asset Plan and to capture comments and views regarding the approach;
- (b) Obtaining input from the committee into the development of an appropriate performance management framework for the management of highway assets and setting meaningful targets to assist in measuring annual performance against the Highway Asset Management Strategy and Plan. See Annex 6.

2. Background

Asset management has been widely accepted by central and local government as a means to deliver a more efficient and effective approach to the maintenance of existing infrastructure. For the highway industry this approach requires long term planning and ensures that standards are defined and achievable within available budgets. It also supports making the case for funding, effective communication with stakeholders, and enables a greater understanding of the contribution highway infrastructure assets make to economic prosperity and to local communities.

The current Highway Asset Policy, Highway Asset Strategy and Highway Asset Plan were approved by Cabinet in March 2013. This report outlines the progress and changes since then and describes the approach followed in reviewing and updating the documents.

There is a need to review and approve an updated Highway Asset Management Policy, Strategy and Plan to enable Devon to maximise its funding grant for highway maintenance.

3. Proposal

3.1 Drivers for change

A number of significant changes that have occurred since approval of the current Asset Management Policy, Strategy and Plan:

- The revised County Council strategic plan, Better Together was published in 2014.
- New national guidance 'Highway Infrastructure Asset Management' was issued by Highway Maintenance Efficiency Programme (HMEP) in May 2013.
- A revised Code of Practice on Highway Network Assets was issued in 2016. The revised code outlines the procedures to be applied for valuation of highway infrastructure assets.

- In November 2014, following consultation, the Department for Transport (DfT) announced a new formula for allocating Local Highway Maintenance Capital funding up to 2021. The new funding formula is made up of a Needs Formula, an Incentive Fund and a Challenge Fund. The new approach enables highway authorities to improve long term works planning as the announcement detailed the Needs Formula allocation, which is the major part of the overall funding, for a six year period.
- Highway Maintenance revenue budget, funded from business rates, council tax and Revenue Support Grant has reduced each year in response to Devon County Council's corporate savings requirements.
- The highway service has engaged with communities to respond to reduced levels of service by facilitating community self-help.
- The highway service has developed its highway systems technology to manage customer demand by improving web based customer information on services and works programmes, and on-line customer reporting and data collection.

All of the above have contributed to shaping the highway service and to driving a review and update of highway asset management planning.

3.2 The Asset Management Framework

The national guidance issued by HMEP promotes a joined up approach to determining how all highway infrastructure assets such as roads, bridges, streetlights etc. are managed. A suite of documents is being developed to reflect this. The documents are:

- The Highway Infrastructure Asset Management Policy;
- The Highway Infrastructure Asset Management Strategy;
- The Highway Infrastructure Asset Management Plan.

This hierarchy of documents should be read and referenced as a set in order to understand the background and reasoning for Devon's approach to asset management and to how this will be delivered in the Highway Service

The Highway Infrastructure Asset Management Policy outlines the objective to maintain the highway network as required by The Highways Act 1980. It describes the scope of the policy. It outlines the Policy aims and objectives and describes the benefits of the proposed approach to highway asset management.

The Highway Infrastructure Asset Management Strategy explains how the policy will be achieved and how long term objectives will be delivered. The Strategy outlines the Devon County Council's Asset Management Framework (page 5) and provides details of the components which make up the core asset management planning tools. These have been developed by following HMEP national guidance. The framework includes Risk Management, Levels of Service and Performance Management.

The Highway Infrastructure Asset Management Plan provides the detail on how the policy and strategy are implemented.

The purpose of the Highway Infrastructure Asset Management Plan is to:

1. Identify and set out the maintenance requirements for the highway network in a clear and consistent framework, which follows the national guidance published by the HMEP.
2. Enable improved use of data and information and improved analysis of the maintenance of highway assets so that services can be delivered more efficiently.

3. Enable maintenance budgets to be used to effectively to reduce to a minimum the overall rate of network deterioration and to maintain a safe network that provides the optimum service with available resources.
4. Be a guidance document for the service in managing the highway network effectively.
5. Enable an improved approach to future maintenance challenges.
6. Support the process of Identifying and accessing potential funding streams for addressing maintenance issues.
7. Understand the implications and risks for each asset group and to the network, from reduced funding.
8. Help with communications as we explain how we manage highway assets and how we propose to face the challenges of managing these assets in the future.

The draft Highway Infrastructure Asset Management Policy and Strategy are provided in Annex 1 and 2 respectively. The Highway infrastructure Asset Management Plan is under review and it is intended that all three documents will be finalised and approved later this year.

3.3 Risk Management

Successful implementation of the Devon Asset Management Framework requires an understanding of the impact and consequences of strategic risks. Analysing risks provides information on the effect events will have on the desired performance of an asset.

A risk register has been developed to evaluate high level strategic risks and is shown in Annex 3. It is intended that the register will be regularly reviewed with particular regard to managing and responding to threats and agreeing mitigation measures with a view to reducing the impact of the risks over time.

3.4 Levels of Service

Strategic levels of service are identified in the Highway Infrastructure Asset Strategy. These inform the development of levels of service for each asset group. Defining levels of service enables us to meet our objective of managing demand, having considered current and future capability to deliver within the resources available.

It is proposed that we use the approach identified in the National Code of Practice - Well Maintained Highway Infrastructure, which identifies the following as a basis for developing levels of service for assets:

- The safety of the asset
 - Meeting Statutory obligations
 - Meeting users' needs for safety
- The serviceability of the asset
 - Ensuring availability
 - Maintaining reliability
 - Enhancing condition
- The sustainability of the asset
 - Minimising cost over time
 - Maximising value to the community
 - Maximising environmental contribution

A table describing the level of service provided using the above methodology for the highway related asset components is shown in Annex 4.

It is possible to have different levels of service for different maintenance categories. The current position based on approved policy, available funding and consultation through tough choices is shown in Annex 5.

It can be seen that for certain categories of minor road and footway, the level of service response is limited to attending only to safety concerns.

3.5 Performance Framework

Performance measures can be used to monitor progress against levels of service and to track actual performance. The Highways and Traffic Management service is developing a performance management framework. This aligns with corporate and asset management aims. The framework measures performance against key business areas and identifies current performance as: Excellent; Good; Fair; or Poor.

A number of strategic indicators will feed into the above. The strategic indicators associated with the asset management approach are identified in Annex 6. It is intended that these will be reviewed annually and progress reported to Councillors.

The Committee are invited to comment on the proposed indicators and the approach.

4. Consultations/Representations/Technical Data

Customer feedback is available through the 2015 National Highways and Transport (NHT) Public Satisfaction Survey. This reflects public perception of performance and the importance and desire for various activities to be funded. Analysis shows that the condition of the highway network and the speed and quality of repairs are important to the public.

The complete survey can be seen at <http://nhtsurvey.econtrack.com>

As part of the tough choices budget reduction exercise a consultation was carried out in autumn 2014 on a range of proposed reductions to the Highways Revenue Budget. This resulted in reduced levels of service being implemented in April 2015 affecting winter service, grass cutting, parish lengthsman, picnic sites and staffing in neighbourhood teams.

Further details are available at <https://new.devon.gov.uk/highwaysbudget/>

5. Financial and Environmental Considerations

The asset management approach enables the County Council to demonstrate it has a clear methodology for valuing highway infrastructure assets and determining their condition.

Applying the approach to establish maintenance needs illustrates that there is a clear gap between the capital maintenance funding provided by DfT and the funding needed as assessed by condition surveys.

The result is that whilst higher priority assets can be maintained in an acceptable condition this is not possible for lower priority assets. Therefore, the condition of some lower priority assets will deteriorate in future years. For such assets, like some minor roads, safety related reactive interventions only will take place.

It is unavoidable that deteriorating condition will lead to increased costs of reactive repairs and to increased future planned maintenance costs. In the long term there will also be an impact on the selection of journey routes and the reliability of journey times.

By adopting good asset management practice the above impacts will be minimised.

6. Summary

It is intended that this report will provide the Committee with an opportunity to inform the development of the Asset planning approach.

David Whitton
Head of Highways, Capital Development and Waste

Electoral Divisions: All

Cabinet Member for Highway Management and Flood Prevention: Councillor Stuart Hughes

Strategic Director, Place: Heather Barnes

Local Government Act 1972: List of Background Papers

Contact for enquiries: Joe Deasy

Room No: Lucombe House, County Hall, Exeter. EX2 4QD

Tel No: 01392 383000

Background Paper	Date	File Ref.
Nil		

Highway Infrastructure Asset Management Policy:

Purpose and Scope:

Purpose of this Policy: This policy explains Devon County Council’s approach to meeting our objective to maintain the highway network in Devon as required by the Highways Act 1980.

Scope of this Policy: This policy applies to all highway infrastructure and highway assets which are managed and maintained by Devon County Council.

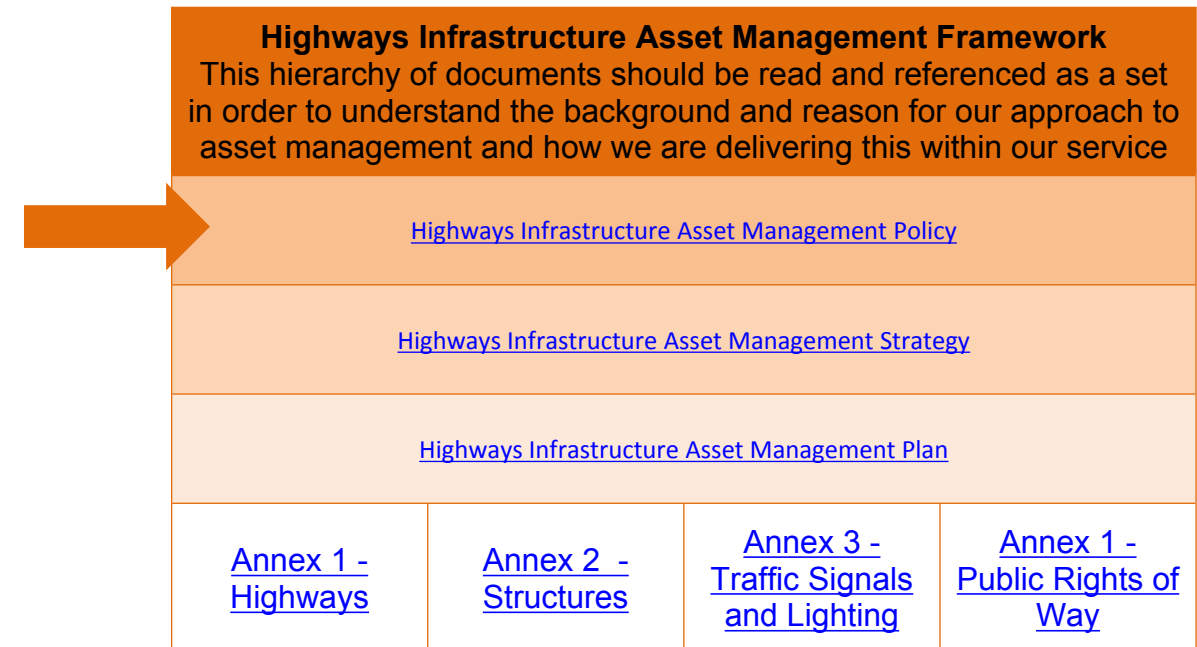
Note: Motorways and trunk roads are maintained by [Highways England](#)

What are highway assets? The highway infrastructure comprises the network of roads, bridges, pavements, cycle ways and public rights of way, together with street lights, traffic signals, bollards and signs, drainage systems and retaining walls. Together these are the highway assets.

We have:

- 8,000 miles of roads, the longest highway network in the country.
- 3,500 bridges
- 3,000 miles of public rights of way
- 2,000 retaining walls

Together these assets have a gross replacement value in excess of £12 billion. It is therefore essential that we maintain this valuable asset as effectively as we can with the resources we have.



Context, Vision and Aim:

Context and vision for this Policy:

Devon County Council's vision is for Devon to be a safe and healthy place to live; a place where people can live their lives well. To meet this vision, it is essential to have a well managed and maintained highway network. This is reflected in the Highways and Traffic Management Business Plan 2015-21:

“Our service maintains, operates and improves the highway network to enable safe and resilient links for people to connect with their communities, to lead to healthy, prosperous lives; to get to work, to get to education, to get to health services, to participate in exercise and leisure activities, to bring people to Devon to enjoy our beautiful county, to bring goods in and connect Devon's people and produce to the rest of the world.”

The Highways Act 1980 requires us to maintain the public highway in a safe condition. It also requires us to maintain it in reasonable condition for people to use. Compliance with this policy supports this statutory duty.

The aim of this Policy: Through our Asset Management Policy we aim to provide a highway network which supports the Council's vision:

- Is safe and serviceable for people to use
- Enables access to and from communities for people, goods and services.
- Supports and promotes active and healthy lifestyles
- Promotes the development and maintenance of sustainable communities
- Contributes to wider economic growth
- Contributes to wider environmental management
- Makes effective and efficient use of our local resources
- Is maintained appropriately to retain its value and condition into the future

The maintenance backlog: Each year the highway assets are valued as a requirement of central government. In 2015 the accumulated depreciation of the highway asset has been calculated as £1.36 billion. This figure represents the loss in value of the asset due to ongoing deterioration.

Using asset management models the annual rate of depreciation has been estimated as approximately £102 million per annum which is the level of investment required to maintain all elements in a steady state condition.

The total capital allocation for the current year is £46.5m. The difference between what we would need to spend and the money we have been allocated to spend has resulted in an increasing backlog.

Every year that we are unable to spend what we need means that highway network condition will deteriorate. This will be particularly noticeable on our minor roads.

Approach to maintenance of highway infrastructure assets:

Asset management promotes a business-like way to highway maintenance. It makes better use of limited resources and delivers efficient and effective highway maintenance.

We will take a long term approach to the maintenance of all highway infrastructure assets which considers the cost and anticipated performance of the maintenance work we do.

We have based our policy on national guidance and best practice developed by the [Highways Maintenance Efficiency Programme](#) and our service strategy to drive efficiency in delivery of our services, manage demand and mobilise communities.

To do this we will:

- Take a long-term view using a systematic approach based on defined levels of service for each asset
- Consider the whole life costs of maintaining an asset; we will look at what will provide best return on the money we spend in the long term, rather than a 'worst-first' short term maintenance treatment
- Understand the lifecycle of each asset and use this knowledge to plan when is the best time to do maintenance to keep the asset in a safe and serviceable condition and when it is time to replace it with new.
- Consider the needs and expectations of citizens using the highway network in Devon
- Use the defined levels of service to enable prioritisation of the work we do and consider when better value will be achieved by combining batches of work.

The approach is explained further in our Highway Asset Management Strategy. Our Highway Asset Management Plan explains in further detail how we will do this for each type of asset.

Benefits of this approach: This approach will enable us to:

- Have a clear understanding of the extent and condition of the highway infrastructure and assets
- Have a clear method which links our goals, aspirations and objectives with the defined level of service
- An improved ability to:
 - predict the levels of funding required to deliver the desired levels of service
 - to understand the impact of funding constraints and reductions and target the money we have to best effect
 - understand risks to the effective maintenance to the highway asset and how to try to reduce these risks
 - create programmes of maintenance further into the future to improve planning, reduce impact on citizens and achieve efficiencies when delivering the work
- Explain clearly to citizens why we do the work we do. For instance, surface dressing is a highly effective and economical way to extend the life of a section of road. However, it needs to be done while the road is still in a reasonably good condition. Often people see this work being done and do not understand why we are ‘fixing a good road’ when there is a ‘worse road’ just around the corner.

Consultation on this approach: In creating this policy we have taken account of the feedback from citizens contained in:

- the National Highways and Transportation public perception survey
- consultation on our Local Transport Plan
- feedback within the consultation on the Better Together Strategic Plan
- the County Council’s tough choices consultation

The Cabinet Member for Highway Management and Flood Prevention has been consulted and supports the approach.

During the life of this policy we will listen to citizens to check how well the approach is working and the impact it is having on individuals, communities and businesses. Full details on how we will do this are set out in our Communication Strategy document.

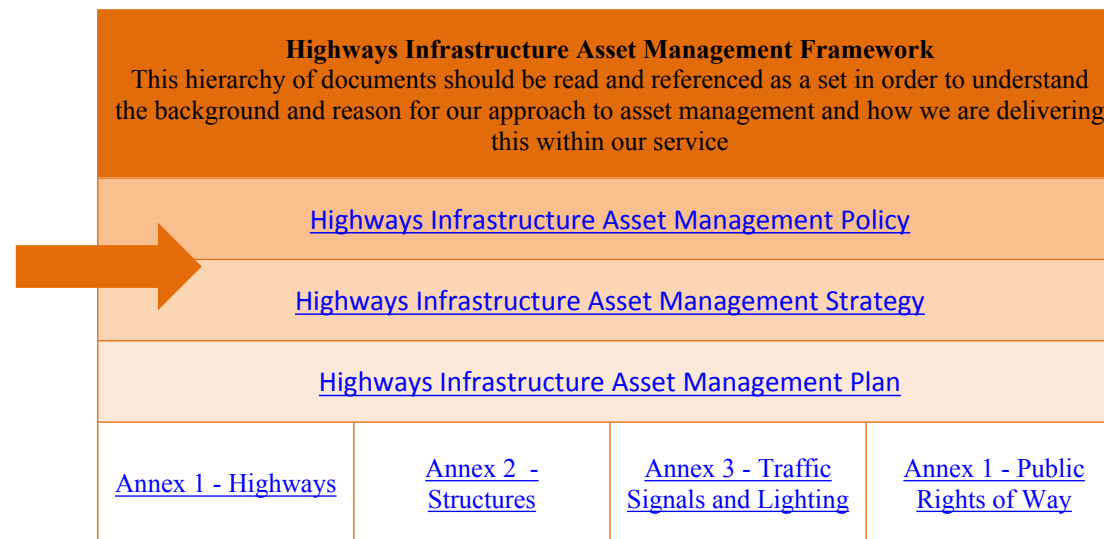
Review:

Policy review: This policy will be evaluated and reviewed on a regular basis to check how well it is working for Devon. It will be formally reviewed no later than 30/11/2018.

Highway Infrastructure Asset Management Strategy

Purpose of this Strategy: This strategy has been developed to explain the framework we will use to manage the highway network as described in our Highway Asset Management Policy. With a gross value in excess of £12 billion, the highway network maintained and managed by Devon County Council is our County's most valuable and important public asset.

The management of such a valuable and vital asset needs to be undertaken in a systematic manner, which is set out in this strategy.



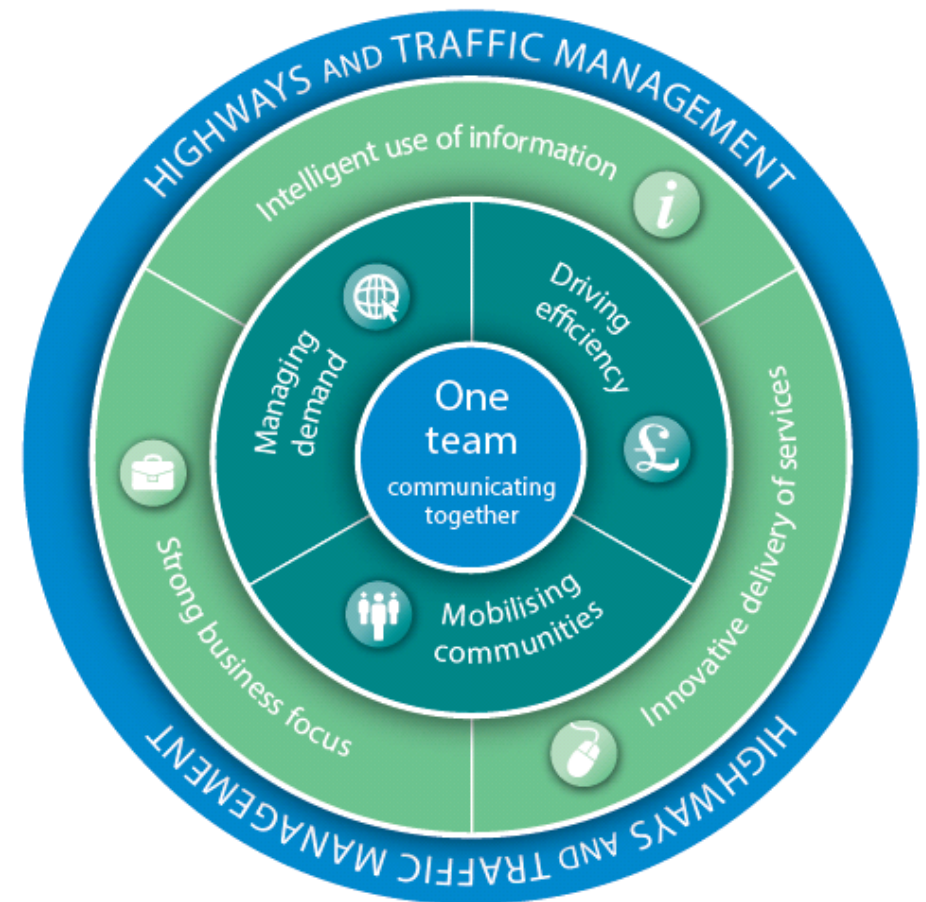
Our Highway Infrastructure Asset Management Framework:

This framework aligns with our 2015-21 business plan model and focusses on the way we work together, with the aim of delivering the best we can with the resources we have.

This strategy, and supporting plan, highlight that whilst we are one large multi-disciplined and diverse team, we are increasingly working as one integrated team to deliver our strategic aims.

Our business plan has a strong and consistent message on how we will approach delivery of sustainable and resilient services for the next six years in support of [Better Together, Devon's Strategic Plan](#).

Highways and Traffic Management Business Model 2015-21



“Managing our highways is now a **critical challenge** to local councils, who have to manage an ageing network with high public expectations for **safe, reliable** and comfortable travel. At the same time, **resources are reducing**, with less funding available, increased pressure for other local government services and skills shortages.”
(*Highways – Maintaining a Vital Asset, Highways Maintenance Efficiency Programme*)

network with high public expectations for safe, reliable
a“Managing our highways is now a critical challenge to local
councils, who have to manage an ageing network with high
public expectations for safe, reliable and comfortable travel

Our approach to highway infrastructure asset management is aligned to our three clear business plan objectives to:



drive efficient delivery of the service



mobilise community support



manage demand for highway services.

Our three business plan guiding principles which underpin how we think and what we do are also reflected in our approach to highway infrastructure asset management:

Intelligent use of information



Innovative delivery of services



Strong business focus



Our thinking will challenge the current ways of working and influence how we design and adapt our systems and processes to deliver our service through to 2021

We will take account of:

- Devon County Council's objectives and vision for Devon
- The needs and aspirations of people using the highway network
- The maintenance needs of the different assets that make up the highway network
- The financial resources we can access now and in future

We will balance these factors against the:

- risks of failure of the asset, such as severe deterioration due to lack of investment and the destructive potential of severe weather
- future costs and availability of financial resources to invest in maintenance of the highway assets

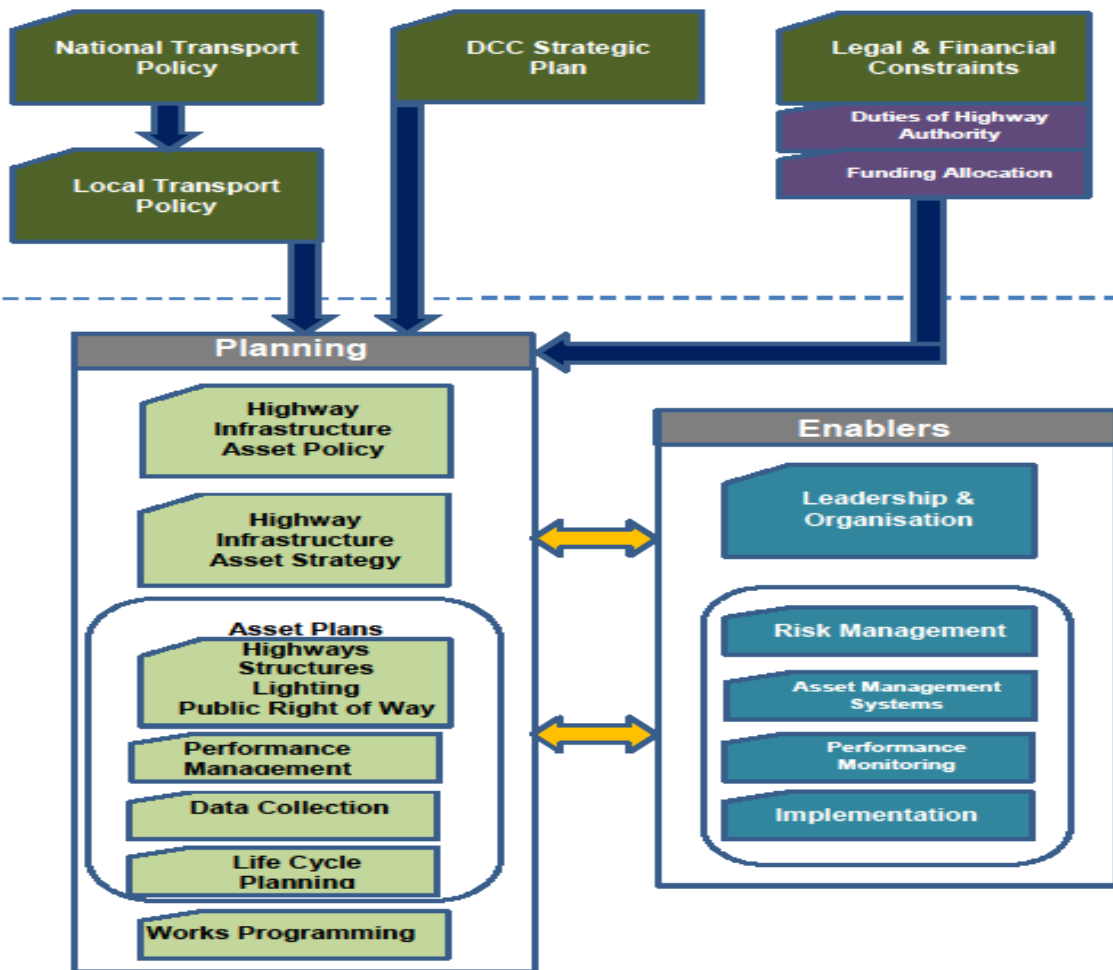
The effective management of these diverse and complex issues can only be adequately addressed within a strategic framework that balances the demands and aspirations with the reality of the current financial situation.

The responsibility for the delivery of the Highway Asset Management framework sits with the Asset Management Group within the Highway and Traffic Management Service. The aim of this group is to enable the successful adoption and implementation of this strategy so that our service is delivered effectively and efficiently and the highway assets are maintained and managed to support the current and future needs of Devon's citizens.

The Highway Asset Management Framework diagram shows the core elements of our approach which are explained in the next section.

DCC Highway Asset Management Framework

Context



Our core asset management planning tools:

Core Planning Tools for our Highway Infrastructure Asset Management Framework are:



Performance: A strong business focus requires us to monitor and manage performance. By managing performance of the asset management approach we will:

- Provide a systematic approach to measure our progress in the implementation of the asset management strategy
- Set levels of service and performance targets to enable auditing and monitoring of the delivery of the asset management strategy.
- Demonstrate how funding is being used effectively to meet the levels of service and performance targets
- Provide the link between corporate vision, asset management strategy, levels of service and maintenance operations
- Support effective communications with citizens by demonstrating how we are performing against their expectations.
- Demonstrate any shortfalls in funding.

The current and future demand on the service will influence the degree of performance that can be achieved. Factors such as customer service provision, customer perception, asset condition and funding provision will all contribute to this. Demand is likely to change with external influences such as weather and seasonal variations. Future demand will be influenced by population and traffic growth and an increasing older population. The report '*Service Resilience in a Changing Climate – Highway Management Devon County Council*', identifies the impact climate change will have during the next century.



Inventory and Data Management: Intelligent use of information requires us to develop and maintain our highway asset inventory, so that we know what assets we have, where they are and what condition they are in.

This is important in order to have an overall view of the extent and condition of the highway network and enable a consistent management approach to be applied.

The Highway inventory is well developed with major asset components recorded in an integrated software system. Where there are gaps in the inventory, most notably drainage infrastructure, work is progressing to address this. Currently these inventory systems include the following asset groups:

- Highways and Highway Drainage Systems
- Structures
- Street lighting, Signals and Traffic Management Systems
- Public Rights of Way

Our comprehensive programme of inspections and surveys of the highway assets, which are informed by national guidance and statutory requirements and tailored to asset groups, provides us with good quality data that enables effective risk management and decision making. These inspection and survey regimes are documented in the relevant asset plans for each asset types.



Levels of Service: By Levels of Service we mean a description of the standard of service that is provided or required. These levels link directly back to our corporate aims and objectives, departmental and service plans and other strategy documents such as [Better Together, Devon's Strategic Plan](#).

Defining levels of service enables us to meet our objective to manage demand, having considered our current and future capacity to deliver with the resources available.

In addition, levels of service must take note of statutory duties and the management and mitigation of risk both to the service user and the authority.

Levels of service can therefore be described in broad terms, which are then described in more detail to give concise standards and targets. The standards and targets can then be measured and used to inform the decision making processes.

Drawing on our key corporate objectives to promote the wellbeing of the citizens and communities of Devon, and enable people to live their lives well, we have set out our high level aims for levels of service for the highway asset in the Highway Infrastructure Asset Management Policy as follows:

- Is safe and serviceable for people to use
- Enables access to and from communities for people, goods and services.
- Supports and promotes active and healthy lifestyles
- Promotes the development and maintenance of sustainable communities
- Contributes to wider economic growth
- Contributes to wider environmental management
- Makes effective and efficient use of our local resources
- Is maintained appropriately to retain its value and condition into the future

These strategic levels of service are then focussed on specific aspects of the infrastructure as part of operational service plans.



Lifecycle Planning, budget projection and valuation: Lifecycle planning is a technique which enables us to think about an asset in terms of its current and future performance. It links the desired level of service, the current condition, future maintenance needs and future funding. This process aligns with our objective to deliver our services efficiently.

Some assets have a limited lifespan and will eventually need to be replaced. For these assets we can use lifecycle planning to chart the journey from cradle to grave, so that we know when replacement will be necessary and the costs to maintain the asset effectively during its expected lifespan.

Some assets can have a longer lifespan provided they are maintained appropriately. For these we can use lifecycle planning to chart the journey from creation through phases of maintenance, refurbishment and back to an “as new” condition, when the cycle is repeated.

Lifecycle planning enables us to:

- Develop plans to invest resources to deliver an agreed level of service performance
- Predict the impact particular levels of funding will have on the service we can deliver

Lifecycle planning tools have been developed which enable the development of work programmes which make best use of the available funding in meeting long-term objectives, mitigating the risk of failure by allocating funds to where they will be most beneficial. However, allocating funding in this way moves away from a more traditional “worst first” approach and targets work programmes at those parts of the highway asset which present the greatest risk and where early treatment can achieve the most beneficial whole of life cost.

This lifecycle planning approach enables:

- the delivery of a service which is as effective as possible
- allows a clear and logical allocation of resources to those areas which will contribute most to the overall goals and objectives of the Council
- allows an assessment to be made of the residual risk.

As well as the benefits outlined above, comprehensive lifecycle planning allows resources to be targeted to the preservation of the historic investment that has been made in our infrastructure. This is particularly pressing with the imminent introduction of the Whole of Government Accounts (WGA) as set out in the CIPFA Code for Transport Infrastructure Assets.



Risk Management and future: The Asset Management approach can be seen as an exercise in managing risk. The need to manage risk is a catalyst for us to be innovative in the way we deliver our services.

The key aspect of our approach is that by grouping assets by type into a hierarchy and then reflecting their importance in service delivery terms relative to one another it enables us to quantify the risk.

This risk based principle flows through the whole of the Asset Management Framework and is fundamental to deciding the levels of service, the scope, type and frequency of inspections, the allocation of budgets and the development of work programmes.

The Asset Management Group has developed a clear hierarchy for its core asset types. When used with robust lifecycle planning and deterioration models, the asset management approach enables an organisation to:

- respond to challenges as they occur
- make accurate predictions of funding required to sustain levels of service
- to quantify the risk to the organisation in terms of service delivery, third party liability and the loss of value and integrity of the assets.

Asset Management is a way of operating which seeks to incorporate all aspects of management activity into one overarching, inter-related system so that conflicting demands, goals, objectives, delivery targets and statutory obligations can be balanced and residual risk identified.



Works Programmes: The delivery of works programmes are the outcome from the asset management strategy.

The process to develop a works programme comprises the identification, prioritisation, optimisation, programming and delivery of individual schemes for the various asset types. It should meet the annual budgets that have been developed by the authority, ideally with the support of lifecycle planning process described above.

Our strategy for individual asset groups:

As part of the asset management framework, and in accordance with other national guidance, our highway asset has been divided into asset groups. Each group is then broken down into asset components and activities. The asset groups and components are described below.

A key function of the asset management process is to understand the spending needs of each asset group, component and activity against the required levels of performance, aims and objectives. This means understanding funding needs to meet:

- Performance Targets
- Department of Transport objectives
- Delivery Planning

It is important within this process that we understand and consider:

- the influence of budget decisions on customer satisfaction and delivery of the corporate priorities
- the impact that investing on one asset component may have on the overall performance of other asset components, as well as the whole asset

Therefore we are developing a Needs Based Budgeting approach.

Our Asset groups and components: Highway infrastructure assets have been divided into groups and components as listed in Table 1.

Table 1: Asset Groups and Components	
Asset Group	Asset components
A Roads	Carriageway
B Roads	Carriageway
C Roads	Carriageway
Unclassified Roads	Carriageway
Footways and Cycle ways	Footways
	Cycle ways
Drainage	Piped systems, gullies, grips
	buddleholes and easements
Fencing	Vehicle restraint systems, guard rails , fences
Structures	Bridges, retaining walls, culverts etc.
Highway Lighting	Columns, illuminated signs, etc
Public Rights of Way	Footpaths, bridleways ,byways, signs, styles gates etc.
Traffic Management systems	Signals and pedestrian crossings
Street Furniture	Signs and other street furniture
Land	Highway verge

Review process:

This strategy will be reviewed annually and minor changes and updates will be made to the framework documents and subsidiary documents on an annual basis to reflect changes in funding and service levels. The whole framework will be updated on a two year rolling frequency.

Prepared by:

Joe Deasy

Asset Management Group Manager

Highways and Traffic Management Service

date

If you would like this information in another format please contact:

Risk Number	Description of Risk.	Possible consequences on effectiveness of service	Risk Score at time of identification			Mitigation	Current Risk Score		
			Likelihood	Impact	Score		Likelihood	Impact	Score
1	Failure to maintain C class and unclassified roads effectively. Deterioration of highway network due to insufficient planned and routine maintenance.	<p>Increasing safety hazards for highway users.</p> <p>Increasing costs associated with reactive repairs.</p> <p>Increasing liability claims resulting from personal injury /property damage.</p> <p>Increased disruption to users due to road closures, diversions, general road condition.</p> <p>Increased customer service demands.</p>	6	4	24	<p>Communication with stakeholders inc Elected Members, Parish and Town Councils to explain the Devon Highways Strategy and funding of the service.</p> <p>Safety inspection and repairs completed cost effectively and on time.</p> <p>Consideration of material and treatment types to provide value for money solutions.</p>	6	4	24
2	Lack of capacity or capability to effectively respond to Extreme weather events Flooding and structural damage to the highway affecting citizens and property	<p>Potential for fatalities and severe accidents to citizens due to lack of effective and timely response.</p> <p>Potential for network disruption affecting local economy and other public services such as hospitals, schools, day centres etc.</p> <p>Potential for major structural damage to the highway</p> <p>Quantity of structural damage exceeds available budget</p> <p>Increased customer demands due to insurance claims and disruption.</p>	6	4	24	<p>Asset Management plan identifies network hierarchy and prioritises response on the higher classes/speeds of network. Annual review of winter service and emergency plan. Monitoring weather forecasts, inspection of main roads, removal of debris and ensuring sufficient resources are available.</p> <p>Inspection of the highway network and handling incoming reports of flooding and/or damage during a severe weather event and deploying resources to those areas at greatest risk. Planning, programming and delivery of drainage and structural works in a timely manner</p>	6	4	24

Risk Number	Description of Risk.	Possible consequences on effectiveness of service	Risk Score at time of identification			Mitigation	Current Risk Score		
			Likelihood	Impact	Score		Likelihood	Impact	Score
3	Lack of capacity or capability to respond effectively to highway safety related issues Potential for fatal and severe accidents to citizens due to lack of effective and timely repair or replacement of highway assets. This could be brought about by deteriorating highway condition, inability to meet policy level of service, inadequate procedures or poor staff/contract performance.	Increasing safety hazards for highway users. Increasing costs associated with reactive repairs. Increasing liability claims resulting from personal injury /property damage. Increased disruption to users due to road closures, diversions, general road condition. Increased customer service demands.	6	4	24	Highway Monitoring - revised risk based safety inspection regime implemented. Inspections are completed on time. Specialist inspections undertaken on carriageway skid resistance, tree condition and safety fences on a risk based approach. Programme flexibility- If problems arise early enough on in the year then the programme can be amended to accommodate higher workloads on safety defects repairs, to assist contractor in achieving programmed response times.	4	4	16
4	Failure to maintain the A and B road network effectively leading to reduced surface life. The risk of reduced life of the A and B road surfaces is influenced by several factors including the availability of an adequate budget to carry out work and deterioration factors such as severe winters and climate change.	Increasing safety hazards for highway users. Increasing costs associated with reactive repairs. Increasing liability claims resulting from personal injury /property damage.Increased disruption to users due to road closures, diversions, general road condition. Increased customer service demands.	5	4	20	Assessment and repair of Highway Drainage - Priority given to routine and planned drainage works on salting network. Highway Asset Plan approach- Continued condition survey and refinement of financial models will enable the Council to manage future overall A and B condition at a steady state under the current funding strategy. Refreshed approach to scheme identification and treatment options.	4	4	16
5	Inadequate resilience of highway structures stock (including bridges, retaining walls and embankments) in face of rising extreme weather events. Older bridges potentially restrict high river flows causing flooding. Vulnerability particularly of the older masonry bridges to flood and scour damage. Insufficient maintenance of highway drainage can further reduce resilience of structures.	Potential for fatalities. Flooding and structural damage affecting citizens and property due to adverse weather. Flood damage to bridges particularly older masonry arch bridges. Flood damage to retaining walls and embankments. Potential for network disruption affecting local economy, and other public services. Increased customer demands due to insurance claims and disruption.	5	5	25	General and Principal Inspection regime in place. Safety inspections undertaken following flood events. Programme of scour assessments underway to determine vulnerable structures and to prioritise works to protect.	4	3	12

Risk Number	Description of Risk.	Possible consequences on effectiveness of service	Risk Score at time of identification			Mitigation	Current Risk Score		
			Likelihood	Impact	Score		Likelihood	Impact	Score
6	Failure to maintain bridges and highway structures effectively. Deterioration of the condition of both bridges and highway structures due to insufficient maintenance.	Increasing safety hazards for highway users. Increasing costs associated with reactive repairs. Increasing liability claims resulting from personal injury /property damage. Increased disruption to users due to road closures, diversions, general road condition. Increased customer service demands.	4	4	16	General and Principal Inspection regime in place to ensure that the overall condition is understood and available funds prioritised. Funding directed at improving the condition of retaining walls.	4	3	12
7	Non-inclusion of DCC owned retaining walls supporting adjacent property in structures inventory because of uncertainty of ownership. Deterioration of the condition due to lack of inspection and maintenance.	Increasing safety hazards for highway users. Increasing costs associated with reactive repairs. Increasing liability claims resulting from personal injury /property damage. Increased disruption to users due to road closures, diversions, general road condition. Increased customer service demands.	4	4	16	These walls are generally very visible to the public, adjacent property owners, etc. and in most instances DCC will be notified of any problems. At this point investigations will be carried out to determine ownership.	4	4	16
8	Failure to maintain Street Lighting effectively. Deterioration of Lamp Columns / brackets/ light units due to insufficient planned and routine maintenance.	Potential for fatalities and severe accidents if 'dark spots' appear on the highway or if columns collapse or brackets / lighting units fall on vehicles, cyclist or pedestrians. Increasing costs associated with reactive repairs. Increasing liability claims resulting from personal injury /property damage.	5	3	15	Asset Management plan identifies program for inspections of all equipment. Handling incoming reports of damage deploying resources to repair or replace damaged equipment. Planning, programming and delivery of testing, repair or replacement works in a timely manner.	4	3	12

3:2 Maintenance service standards applied to inventory sets

Carriageway surface	Provision of Safety related issues only	Provision of safety and	serviceability related issues	Provision of Safety, Serviceability and sustainability issues
What a road user would see	Carriageway surface uneven and rutted with multiple localised repairs and defects of a non safety nature. In rural areas suitable only for use by agricultural & similar vehicles.	Carriageway surface irregular. Limited evidence of recent resurfacing. Significant localised repairs & defects of a non safety nature.	Carriageway surface generally well maintained. Busier roads will be regular with limited localised repairs & defects of a non safety nature	Carriageway surface regular with very few localised repairs or defects of a non safety nature.

Maintenance standards and activities	<p>Undertake limited condition surveys to inform of network valuation.</p> <p>Undertake minimum safety inspections and react to defects that represent an immediate or imminent hazard only.</p> <p>No routine or programmed maintenance.</p>	<p>Undertake condition surveys to inform of network valuation & support asset management prioritisation within available budget.</p> <p>Undertake safety inspections and react to defects that represent an immediate or imminent hazard. Repairs mostly consisting of patching & dressing or spray patching.</p> <p>Limited routine & programmed maintenance dependent on budgets.</p>	<p>Undertake condition surveys to inform of network valuation & to support asset management prioritisation within available budget.</p> <p>Undertake safety inspections and react to defects that represent an immediate or imminent hazard.</p> <p>Targeted routine & programmed maintenance. Repairs usually patching & surface dressing with surfacing limited to high stress areas.</p>	<p>Undertake condition surveys to inform of network valuation.</p> <p>Some serviceability inspections to support the asset management approach for allocating resources for the management, operation, preservation and enhancement of the carriageway to meet the needs of current and future customers.</p> <p>Routine & programmed maintenance undertaken to optimise future condition and to reduce the backlog of maintenance requirements.</p>
Impact	Impact - Decline in structural residual life with an increase in structural defects such as potholes, major cracking and rutting.	Impact - Gradual decline in structural residual life with an increase in structural defects such as potholes, major cracking and rutting.	Impact - Some structural defects such as potholes, cracking & rutting.	Impact - Minimal defects

Drainage gullies	Provision of safety related issues only	Provision of Safety and serviceability related issues	Provision of safety, serviceability and sustainability issues
What a road user would see	Gully may be blocked or overgrown. Grating and frame may be damaged and sunken.	Gullies working most of the time. Grating and frame condition may be poor.	Most gullies working particularly in high risk areas. Grating and frames in satisfactory order.
Maintenance standards and activities.	Some reactive cleansing in response to water flooding. No condition assessment.	Very limited routine cleansing in response to water flooding. Restricted scheduled inspection to ascertain condition and repair defects likely to impact on gully performance. Priority given to high risk areas.	Limited routine cleansing in response to water flooding. Limited reactive inspection in response to flood warnings on designated routes. Limited routine scheduled inspection to ascertain condition & repair defects likely to impact on gully performance. Priority given to high and intermediate risk areas.
Impact	Impact - Likely failure of systems resulting in surface water. Increased likelihood of claims.	Impact - Some flooding and surface water Limited priority and investment. Limited mitigation of claims.	Impact - Some flooding and surface water Limited condition assessment enabling structured prioritised investment. Reduced mitigation of claims.
			Impact - Occasional flooding and surface water Increased inspection frequency on wider network. Condition assessment enables for investment. Mitigation of claims and increased response to customer requests.

Drainage - other	Provision of safety related issues only	Provision of safety and serviceability related issues	Provision of safety and serviceability related issues	Provision of safety, serviceability and sustainability issues
What a road user would see	No drainage system or system may be damaged, blocked or ineffective.	Drainage system may be damaged, blocked or ineffective.	Some drainage system may be damaged, blocked or ineffective.	Drainage system working and asset maintained in good order.
Maintenance standards and activities.	<p>Safety inspections.</p> <p>Reactive cleaning only in response to flooding.</p> <p>Sites treated in priority order dependent on extent and nature of flooding.</p>	<p>Safety inspections.</p> <p>Limited routine maintenance determined by flood risk.</p>	<p>Safety & limited service inspections to inform maintenance priorities.</p> <p>Targeted routine maintenance undertaken prioritised by risk and network hierarchy.</p>	<p>Safety & some service inspections to inform maintenance priorities.</p> <p>Proactive routine maintenance undertaken prioritised by risk and network hierarchy.</p>
Impact	Impact - Some flooding and surface water.	Impact - Some flooding and surface water	<p>Impact - Some flooding and surface water.</p> <p>Limited improvements to system functionality & some possible mitigation of claims.</p>	<p>Impact - Occasional flooding and surface water.</p> <p>Wider improvements to the system functionality and a likely reduction in claims.</p>

Footways	Provision of safety related issues only	Provision of safety and serviceability related issues		Provision of safety, serviceability and sustainability issues
What a road user would see	Surface uneven and rutted with multiple localised repairs. Some defects of a non safety nature.	Surface irregular. Limited evidence of recent resurfacing. Significant localised repairs. Some defects of a non safety nature.	Surface generally well maintained. Limited localised repairs. Some defects of a non safety nature.	Surface regular with very few localised repairs. Minimal defects of a non safety nature.
Maintenance standards and activities.	Undertake limited condition surveys to inform of network valuation. Undertake minimum safety inspections and react to defects that represent an immediate or imminent hazard only. No routine or programmed maintenance.	Undertake condition surveys to inform of network valuation & support asset management prioritisation within available budget. Undertake safety inspections and react to defects that represent an immediate or imminent hazard. Repairs mostly consisting of patching & dressing or spray patching. Limited routine & programmed maintenance dependent on budgets.	Undertake condition surveys to inform of network valuation & to support asset management prioritisation within available budget. Undertake safety inspections and react to defects that represent an immediate or imminent hazard. Reduced routine & programmed maintenance. Repairs are usually patching & surface dressing with surfacing limited to high stress areas.	Undertake condition surveys to inform of network valuation. Some serviceability inspections to support the asset management approach for allocating resources for the management, operation, preservation and enhancement of the carriageway to meet the needs of current and future customers. Routine & programmed maintenance undertaken to optimise future condition and to reduce the backlog of maintenance requirements.

Impact

Impact - Decline in structural residual life with increase in structural defects such as potholes, major cracking and rutting.

Impact - Decline in structural residual life with increase in structural defects such as potholes, major cracking and rutting.

Impact - Some structural defects such as potholes, cracking & rutting.

Impact - Minimal defects

Verges	Provision of safety related issues only	Provision of safety and serviceability related issues	Provision of safety, serviceability and sustainability issues
What a road user would see	<p>Grass only cut to provide minimum safety visibility at junctions, bends and laybys.</p> <p>Hedges cut for safety on major roads at bends, junctions and laybys.</p>	<p>Grass only cut to provide minimum safety visibility at junctions, bends and laybys. Cut shorter and more frequently.</p> <p>Hedges cut for safety on major roads at bends. Junctions and laybys.</p>	<p>Grass cut on visibility splays, and on some verges.</p> <p>Hedges managed proactively.</p> <p>Grass cut across full verge width where required and part width elsewhere.</p> <p>Hedges trimmed routinely.</p>
Maintenance standards and activities. (Includes landscape management of hedges, grassed areas, weeds.	<p>Undertake safety inspection and react to defects that present an immediate or imminent hazard.</p> <p>Limited routine visibility cutting.</p> <p>No noxious or other weed treatment unless causing a safety issue.</p>	<p>Undertake safety inspection and react to defects that present an immediate or imminent hazard.</p> <p>Some routine visibility cutting.</p> <p>No noxious weed treatment.</p> <p>Limited other weed treatment.</p>	<p>Undertake safety inspection and react to defects that present an immediate or imminent hazard.</p> <p>Some routine visibility and verge cutting.</p> <p>Reactive noxious and other weed treatment.</p> <p>Undertake safety inspection and react to defects that present an immediate or imminent hazard.</p> <p>Routine visibility and verge cutting.</p> <p>Routine noxious and other weed treatment.</p>

Impact

Impact - Lack of habitat consideration and an increase in environmental issues.

General untidiness and hidden litter.

Increase in noxious and other weeds with infrastructure damage.

Impact - Lack of habitat consideration and potential environmental issues.

General untidiness and visible litter when cut.

Increase in noxious and other weeds with infrastructure damage.

Impact - Some environmental management and consideration of habitats.

Limited weed control.

Impact - User satisfaction, improved claim & habitat management.

Fences & barriers	Provision of safety related issues only	Provision of safety and serviceability related issues		Provision of safety, serviceability and sustainability issues
What a road user would see	<p>Some fencing missing or damaged and looking untidy.</p> <p>Safety barriers with no obvious safety defaults.</p>	<p>Some fencing missing or damaged and looking untidy.</p> <p>Most fencing and safety barriers in fair order on higher category roads.</p>	<p>Fencing and most safety barriers in good order on higher category roads.</p>	<p>All fences & safety barriers in good order.</p>
Maintenance standards and activities.	<p>Undertake safety inspections and react to defects that represent an immediate or imminent hazard.</p>	<p>Undertake safety inspections and react to defects that represent an immediate or imminent hazard.</p> <p>Limited routine maintenance based on hierarchy.</p>	<p>Undertake safety inspections and react to defects that represent an immediate or imminent hazard.</p> <p>Limited condition led scheduled routine maintenance based on hierarchy.</p>	<p>Undertake safety inspections and react to defects that represent an immediate or imminent hazard.</p> <p>Service & specialist inspections.</p> <p>Development of a programme for renewal/removal based on fit for purpose and condition analysis.</p>
Impact	<p>Impact - No condition assessment to assess whether fit for purpose leading to increased possibility of failure and potential claims.</p>	<p>Impact - Limited programme of renewal/removal based on fit for purpose analysis. Some improvement to asset reducing the likelihood of failure and reducing claim potential</p>	<p>Impact - Limited programme of renewal/removal based on fit for purpose analysis. Some improvement to asset reducing the likelihood of failure and reducing claim potential</p>	<p>Impact - Improvement to asset reducing the likelihood of failure and minimising claim potential.</p>

Levels of Service - Rural

Carriageway Hierarchy/ Environment	Carriageways	Drainage Gullies	Drainage other	Verges	Fences & Barriers	Traffic Signs	Road Markings
3 Rural	Service		Service				
4 Rural	Level 1		Level 2			Service	
5 Rural						Level 3	
6 Rural							
7 Rural							
8 Rural						Service	
9 Rural						Level 4	
10 Rural							
11 Rural							

Levels of Service - Urban

Carriageway Hierarchy/ Environment	Carriageways	Drainage Gullies	Drainage other	Verges	Fences & Barriers	Traffic Signs	Road Markings
3 Rural	Service		Service				
4 Rural	Level 1		Level 2			Service	
5 Rural						Level 3	
6 Rural							
7 Rural							
8 Rural						Service	
9 Rural						Level 4	
10 Rural							
11 Rural							

Levels of Service – Rural Footways

Footway Hierarchy/ Environment	Footway
F1 Rural	
F2 Rural	
F3 Rural	
F4 Rural	

Levels of Service – Urban Footways

Footway Hierarchy/ Environment	Footway
F1a Urban	
F1 Urban	
F2 Urban	
F3 Urban	
F4 Urban	

Key

	Service Level 1 – Includes Safety, Serviceability and Sustainability
	Service Level 2 – Includes Safety and intermediate level of Serviceability (no sustainability)
	Service Level 3 – includes Safety and minimal level of Serviceability
	Service Level 4 – includes Safety only (no sustainability and serviceability) – This is the minimum level

**Annex 6
To HCW/16/69**

Strategic: Key Business Question: How effectively are we managing the highway asset infrastructure?							Performance Level			
		Strategic Indicators of a well-managed network are:	Means of Measurement	Indicator collection frequency	Collected for:	Target:	Excellent	Good	Fair	Poor
	2.2.1	The backlog value of the highway asset reported to Government is being maintained or decreasing.	The accumulated depreciation as a percentage of Gross Replacement cost value reported	Annual	Whole of Government Accounting SW Benchmarking HIAMP		<13%	13-16%	16-20%	>20%
	2.2.2	The condition of bridges (average) is nationally recognised as good	Report on Bridge stock using the County Surveyors Society Bridge Condition Indicator	Annual	HIAMP	Maintain Bridge condition index score $BSCI_{av}$ within the 'good' range of 90 - 94	100 - 95	94 - 90	89 - 80	<79
	2.2.3	The condition of bridges (critical) is nationally recognised as good	Report on Bridge stock using the County Surveyors Society Bridge Condition Indicator	Annual	HIAMP	Maintain Bridge condition index score $BSCI_{crit}$ within the 'good' range of 90 - 94	100 - 95	94 - 90	89 - 80	<79

Strategic: Key Business Question: How effectively are we managing the highway asset infrastructure?							Performance Level			
		Strategic Indicators of a well-managed network are:	Means of Measurement	Indicator collection frequency	Collected for:	Target:	Excellent	Good	Fair	Poor
	2.2.4	The condition of retaining walls (average) is nationally recognised as good	Report on Retaining Wall stock using the County Surveyors Society Bridge Condition Indicator	Annual	HIAMP	Maintain Bridge condition index score $BSCI_{av}$ within the 'good' range of 90 - 94	100 - 95	94 - 90	89 - 80	<79
	2.2.5	The condition of retaining walls (critical) is nationally recognised as good	Report on Retaining Wall stock using the County Surveyors Society Bridge Condition Indicator	Annual	HIAMP	Maintain Bridge condition index score $BSCI_{crit}$ within the 'good' range of 90 - 94	100 - 95	94 - 90	89 - 80	<79
	2.2.6	The condition of the Principal road network is nationally recognised as good	National Road Condition Index Percentage of network requiring planned maintenance soon (Red) condition	Annual	National Indicator SW Benchmarking HIAMP	4% requiring planned maintenance soon	< 4%	5-6%	6-10%	>10%

Strategic: Key Business Question: How effectively are we managing the highway asset infrastructure?							Performance Level			
		Strategic Indicators of a well-managed network are:	Means of Measurement	Indicator collection frequency	Collected for:	Target:	Excellent	Good	Fair	Poor
	2.2.7	The condition of the Non-Principal B road network is nationally recognised as good	National Road Condition Index Percentage of network requiring planned maintenance soon (Red) condition	Annual	National Indicator SW Benchmarking HIAMP	4% requiring planned maintenance soon	< 4%	5-6%	6-10%	>10%
	2.2.8	The condition of the Non-Principal C road network is nationally recognised as good	National Road Condition Index Percentage of network requiring planned maintenance soon (Red) condition	Annual	National Indicator SW Benchmarking HIAMP	Minimise decline in roads in requiring maintenance from 13% to 35% by 2025	<13%	13-15%	15-20%	>20%
	2.2.9	The condition of the Non-Principal unclassified road network is nationally recognised as good	National Road Condition Index Percentage of network requiring planned maintenance soon (Red) condition	Annual	National Indicator SW Benchmarking HIAMP	Minimise decline in roads in good condition from 25% to 49% by 2025	<25%	28-32%	32-40%	>40%

Strategic: Key Business Question: How effectively are we managing the highway asset infrastructure?							Performance Level			
		Strategic Indicators of a well-managed network are:	Means of Measurement	Indicator collection frequency	Collected for:	Target:	Excellent	Good	Fair	Poor
	2.2.10	The condition of the vehicle restraint systems is nationally recognised as good	??	Annual	HIAMP					
	2.2.11	Drainage schemes which will protect property, protect and support a resilient highway network and enable safe travel are identified and completed quickly	Percentage of schemes completed within 12 months of identification	Annual	HIAMP	100% of Priority 1 drainage schemes are completed within 12 months	100%	99-95%	95-90%	<90%
	2.2.12	The condition of the Primary footway network is nationally recognised as good	Footway Network Survey. The percentage of footways in structurally unsound condition	Annual	HIAMP		< 4%	5-6%	6-10%	>10%

Strategic: Key Business Question: How effectively are we managing the highway asset infrastructure?							Performance Level			
	2.2.13	The condition of the Secondary footway network is nationally recognised as good	Footway Network Survey. The percentage of footways in structurally unsound condition	Annual	HIAMP		< 6%	6-8%	8-14%	>14%
		Strategic Indicators of a well-managed network are:	Means of Measurement	Indicator collection frequency	Collected for:	Target:	Excellent	Good	Fair	Poor
	2.2.14	Highway street lighting is in good condition	The percentage of columns older than their recommended design life	Annual	HIAMP	<5% of columns are older than their recommended design life	< 5%	5-8%	8-12%	>12%
	2.2.15	The public rights of way network is easy for people to use	Former best value indicator 178. The percentage of PROW that are easy to use.	Annual	HIAMP	90% of PROW are easy to use	>92%	92-90%	90-80%	<80%
	2.2.16	Traffic signals and pedestrian crossings are in good condition	The percentage of signal junctions and pedestrian crossings that are older than 15 years	Annual	HIAMP	< 20% of traffic signals and crossings are over 15 years old	< 20%	20-22%	22-25%	>25%

Strategic: Key Business Question: How effectively are we managing the highway asset infrastructure?							Performance Level			
		Strategic Indicators of a well-managed network are:	Means of Measurement	Indicator collection frequency	Collected for:	Target:	Excellent	Good	Fair	Poor
	2.2.17	The gully cleansing programme is completed within timescales set out in our policy	Percentage of gulleys emptied within policy timescales	Annual	SW Benchmarking HIAMP		100%	99-95%	95-90%	<90%
From Group 2: How safe is it to use our highway network?	3.1.1	Skid resistance surveys indicate high levels of skid resistance	Percentage of A- roads in satisfactory condition	Annual	SW Benchmarking HIAMP		>90%	90-85%	85-80%	<80%
From Group 1: How well are we communicating with citizens?	1.3.1	Citizens are aware of the highway asset management approach	Citizen surveys	Annual	HIAMP	Target to be developed following measure from initial survey				
From Group 1: How well are we communicating with citizens?	1.3.2	Local representatives (members and parish councils) understand the highway asset management approach	Engagement survey	Annual	DH KPI 5.1 HIAMP	Target to be developed following measure from initial survey				