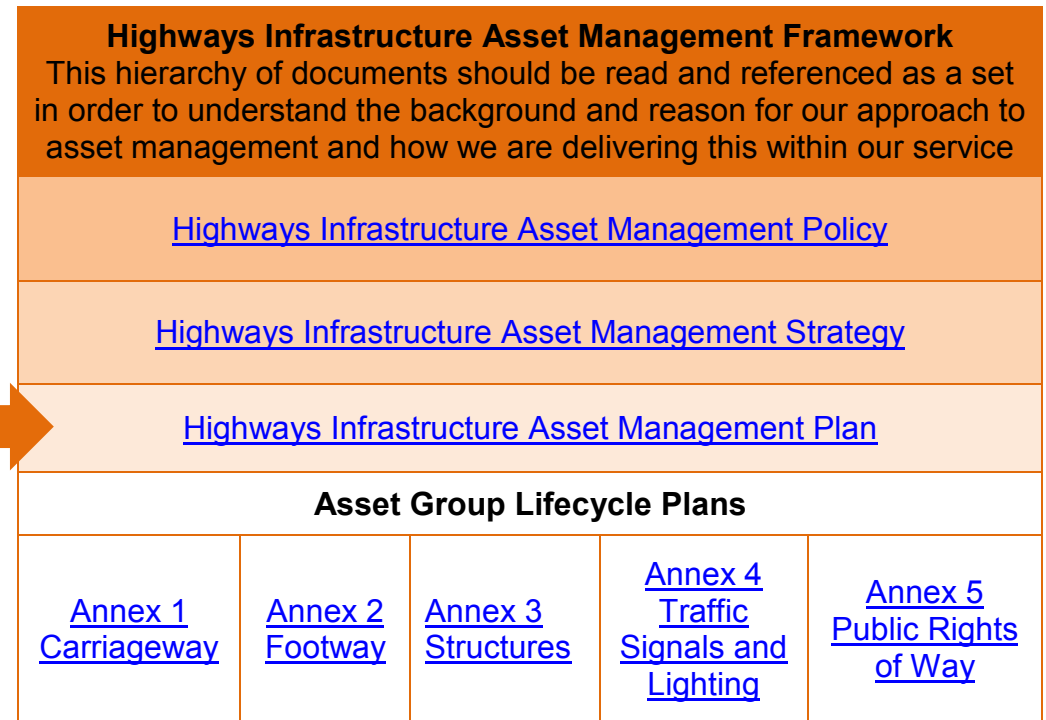


# Highway Infrastructure Asset Management Plan

## Contents

- Foreword
- 1 Purpose and Scope
- 2 Value of our highway assets
- 3 Inventory and Data
- 4 Levels of Service
- 5 Lifecycle Plans
- 6 Works Programme
- 7 Managing Risks
- 8 Evaluation and Review
- 9 Annexes
  - a. Annex 1 – Highways
  - b. Annex 2 – Structures
  - c. Annex 3 – Traffic Signals and Lighting
  - d. Annex 4 – Public Rights of Way



# Highway Infrastructure Asset Management Plan

## Foreword

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The highway network is the most valuable asset that the County Council manages and maintains. It is key 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.

Highway asset management is a way of running the 'business' of operating a highway network. This document, the Highways Infrastructure Asset Management Plan (HIAMP), identifies highway assets and develops a framework to enhance existing good practice and improve the effectiveness of decision making. The key driver is a long term or 'whole-life' approach to decision making, choosing the right time in the assets' life to repair or replace in order to get best value and performance.

Importantly an asset management approach also helps us to understand the value of the highway asset and the costs linked to maintaining it, to limit further deterioration and contain the backlog of required maintenance. Like all authorities, Devon is facing significant budget pressures and it is critical that there is a clear understanding of the links between levels of service delivery and funding. Yet typically, discussion at budget time is often about funding new projects, with limited consideration given to looking after what we already own. Providing the highest levels of service against shrinking budgets is a challenge and it is hoped that this document will provide a framework for moving forward.



Photo Credit: [Julian Roskilly](#)

Our asset strategy for highways clearly links to the Council’s Corporate Strategy and has been developed to take account of the various national codes of practice and the Highways Maintenance Efficiency Programme (HMEP) asset management guidance. Where possible we have adopted industry or emerging best practice from others including through our collaborative work with the South West Highways Alliance.

The document has been developed as a living document as we recognise the asset management journey we are on and the need to continue to develop the plan as well as to adapt to changes in legislation and guidance. We have been recognised by the Department for Transport (DfT) for developing new ways of working to help us tackle the challenges we face including our innovative approach to encouraging localism and inspiring communities to get involved in helping to maintain their local highway assets. Formal approval of this document by the Council indicates approval of the approach and the use of the HIAMP as a tool for managing our highway assets.

This document together with the asset policy statement and the asset strategy sets the framework for delivering highway maintenance in Devon in the medium term to long term. Together they will ensure the aims set out in the Corporate Strategy for Devon to be a safe and healthy place to live will be achieved and that people who reside in, or visit, the County benefit from an effective, safe and sustainable highways network.



**David Whitton**  
**Chief Officer for Highways, Infrastructure Development**  
**And Waste**



**Councillor Stuart Hughes**  
**Cabinet Member for Highway**  
**Management & Flood Prevention**

# 1 Purpose and scope of the plan

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## **Purpose:**

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 nationally recognised framework.
2. Enable improved information and 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 deterioration and 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 us to have a planned approach to future maintenance challenges
6. Identify and access potential funding streams for addressing maintenance issues
7. Understand the implications and risks to the network from reduced funding by asset group
8. Explain how we manage highway assets and how we propose to face the challenges of managing these assets in the future.

## **Scope:**

The HIAMP includes all Devon County Council maintained highway assets and their components. We focus the greatest detail on the assets of highest value, such as roads, bridges and the street lighting infrastructure. The groups of assets within the scope of the HIAMP are:

- Highway Network (carriageways, footways and cycleways)
- Drainage
- Street Lighting
- Public Rights of Way
- Structures (bridges, retaining walls)
- Traffic Management Systems
- Street Furniture

## **Our highway infrastructure assets:**

As the Local Highway Authority, Devon County Council has the duty to maintain a road network of 7,710 miles comprising:

- 582 miles of principal (A) roads
- 396 miles of non-principal (B) roads
- 2,706 miles of non-principal (C) roads
- 4,026 miles of unclassified roads
- over 1,800 miles of footways
- over 3,500 bridges
- 1,579 retaining walls
- highway embankments
- road restraint systems
- traffic signal installations
- cycle ways
- over 80,000 street lights and illuminated signs and bollards

## Key elements of the plan

The HIAMP is an evolving document that will shape long term management and service delivery. This document follows a review of the Highway Asset Management Plan approved in March 2013, which focussed primarily on the highway network assets. Since the approval of the original plan, national guidance has been produced by the Highway Efficiency Maintenance Programme (HMEP) which recommends having an integrated plan incorporating all highway infrastructure assets. We have developed this HIAMP document in response to the HMEP recommendations.

In developing our HIAMP we are drawing on the specific guidance published by HMEP in 2013, “Highway Infrastructure Asset Management Guidance” which was part of the DfT highways efficiency programme. To achieve the appropriate level of benefit from asset management we are implementing the 14 recommendations from that guidance as follows:

1. **Asset Management Framework**- An [Asset Management Framework](#) has been developed and endorsed by senior decision makers. All activities outlined in the Framework are documented in the supporting Policy, Strategy, Plan and Appendices.
2. **Communications** – We have set out our [strategy for communicating](#) our asset management approach to all relevant people and have an [action plan](#) with details of ongoing activities.
3. **Asset Management Policy and Strategy** – We have developed and published our asset management policy and a strategy which aligns with the corporate vision

### Our Performance Management Framework:

Looks for answers to these Key Business Questions:

1. How well are we controlling our budget?
2. How well managed is our service?
3. How well are we communicating with citizens?
4. Are we doing what we say we will do?
5. How effectively are we managing the highway asset infrastructure?
6. How safe is it to use our network?
7. How well are we managing activities on the highway network?
8. How well are our contractors delivering the work?
9. How have we enabled and supported communities?
10. How innovative and collaborative are we?

and demonstrates the contribution asset management makes towards achieving that vision.

4. **Performance Management Framework** - A performance management framework for the Highways and Traffic Management Service is being developed. The framework aligns with corporate and service objectives and the asset management strategy. The [Performance Management Framework](#) focusses on answering 10 key business questions and monitoring our performance levels in terms of excellent, good, fair or poor. Within the framework is a specific set of KPIs for [monitoring the HIAMP](#).
5. **Asset Data Management** – Our highway asset data is held in our Integrated Highways Management System (IHMS) currently provided by WDM and known as iWays. This system enables us to collect, store, manage and report our key asset data for highway network, structures and street lighting. Records of inspection, reactive maintenance, customer contact and collisions are recorded on this system as well as data from road condition surveys. Our approach to data management is outlined in the Inventory and Data chapter ([Link to 4](#)) and in our [Data Management Strategy](#).
6. **Lifecycle Plans** - Fundamental to asset management is a sound understanding of how an asset is likely to behave and deteriorate throughout its service. We use [Lifecycle Planning](#) to decide which maintenance activities are required within what timescales to maintain the asset and ensure it provides the level of service that is required. Lifecycle planning also helps us to support investment decisions and substantiate the need for appropriate and sustainable long term investment. We are adopting a systematic approach to managing the life of an asset to minimise the whole life costs and to enable us to produce lifecycle plans. These life cycle plans form a long term strategy for managing our assets or group of assets, with the aim of providing the required performance while minimising whole life costs.
7. **Works Programme** – We are working towards developing prioritised forward works programme for a rolling period of three to five years. In [Chapter 7 Works Programme](#) we detail how programmes of work are developed. Our current highway network (roads, footways, drainage) [Works Programme](#) is available on our maintaining roads webpage.
8. **Leadership and Commitment** – Our Senior decision makers have demonstrated leadership and commitment to enable the implementation of asset management by approving the HIAM Policy and Strategy and the contents of the HIAM Plan. Additionally the commitment to the principles of asset management has been demonstrated in our [Business Plan for 2015-21](#), and through our communication to stakeholders as detailed in our [Asset Communication Strategy](#) and [Asset Communication Action Plan](#). The [roles and responsibilities](#) appendix sets out which groups, and roles within groups, are responsible for aspects of the HIAMP, both in terms of specific groups of asset, such as structures or lighting, and enabling functions such as performance management and communication.

9. **Making the Case for Asset Management** - The case for implementing the Asset Management Framework has been made by clearly explaining to Cabinet, the Cabinet Member for Highways and other stakeholders, the funding required and the wider benefits to be achieved. This is demonstrated in Annual Reports to Cabinet by the Head of Highways, Capital Development and Waste at the commencement of the financial year: [County Road Highway Maintenance Capital Budget: Progression 2015/16 Schemes and the 2016/17 Programmes](#) and the [County Road Highway Maintenance Revenue Budget and On-street Parking Account 2016/17](#).
10. **Competencies and Training** – We are developing our competency criteria for all roles within the service as part of our [Team Development Plan](#), and in particular for those associated with the delivery of the HIAMP. Competency checks are done by managers during our standard performance management processes with staff on a regular basis. Where training is identified, a programme of support is put in place. Within the Highway Asset Management Group, we have identified that the Highway Asset Senior Officer role should attain the Institute of Asset Management’s Certificate qualification.
11. **Risk management** – We maintain a [risk register](#) which identifies early warning indicators, assesses the risk and identifies mitigation. Section 8 [Risk Management](#) covers how we assess and measure risks and details the key risks to the highway assets.
12. **Asset Management Systems** – Our principle system for asset management are the Integrated Highway Management System (IHMS), currently provided by WDM iWays. We also have a Public Information Portal (PIP) available via our website for the public to report concerns. The PIP functionality is currently being further developed to enable:
  - improved live information on the status of inventory items such as if a grit bin has been filled or when a gully was last cleaned
  - improved ability for the public to report issues with asset inventory items.
13. **Performance Monitoring** – The performance of the Asset Management Framework will be monitored and reported against [Levels of Service](#) and a Performance Management Framework of 10 key business questions as described in point 4 above. This will be reported:
  - Strategic level - annually to Elected Members
  - Strategic and Tactical level - quarterly to the Senior Leadership Team



- Operational level – monthly to managers responsible for delivery of each asset group, or responsible for an associated enabler, such as communication

14. **Benchmarking** – We undertake local and national benchmarking to compare our performance of the Asset Management Framework and to share information that supports continuous improvement through membership of the South West Highways Alliance and the affiliated Benchmarking Club. We are also active members of local authority and national groups for various asset groups.



Photo credit: [Julian Roskilly](#)



## Why Asset Management

Although asset management for highways assets has been promoted for many years, many struggle with the concept of transferring asset management principles to the management of roads. Roads cannot be sold and do not provide an income stream, they require significant expenditure to maintain consuming resources and often generate customer dissatisfaction so it is not surprising that they are often seen as a liability rather than an asset.

One of the keys to improving value for money in highways maintenance is knowing and understanding when and how to intervene. By considering an asset over a whole life cycle, it is possible to select the best time to intervene. This will maintain road condition and preserve the asset in an economically viable way.

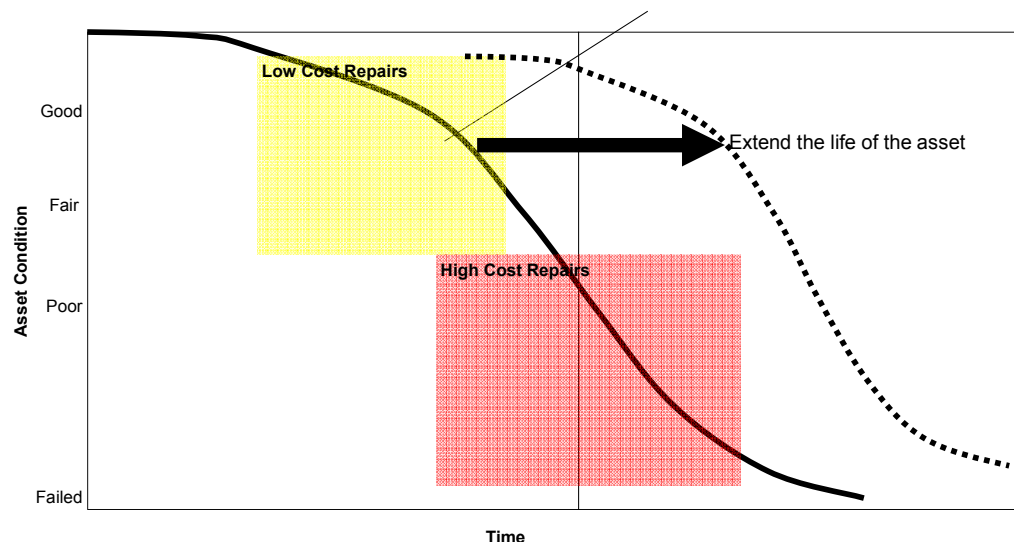
Typically there are two options for prioritising spending on road maintenance:

- Worst first – focusing maintenance on the stretches of road in the poorest condition. This is a high cost approach, which meets short term public satisfaction but is not forward thinking and results in fewer roads being treated.
- Whole-life cost – focusing maintenance to minimise the total maintenance costs over the lifetime of the asset. This strategy prioritises some funding for preventative works and recognises that some assets will remain unrepaired.

This graph illustrates the financial benefits of intervening at the right time in a roads life cycle. Roads deteriorate over time depending on the volumes of traffic they carry and the environmental conditions they are subject to (weathering).

A road can often be cheaply restored to ‘nearly new’ condition and its life extended by intervening at the right point in the life cycle. As roads deteriorate further more expensive interventions may be required to restore the road to nearly new condition. Allowing roads to deteriorate below the failure threshold therefore represents poor value for money.

**Carriageway Asset Life Cycle**



## “You fixed the wrong road!”

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One of the key aims of our asset strategy is to move towards a preventative approach to the maintenance of highway assets and prioritise roads and other highway assets that have not yet fallen into the failure range. Whilst carrying out maintenance on a road that doesn't look to be in need of repair may seem wasteful and unnecessary, this will often be the right choice and ultimately deliver the best value for the road user in the long-term.

Focusing on the worst roads first may not be the best approach to managing with less funding. Devon needs to be tougher in prioritising long-term demands over short-term demands, to minimise costs and deliver value for money over the long term particularly when we know that pressure on budgets is likely to continue for many years. If the County were to give a greater priority to worst-first which has the biggest immediate impact for road users it would over time, result in deterioration of a much greater share of the road network.

### **The Benefits of Asset Management**

The adoption of asset management practices will make more efficient use of available resources, delivering value for money and providing a service that is aligned to its customers. This is demonstrated by:

- Alignment of the Council's objectives with delivery of the service;
- A comprehensive understanding of the asset and the associated liability;
- A programme of inspections and surveys to record current asset condition;
- Defined Levels of Service;
- Adoption of a lifecycle approach to the management of the asset;
- Explicit identification and management of risks;
- Decision making that is based on the relationship between the asset and the Council's Priorities and Objectives through Levels of Service;
- Demonstrating the consequences of funding decisions;
- Considering the current condition and priorities required to maintain the asset and the network.

## Asset Management Framework

Asset Management is a rational process that links stakeholder expectations, Government transport policy and the Council’s Corporate Plans. It also considers operational and tactical management through organisational and business processes and systems which manage the flow of information. An additional benefit will be that it starts to link highway network needs with Value Management and Risk.

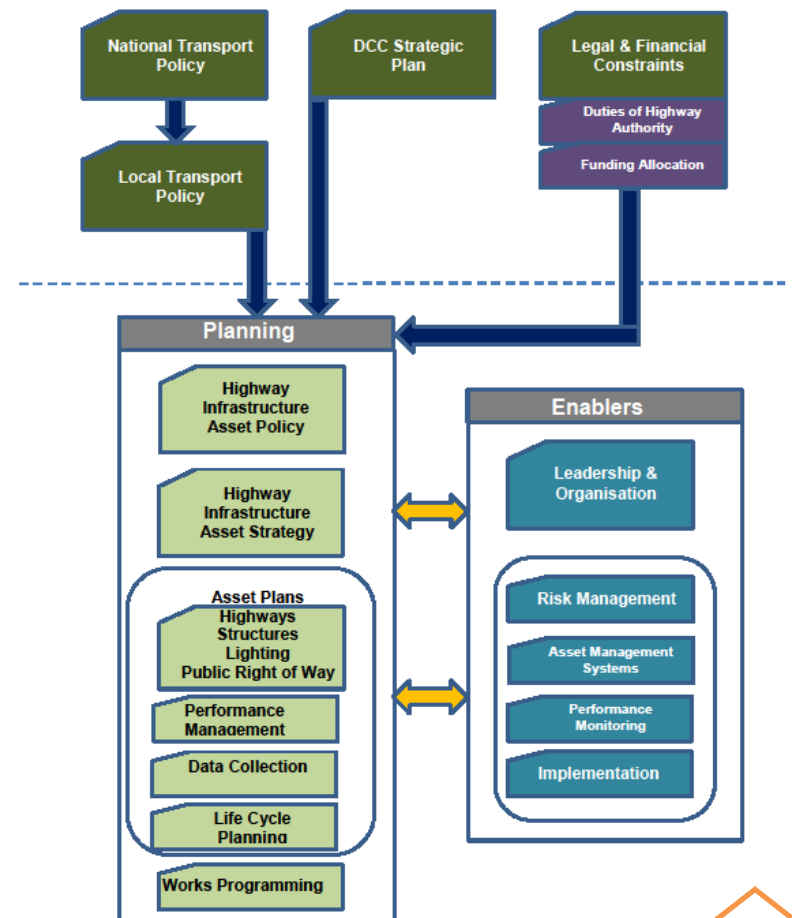
Devon’s Highway Asset Management Framework comprises the activities and processes that are necessary to develop, document, implement and continually improve asset management.

The framework is presented in three parts:

- Context – provides the structure and context within which the highways service is delivered.
- Planning – the key activities and processes and how they apply to managing the highway asset
- Enablers – support the implementation of asset management.

### DCC Highway Asset Management Framework

#### Context



## 2 Value of our highway assets

Whole of Government Accounting (WGA) has been introduced for highways local government accounting. There is a phased introduction to this method, which is moving away from the historical cost method traditionally used to assess the value of local authority highways assets. Annual depreciation not only represents the annual consumption of service benefits but also provides a measure of what needs to be spent, on average, year on year to maintain the assets in a steady state.

The WGA method is based on the value of the replacement cost of assets owned and maintained by the highway authority. The figures required are the:

- Gross Replacement Cost (GRC) - based on the cost of constructing an equivalent new asset.
- Depreciated Replacement Cost (DRC) - the current cost of replacing an asset with its modern equivalent asset, less deductions for all physical deterioration and impairment.
- Depreciation - the cost of restoring the asset from its present condition to 'as new' - this is the difference between the GRC and DRC.
- Steady State – the annual expenditure required in order to maintain the network in its overall current condition

Estimates are calculated on the basis set out in the “CIPFA Code of Practice – Guidance to Support Asset Management, Financial Management and Reporting” (published March 2010).

The 2015/16 valuation illustrates that the cost of addressing the backlog of repairs to provide assets in 'as new condition' is just over £1.3 billion.

**Devon County Council 2015/16 WGA submission**

	<b>GRC estimate (£'000)</b>	<b>Depreciation (£'000)</b>	<b>DRC estimate (£'000)</b>
<b>Carriageway</b>	10,313,194	806,462	9,506,732
<b>Footway &amp; Cycle Tracks</b>	420,792	105,854	314,938
<b>Structures</b>	1,238,318	324,599	913,719
<b>Lighting</b>	82,750	52,284	30,466
<b>Traffic Management Systems</b>	20,869	13,345	7,523
<b>Street Furniture</b>	90,510	58,011	32,499
<b>Land</b>	4,899,633		
<b>Total</b>	17,066,066		
<b>Total Excluding Land</b>	12,166,433	1,360,555	10,805,878

## Our funding

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Funding for Devon County Council's Highways and Traffic Management service is either a Capital or a Revenue allocation.

**Capital expenditure** reflects investment in an asset and is defined as “expenditure which adds to, and not merely maintains, the value of a fixed asset.” Highway works eligible for capital funding include activities that:

- extend the life of the asset, such as resurfacing schemes
- enable construction of improved infrastructure, including the acquisition of land, such as the South Devon Link Road
- replace an existing feature with an enhanced structure, such as major drainage improvements and the construction of new retaining walls.

The majority of capital funding comes to us as a direct grant from central government with the remainder allocated by County Council borrowing or from capital receipts, such as sale of land. The highways capital budget is set by adopting an asset based approach. This involves a systematic strategic review looking at:

- Highway condition data and other intelligence, such as customer feedback
- Spending requirements for each asset group, such as bridges, main road network, drainage, street lighting etc., are then determined.

**Revenue expenditure** covers day to day expenditure and income, including works which maintain, rather than increase, the value of a fixed asset. Some examples of revenue items are works involving repair of safety defects, minor drainage repairs, grass cutting and winter maintenance. It also includes the running costs of the service, such as staffing, premises costs and income received from licences etc.

Revenue funding is available via the community charge, business rates and funds provided by central government. Another source of revenue funding is the on-street parking account. Any surplus revenue generated from on-street parking after the operating and management costs have been accounted for can be spent on things like public transport provision, highway improvements and environmental highway maintenance work.

Highways revenue budgets have been through a rigorous ‘zero based’ budgeting review in recent years in order to drive out the required efficiencies from budgets that had previously been allocated on a historical basis. Where possible budgets are now based on need with the overall strategy focused on maintaining a prescribed level of service over the long term.

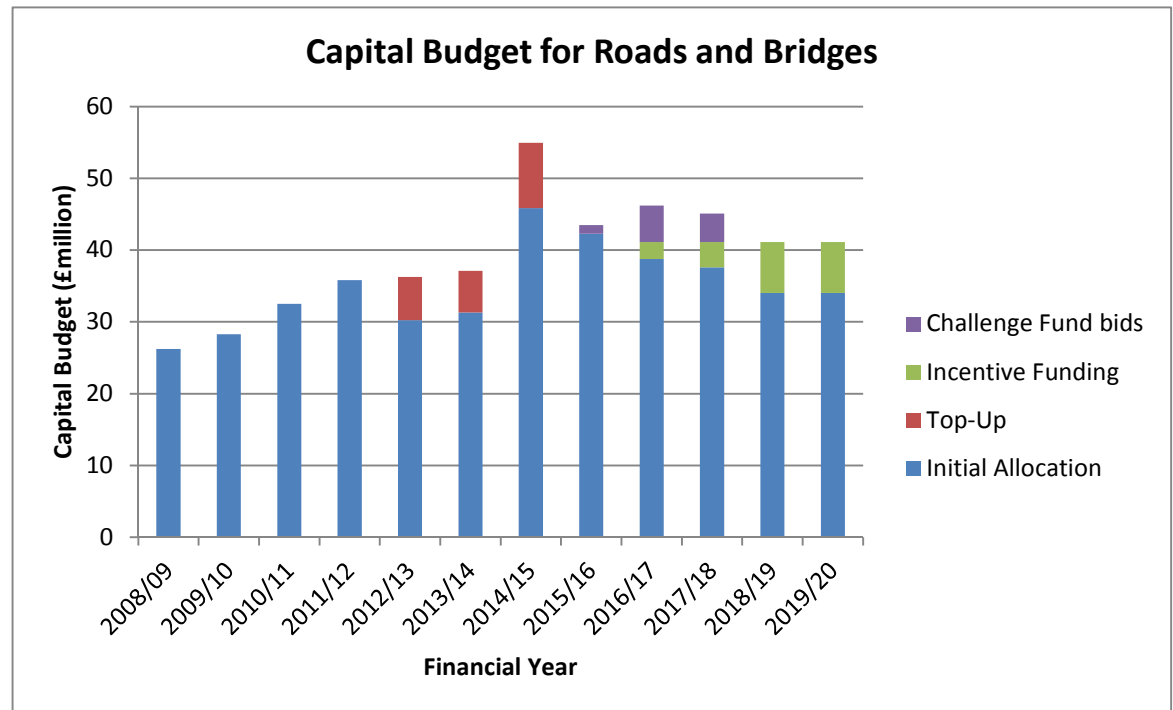
## Asset Management Incentive Funding

In November 2014, the Department for Transport (DfT) announced a new formula for allocating Local Highways Maintenance funding allocations. The funding is now based on a Needs Formula, an Incentive Fund and a Challenge Fund. The approach enables better planning for local authorities with a six year allocation.

The Incentive Funding is awarded based on the completion of an annual self-assessment questionnaire which looks at how well the authority is delivering services and adopting an asset management approach. Authorities are scored in bands with level one authorities receiving less funding and level three authorities receiving their full funding allocation. During the first year of the programme (when no funding was at risk), Devon was found to be a band two authority. A detailed gap analysis was completed to ensure continued improvement and that by 2017/18 the authority will be assessed as band three and receives the full funding allocation. Our latest [Incentive Funding questionnaire](#) demonstrates the improvements Devon has made in implementing asset management into our highways service operations.

In 2016/17 Devon was successful in attracting £10.2m from the Challenge Fund specifically for a programme of LED street lighting aimed at reducing energy costs and carbon emissions.

In order to prepare for an anticipated further round of Challenge Fund bidding in late 2016 officers are developing an economic business case for investment in minor roads for additional expenditure on roads we wouldn't normally have funding for.





### 3 Inventory and Data

Data management is fundamental to the overall asset management process. In order to apply an asset management approach there are three types of data that are required:

- Inventory – details of the number, location, size, type, age and make up of each asset.
- Condition – measurement and rating of the condition of the asset.
- Use – details of how the assets are used.

These records will enable Devon to:

- Monitor and report on the condition of the highway network.
- Assess the expected life of assets or their components.
- Assess current levels of service and develop future levels of service.
- Assess current and future performance indicators.
- Model future maintenance options and identify future investment strategies.
- Develop long-term forward work programmes and associated budget requirements.
- Carry out valuation assessments of each of the assets and calculate depreciation.



Photo Credit: Julian Roskilly

Effective asset management is not just about the assets to be managed, it is about the systems and business processes used to manage those assets. As such there is a need to examine processes, storage and usage of the data.

#### Management Systems

Our highway asset data is held in our Integrated Highways Management System (IHMS) currently provided by WDM and known as iWays. This system enables us to collect, store, manage and report our key asset data for highway network, structures and street lighting. The iWays system is accessible to relevant staff and the Public Information Portal (PIP) is available via our website for the public to report concerns. The PIP functionality is currently being further developed to enable:

- improved live information on the status of inventory items such as if a grit bin has been filled or when a gully was last cleaned
- improved ability for the public to report issues with asset inventory items

Records of inspection, reactive maintenance, customer contact and collisions are recorded on this system. We use the data when undertaking any assessment and review of the highway asset. We commission surveys across the network to obtain carriageway (road) condition data. This information is analysed using UK Pavement Management System within iWays.

Our [Data Management Strategy](#) sets out how we manage data within these systems. We have also completed a gap analysis to identify asset area where we have no inventory data or limited condition data and priority assessed these to ensure that we continue to invest in gathering data that will assist us in making better decision going forward. The [Inventory Gap Analysis](#) helps to ensure that we collect the right data and don't collect data unnecessarily.

## Networks

In order to store data effectively and efficiently it must be referenced geographically. We have developed and must maintain a number of digitised 'networks' which allow us to capture and organise our asset data. By network referencing assets it enables us to know what assets we own on even given road, what extent of the land is highway (extent of our responsibilities) as well as what condition those assets are currently in. It also helps us in programming work. An example of this is how a safety inspector will record a highway defect against a specific road section so that we send the gang to the right location with the right materials to make the repair the first time. We can even identify the hazards and risks at the location so that the gang know what traffic management they will need in order to keep themselves safe whilst making the repair.

We maintain two networks to represent the Devon's Highway:

- the National Street Gazetteer
- the PMS network

The National Street Gazetteer is a record of all of the roads which we manage closely with the local district council's to ensure that it is updated as new roads are adopted from developers. This network is used for managing streetworks by utility companies as well as forming the backbone of our iWays works management systems.

The PMS network is used within the iWays system specifically for managing road condition data from inspection records and annual road condition surveys as well as recording completed capital structural maintenance works. It is different to the Local Street Gazetteer because it is defined by the physical characteristics of the highway rather than junctions and street names.



## 4 Levels of Service

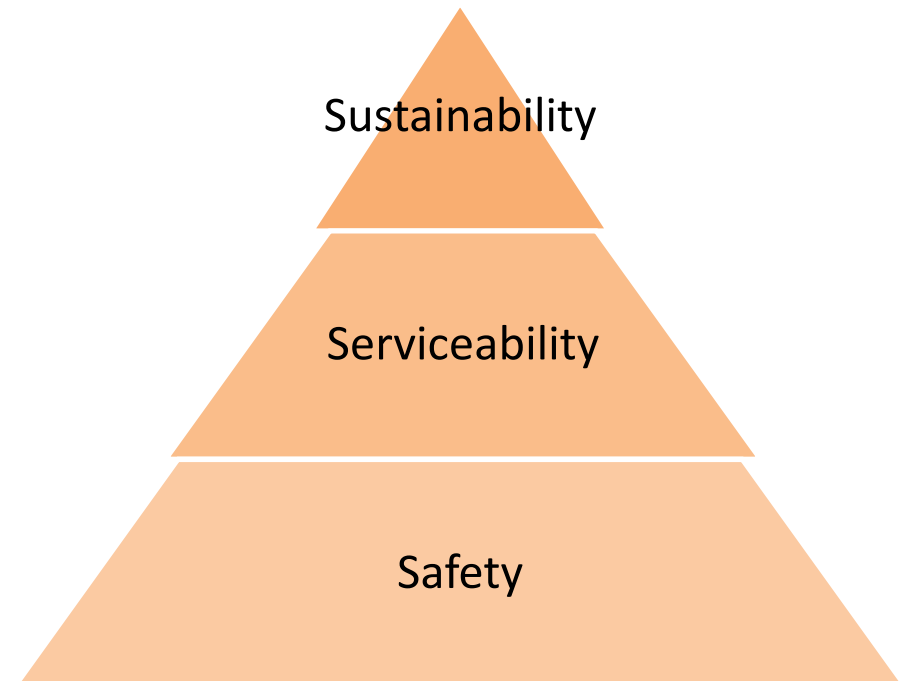
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Levels of service describe the quality of services provided by the asset for the benefit of the customers. They are composite indicators that reflect the social, economic and environmental goals of the community. Levels of service are therefore the manner by which the highway authority engages with the customer and are about reflecting the customer's interests in terms that can be measured and evaluated (*CSS Framework for Highway Asset Management*).

Levels of service define the required performance of particular asset groups. Well Maintained Highways - Code of Practice for Highway Maintenance Management identifies the following as a basis for development of levels of service.

- 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

We will apply this tiered level of service, as illustrated above, when considering the appropriate standards required for each asset group and component. Every aspect of highway maintenance for each asset group has the potential to contribute towards the core objectives of safety, serviceability and sustainability.



## Levels of Service

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Ultimately, from a customer perspective Levels of Service are about defining the minimum service standards. It is then up to the local authority to measure and monitor its performance against the service standards in order to determine if the levels of service being provided match up with the customer expectations and are in line with both national and local goals and objectives.

Determining service standards must involve an assessment of available funding as well as community need and desires. It is not beneficial to customers to set expectations of high levels of service delivery if funding pressures result in a lower level of service being delivered. In addition, in setting and determining service levels a local authority must also consider its obligations as the Highway Authority and not set service delivery standards below nationally expected codes of practice or endanger road users. Measuring risk and liability as well as the application of national standards at a local level must all be taken into consideration when determining a set of agreed minimal standards.

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:

- **Safe** and serviceable for people to use
- **Connected** - enabling access to and from communities for people, goods and services.
- **Healthy** - supporting and promoting active and healthy lifestyles
- **Prosperous** - contributing to wider economic growth
- **Resilient** - making effective and efficient use of our local resources promoting sustainable communities
- **Sustainable** - Is maintained appropriately to retain its value and condition into the future and contributes to wider environmental management.

## Monitoring Levels of Service Performance

How these levels of service translate to how we operate our highways service is critical to understanding the impact for users of the network. The table below gives an example of how some basic service provisions for carriageway assets relate to how they help us deliver our levels of service. The full [Level of Services Table](#) details the highways service provision.

Service standards are often full of jargon and technical speak. In an effort to understand what it really means for users of the highway asset we have also considered the range of provision of safety, serviceability and sustainability issues in an easy to understand [Maintenance Service Standards](#) table.

Level of service		Safe	Connected	Healthy	Prosperous	Resilient	Sustainable
Carriageway	Inspect highways at set frequencies and prioritise repairs to safety defects in accordance with the Highway Safety Inspection Policy.	✓	✓		✓		✓
	Respond within 2 hours to any occurrence or incident that poses a threat to life or renders the highway unusable or unsafe.	✓	✓		✓		✓
	Using road condition data develop and deliver an annual programme of carriageway structural maintenance repairs including resurfacing, patching and surface dressing to maintain roads within available budgets.	✓	✓		✓		✓

## Fit for Purpose Roads

Devon has a wide variety of roads and footways, from high volume dual carriageways in congested urban environments to single lane rural roads connecting small farms or villages. It is not possible to maintain every road to a high standard, the backlog of deterioration and limited funding available simply make this impossible. The travelling public should expect to find a condition which is safe and consistent with the type and location of that particular road or footway.

Simply put, a motorist would expect the condition of a Principal Class A road carrying high volumes of traffic at speed to be in a high standard of repair without safety defects or significant depressions in the running lane; whereas the motorist using an unclassified road in a very rural environment should not be surprised to find a road surface that may have minor potholes, depressions or other deterioration. Likewise, there is an expectation within the Highway Code that motorists drive at a speed appropriate to the type of road and the conditions.

This concept is captured by establishing a hierarchy of road types. Establishing a network hierarchy is key to providing a consistent maintenance strategy and crucial to asset management in creating levels of service. A road's hierarchy must reflect the needs, priorities and actual use of the road as determined by its functionality and importance. Devon's road hierarchy is detailed in [Annex 1 Highways](#)



Expectations for strategic network road condition are for a higher standard with no running lane defects and a smoother ride quality.



A typical fit for purpose rural unclassified road with some edge deterioration, over-riding, detritus and the occasional non-running lane pothole defect.

Photo credits: Julian Roskilly



## Performance Monitoring

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Measuring how a local authority is performing on delivering its service standards has always been difficult. No one single target or indicator can fully capture how well an authority is maintaining its highway assets. Devon has chosen to follow the example set by other lead authorities by using a simplified approach to measuring its performance. This approach first sets out the headline levels of service and then considers the specific levels of service for each asset group. It then considers what performance indicators the authority is already reporting at national level, for LTP3 monitoring and for local contract monitoring which could be used to measure the performance of the service level within each asset group. A workshop was held with members to help determine what set of KPI's not only fit the levels of service but were easily understandable and could be communicated with the public for measuring how the service was performing.

Each Level of Service can be delivered to varying standards depending on the investment provided. The following definitions are provided:

- POOR – Service delivers below minimum requirements
- FAIR – Service delivers at minimum requirements
- GOOD – Service constantly delivers above minimum requirements
- EXCELLENT – Service delivers well above minimum requirements.

### **Levels of Service Key Performance Indicators**

Strategic indicators related to the HIAMP are detailed in the tables on the following pages. The Highways and Traffic Management (HTMT) service has also developed a performance management framework which aligns with corporate and asset management aims. The majority of the indicators for the HIAMP relate to our purpose to maintain the highway network and specifically the one question “How effectively are we managing the highway asset infrastructure?”, but measures are also drawn from other key questions within the HTMT Performance Management Framework including some which directly measure the performance of our highways contractors.

Performance indicators have not been identified against each level of service as the selected indicators represent a strategic set of performance measures.

Level of service		Strategic Indicator	Means of Measurement	Indicator reported	Target	Performance Level			
						Excellent	Good	Fair	Poor
Overarching	Use an asset management 'whole life' approach to scheme prioritisation to ensure effective and efficient management of the asset.	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	Annual		<14 %	14-16%	16-20%	>20%
	Continue the development of community schemes such as the Community Road Warden Scheme (CRWS), Parish Paths Partnerships (P3), snow wardens, grass cutting, wild flower verge planting and similar community schemes to support sustainable communities.	Number of parishes, town councils or community groups taking up the schemes	As reported by Neighbourhood teams	Annual					

<b>Carriageways</b>	Inspect highways at set frequencies and prioritise repairs to safety defects in accordance with the Highway Safety Inspection Policy.	Completion of Safety Inspections on time	% of safety inspections completed on time	Monthly	100%	100 %	90-99%	80 - 89%	< 80%
	Continue the development of the Community Road Warden Scheme (CRWS) by providing training, equipment and materials to local volunteers to assist with repairing non-safety defects and carrying out minor amenity maintenance activities.								
	Respond within 2 hours to any occurrence or incident that poses a threat to life or renders the highway unusable or unsafe.	Response to emergency call outs within policy timescales	% of callouts responded to within timescales	Monthly		90-100 %	90-80%	80-75%	>75%
	Using road condition data develop and deliver an annual programme of carriageway structural maintenance repairs including resurfacing, patching and surface dressing to maintain roads within available budgets.	The condition of the road network is nationally recognised as good	National Road Condition Index Percentage of network requiring planned maintenance	Annual	Minimise decline to stay in top quartile performance nationally	A >4%	5-6%	6-10%	<10%
						B >4%	5 - 6%	6-10%	<10%
C >13 %						13-15%	15-20%	<20%	
Uncl as >25 %						25-32%	32-40%	<40%	
Survey skidding resistance on A roads and investigate, monitor	Skid resistance surveys indicate high	Percentage of A roads in	Annual		>90 %	90-85%	85-80%	<80%	

	and repair deficiencies and/or put up slippery road warning signs.	levels of skid resistance	satisfactory condition						
	Operate a winter service of precautionary salting and snow clearance on strategic roads and when possible on secondary routes as laid out in our Winter Service and Emergency Plan.	Precautionary gritting	% of routes started within the agreed start time (+/- 15 mins)	Monthly during winter	>95%	95 - 100 %	95- 90%	90- 85%	>85%
	Support communities in their efforts to salt local roads and footways by providing support and training to snow wardens as well as equipment and bagged salt where applicable.								
<b>Footways &amp; cycleways</b>	Inspect footways and cycleways at set frequencies and prioritise repairs to safety defects in accordance with the Highway Safety Inspection Policy.	The condition of the Primary footway network is nationally recognised as good	Footway Network Survey. The percentage of footways in structurally unsound	Annual		< 4%	5-6%	6- 10%	>10%
	Develop and deliver an annual programme of footway and cycleways maintenance repairs.								
<b>Structures</b>	Carry out structures inspections in accordance with the national code of practice.	The condition of bridges is nationally recognised as good	Report on Bridge stock using the County Surveyors Society Bridge Condition Indicator	Annual	Maintain condition index score within the 'good' range	100 - 95	94 - 90	89 - 80	<79

	Monitor those structures considered to be below standard.								
	Using condition data develop and deliver an annual programme of bridge and retaining wall maintenance and structural repairs to maintain structures within available budgets.								
	Target structures which are in the Poor/Very Poor condition band where this has a potential impact on safety.								
Drainage	Investigate reports of highway flooding and damaged or blocked highway drains and take appropriate measures to get water off the highway, alleviate or mitigate flooding as appropriate.								
	Cleanse gullies on the salting network and in rural areas on an annual basis; and all others on a three year rolling programme or at required enhanced frequency.	Percentage of annual/triannual cleans completed on time.	Contractors cyclical maintenance returns reporting number of gullies cleansed and percentage of programme completed	Quarterly	95% of programme completed on time	100 - 95	94 - 90	89 - 80	<79
	Jet drainage systems on a reactive basis as they are reported or found through inspection.								
	Carry out an annual programme								

	of grip cleaning and cutting.								
<b>Safety Fencing</b>	Assess safety fences when they are knocked down or damaged and repair or replace as required.								
<b>Highway Lighting</b>	Respond within 2 hours to reported traffic accidents involving lighting columns or other lighting emergencies.								
	Develop and deliver a programme of column repair and replacement in order to maintain the street lighting asset and reduce the risk of column failure.	Highway street lighting is in good condition	The percentage of columns older than their recommended design life	Annual	5% of columns are older than their recommended design life	< 5%	5-8%	8-12%	>12%
<b>Public Rights of Way</b>	Carry out regular ease of use inspections on footpaths.	The public rights of way network is easy for people to use	Former best value indicator 178. The percentage of PROW which are easy to use.	Annual	90% of PROW are easy to use	>92%	92-90%	90-80%	<80%
	Continue the development of the Parish Paths Partnerships (P3) by providing support, training, equipment, materials and funding to enable volunteer maintenance of footpaths.								



						90-100 %	90-80%	80-75%	>75%
Traffic management systems	Respond within 4 hours to signal failures.	Response to emergency call outs within contract timescales	% of callouts responded to within timescales	Monthly					
	Operate an annual inspection, electrical testing and repair regime for all traffic signals and pedestrian crossings.								
Street Furniture	Repair or replace any safety signs knocked down or damaged by routine traffic accidents.								
Land	Carry out annual programme of grass cutting to maintain safe visibility at junctions and visibility splays.								
	Inspect highways trees and prioritise repairs to safety defects in accordance with the Tree Inspection Policy.								

## 5 Lifecycle Plans

Lifecycle planning is the broad method that enables us to model the future consequences of investment in Infrastructure.

The elements of a lifecycle management plan are best described in diagrammatically, as shown here.

Understanding the objectives and policies for the authority is vital as this is likely to be where the funding is focused.

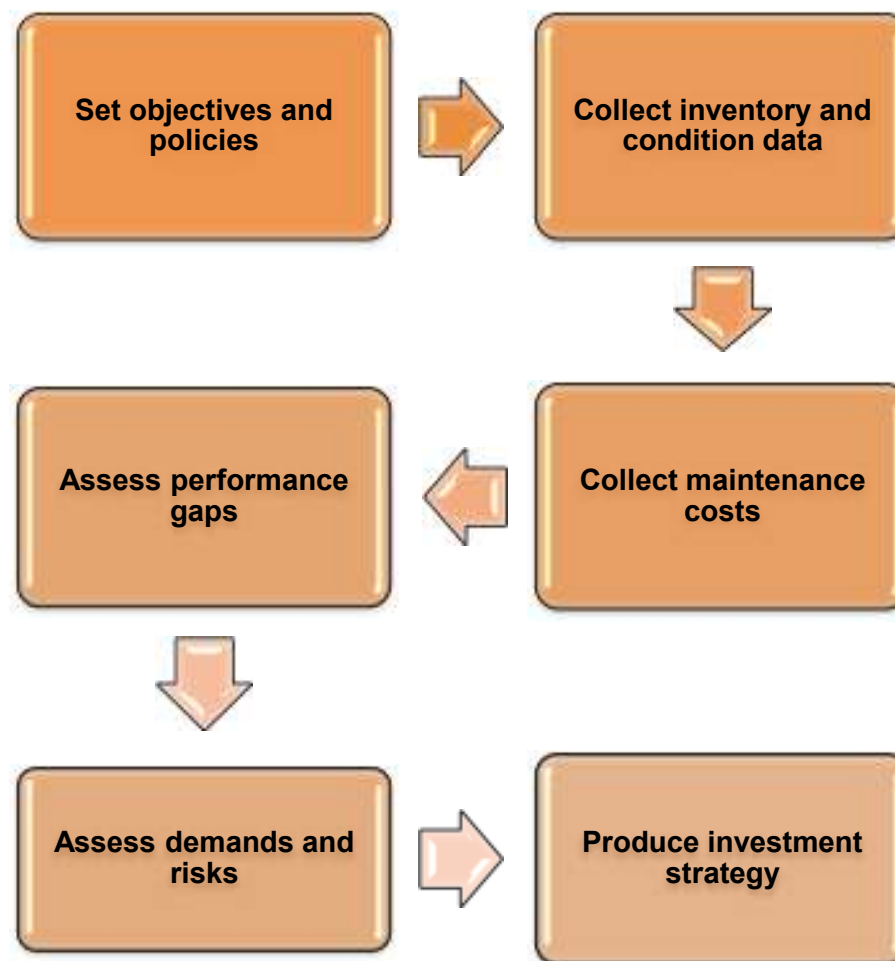
Knowing what assets exist, and what condition they are currently in, forms the basis for knowing what standard the authority would like to achieve.

A good knowledge of current maintenance costs for a range of treatments allows different investment strategies to be examined for the best whole life cost.

Comparing the current level of performance with the desired level of performance allows the 'gap' to be quantified and costed.

Before an investment strategy can be completed, it is also necessary to look at the demands and risks for the asset. The future demands that the asset will be placed under based on current knowledge, e.g. HGV traffic levels, will help to determine the necessary future performance. It is also important to identify risks to the asset, including the risks of not maintaining to the desired standard.

Effective lifecycle planning is about making the right investment at the right time to ensure that the asset delivers the requisite level of service over its full expected life, at the minimum cost.



## Lifecycle Plan Development

Highway assets have lifecycles that include the following phases:

- Creation/Acquisition
- Maintenance
- Renewal or replacement
- Upgrading
- Disposal or Decommissioning

Lifecycle plans aim to optimise the cycle of activities. The output from the lifecycle planning process is long term prediction of the cost of maintaining and operating the asset. They contain the details of how we manage the asset over the long term to deliver best value. With highway assets the focus tends to be on the maintenance cycle rather than the creation or renewal as the vast majority of assets are historical assets (roads and bridges) which the Council has maintained for many years.

We recognise that each asset group has distinct maintenance and investment needs within its lifecycle, but we are working towards developing consistency of approach across asset groups where a long-term benefit in doing so can be evidenced.

Lifecycle plans are living documents, updated as we gather and analyse information on each asset group. It should be noted that we are at different stages of development of the asset management approach with each asset group. We have developed separate Asset Group Lifecycle Plans as follows:

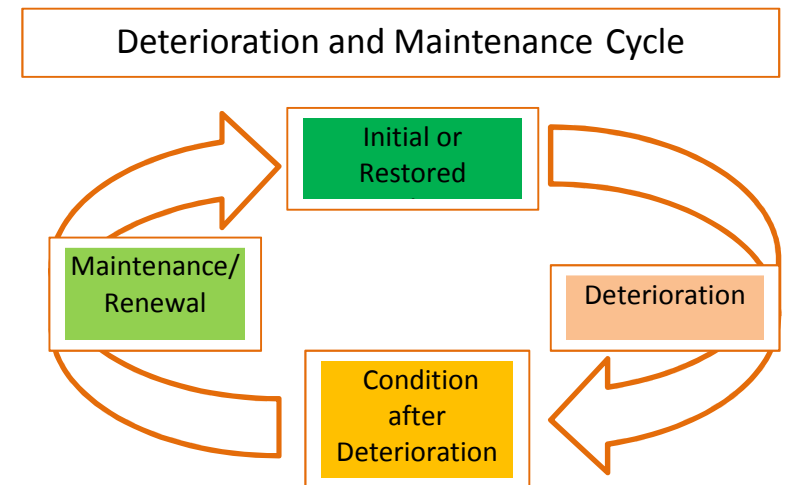
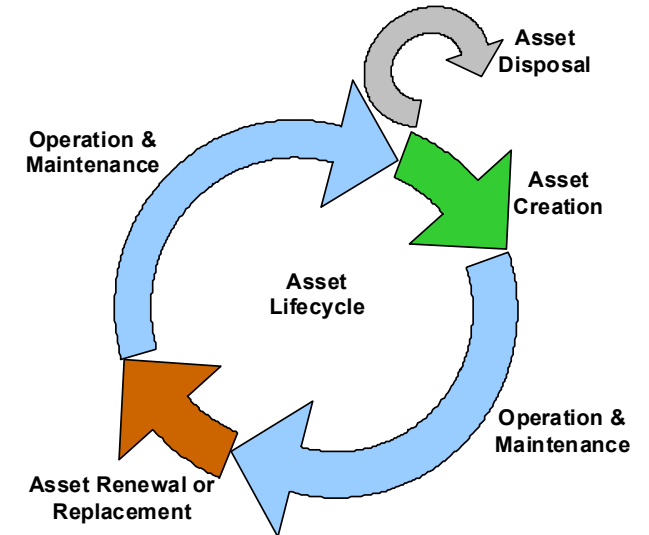
[Annex 1 – Carriageways](#)

[Annex 2 – Footways](#)

[Annex 3 – Structures](#)

[Annex 4 – Traffic Signals and Lighting](#)

[Annex 5 – Public Rights of Way](#)



The elements of a lifecycle plan are shown in the following diagram. Understanding the objectives and policies for the authority is vital as this is likely to be where the funding is focused.

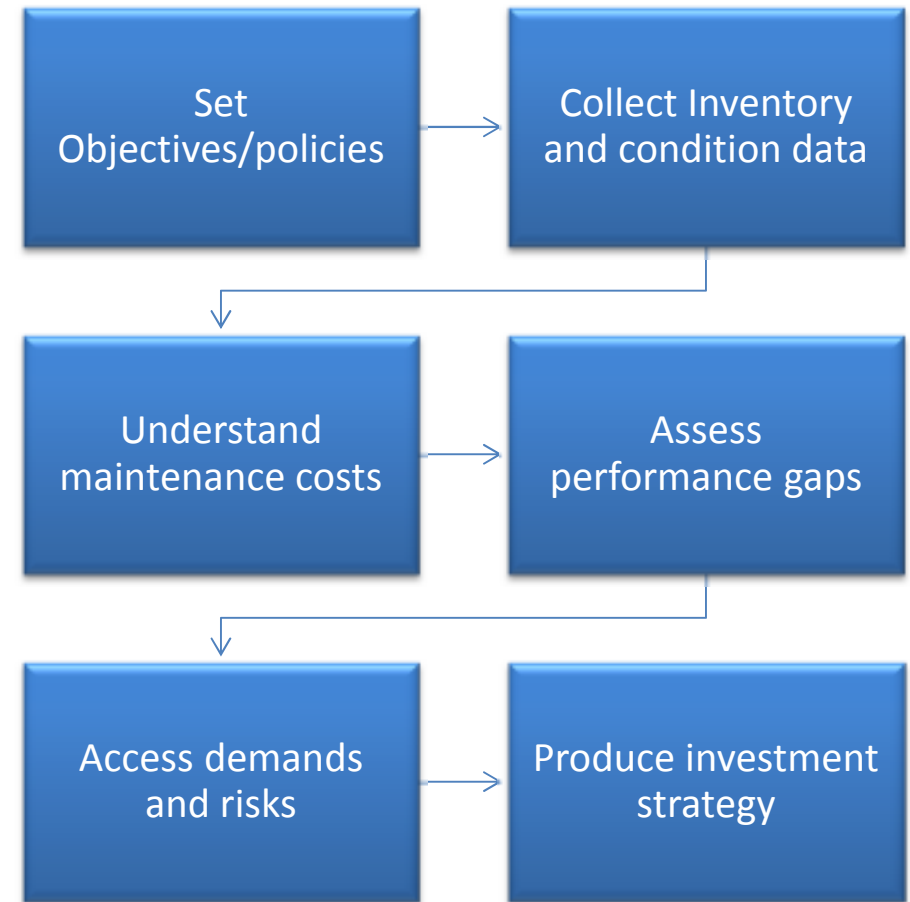
Knowing what assets exist, and what condition they are currently in, forms the basis for knowing what standard the authority would like to achieve.

A good knowledge of current maintenance costs for a range of treatments allows different investment strategies to be examined for the best whole life cost.

Comparing the current level of performance with the desired level of performance allows any ‘gaps’ to be quantified and costed.

Before an investment strategy can be completed, it is also necessary to look at the demands and risks for the asset. The future demands that the asset will be placed under based on current knowledge, e.g. HGV traffic levels, will help to determine the necessary future performance. It is also important to identify risks to the asset, including the risks of not maintaining to the desired standard.

Effective lifecycle planning is about making the right investment at the right time to ensure that the asset delivers the requisite level of service over its full expected life, at the minimum cost.



## 6 Works Programme

We prepare a three year programme of capital structural maintenance works based on identified need. A report summarising the programme of works delivered in the previous year and the proposal for how budgets are to be spent in the following year goes to Cabinet each spring for approval.

The first year of the programme is a delivery plan; whereas the second year and subsequent years of the programme represent a draft list of proposed schemes allowing members to see which scheme are likely to be built in the future so as to provide comment and input into the decision making.

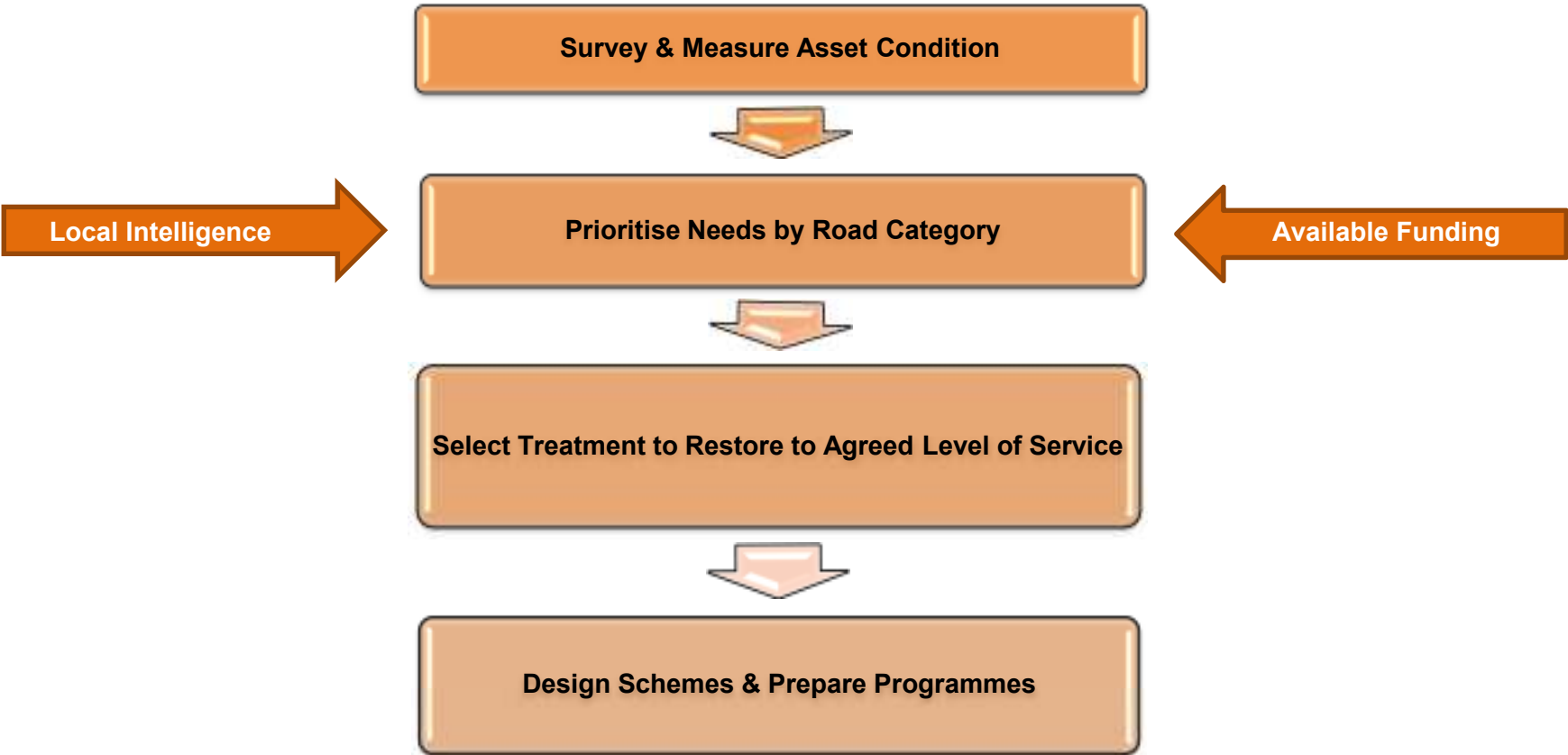
Schemes in the programme are selected through a process which involves prioritisation based on road condition and engineering data as well as needs led based on information provided by Neighbourhood Highways Teams. This dual approach is a fundamental step towards complete asset management and ensures that limited resources are targeted towards restoring the life of the sections of the networks with the greatest requirement, whilst always striving to meet local concerns. This approach is summarised in the diagram on the following page.

A three year programme of work is also prepared by the Structures team covering planned works to bridges and retaining walls. The Street Lighting team produce an annual programme of planned column replacement, lantern repairs and LED conversions.

We share these programmes of work on the Council's website at the following link:

<https://new.devon.gov.uk/roadsandtransport/maintaining-roads/>

**How the programme is developed**



## 7 Managing Risk

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Managing risk is an integral part of the management of the highway asset. All activities from management, identification and prioritisation of works to the establishment of budgets have risks associated with them. Ideally, risks should be identified at each level of the management hierarchy (strategic, tactical and operational) using tools and procedures to identify critical risks and then manage them.

Risk management is an integral part of good management practice; benefits include:

- Fewer surprises, a reduction, control or transfer of risk;
- Provision of a better quality of services;
- Improved planning, performance and effectiveness ;
- Increased ability to manage change;
- Contingency planning;
- Exploitation of opportunities and innovation ;
- Delivery of best value;
- Improved information for decision making;
- Improved accountability, assurance and governance;
- Improved economy and efficiency;
- Awareness of limitations;
- Improved stakeholder relationships;
- Enhanced reputation;
- Protection of decision makers (members, directors and officers);
- Personal wellbeing;
- Opportunity to design risk out.

The [Asset Management Risk Register](#) captures and rates the major risks to highway assets and records the control and mitigation mechanisms.

### Identifying Key Risks

- **Funding pressures**

Part of lifecycle planning includes identifying the level of funding required to maintain the status quo for condition of each asset. Over the next few years, public finances are going to be limited and it is likely that the Capital programme allocation will not be sufficient to meet the required standstill budget.

- **Future demand**

Given the importance of the road network to the economic vitality of the County there is a need to plan and develop the network for future growth

- **Climate Change**

The long term decisions we are making now about the repair and replacement of assets needs to



## Resiliency – adapting to climate change

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Transport assets have a wider social value above the Gross or Depreciated Replacement Costs. This can take various forms: - additional costs of transport using longer routes, the closure of businesses through loss of custom, the associated loss of jobs, the social impact of people having less spending power etc. Recently this was highlighted in the aftermath of events such as the 2012 floods in Devon and Somerset, the 2009 bridge collapses in Cumbria and the 2007 flooding in Gloucestershire. Within Devon there are specific parts of the transport network whereby loss of those parts would have a greater significance due to the lack of easy alternative routes. Potential landslip sites or the proximity to rivers that regularly flood can make some key routes vulnerable, and loss of these could create significant difficulties for local communities.

Climate change considerations include:

- Re-evaluation of design and design adaptation in view of impacts and climate proofing (including materials/assets to accommodate weather extremes).
- Ensuring developments minimise flood risks, e.g. by building the most vulnerable infrastructure away from the river edge or above extreme flood levels and incorporating flood proofing in high risk areas, e.g. planning for flooding at critical locations (e.g. use of flood boards) and ensuring critical components (e.g. switch gear, substations) are above flood levels or can be isolated.
- Incorporating climate change into routine risk management procedures to help prepare for future adverse events.
- Adapting to climate change costings can be minimised if adaptation is built in:
  - At the planning stage for new developments;
  - When infrastructure is upgraded;
  - When plans come up naturally for review; before organisations are forced to act by a sudden extreme climatic event(s) or mounting maintenance costs.
  - Where possible, decision-makers should avoid actions that will make it more difficult and costly to cope with future climate impacts, e.g. new infrastructure projects (such as storm drainage) should include a reasonable allowance for climate change risks where the costs of subsequent upgrading would be prohibitive or very difficult to engineer.



## 8 Evaluation and Review

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We recognise that developing sound asset management policy and processes is a journey and we have set out a plan for the future. Our Highway Asset Management Plan published in March 2013 focussed mainly on the highway asset group. This updated Highway Infrastructure Asset Management Plan published in 2016 brings together all highway assets and therefore includes our approach to structures, lighting, traffic signals, street furniture and public rights of way. This plan will be regularly reviewed and updated as we work towards our objectives. Key milestones we are working towards are:

2013	Highway Asset Management Policy, Strategy and plan published
2014-15	Working towards development of the HIAMP
2016-17	Highway Infrastructure Asset Management Policy, Strategy and Plan published Working towards development of a three-year forward maintenance programme for highest priority assets
2017-18	Working towards a consistent approach to lifecycle planning for highest priority assets within each asset group Working towards development of a four-year forward maintenance programme for highest priority assets
2018-19	Working towards a consistent ability to deliver lifecycle planning for highway priority assets Working towards development of a five-year forward maintenance programme for highest priority assets
2020-21	Working towards development of an updated HIAMP for the future - to consider legislation, funding availability, industry guidance and any other external factors that influence delivery of highway infrastructure maintenance.

The HIAMP is an evolving and complex document, which draws together diverse information, procedures and service guidance. It will therefore be reviewed and regularly updated to reflect improvements and change to operational practice. We will aim to review the policy and strategy at two years intervals. We will review the HIAMP and Annexes as and when service, national guidance or legislation changes require. During the course of developing the HIAMP a number of actions for future implementation have been identified; these are summarised in the [HIAMP Action Plan](#).



An Equalities Impact Assessment has been completed covering the Highways Infrastructure Asset Management framework of documents. The assessment will be updated during the regular reviews of these documents or when changes are made to the documents which impact on equalities issues.