

Asset Management in Highways

Our approach to asset management in highways

Introduction

Kent County Council maintains 8,500km of highway network and associated “assets”.

Our roads, footways, street lights, bollards, traffic signals, gullies and drains, trees, grass verges, signs, road markings, bridges and other structures are all different types of highway asset. These assets help to ensure that journey around and through the County are safe and reliable. For example, they drain water off the road, provide directions to guide road users to where they want to go and improve the highway environment.

“Asset Management” describes a common sense approach to the maintenance and future investment decisions for all the parts (or what we call “assets”) that make up our highway.

This short guide outlines how we use asset management principles to support and achieve the County Council’s priorities.

Our Vision

The County Council has a five year strategic statement called “Increasing Opportunities, Improving Outcomes” and this sets out the following vision:

“Our focus is on improving lives by ensuring every pound spent in Kent is delivering better outcomes for Kent’s residents, communities and businesses”

Effective Asset Management is a key factor in upholding the County Council’s vision. Highway Asset Management is about spending the right amount of money at the right time to keep our assets working properly to meet the needs of our customers now and in the future. It is important that the decisions we make about maintenance priorities, levels of service and investment are shaped by an understanding of the current and future requirements of the County’s residents, communities and businesses.

Our Strategic Outcomes

The County Council is committed to achieving its vision through three strategic outcomes which provide a simple and effective focus for everything we do.

Effective asset management is vital in supporting the delivery of the County Council's three strategic outcomes:

1. Children and young people in Kent get the best start in life

A resilient road network enabling reliable, safe journeys will provide Kent's young people with access to work, education and training opportunities, supporting them to achieve their potential through academic and vocational education.

The requirements of Kent's children and young people now and in the future will inform the decisions we make about levels of service and maintenance priorities. Furthermore our long term view will enable us to maximise the benefits of the highway network for their future prosperity.

2. Kent communities feel the benefits of economic growth by being in work, healthy and enjoying a good quality life

Our roads play a vital role in Kent's economic prosperity. They provide access to shops, jobs, schools, friends, family and other opportunities. As well as connecting the County's towns and villages, Kent roads also provide a key strategic link between the Capital and ferry, air and rail services to mainland Europe.

Taking a long term view will enable us to deliver greater value for money. By making the right investment decisions we will be better able to maximise the benefits for future affluence and quality of life in Kent.

3. Older and vulnerable residents are safe and supported with choices to live independently.

Safe and reliable roads provide valuable access to services, amenities and social activities for older and vulnerable people supporting them to live with greater independence.

The demands of an aging population and the potential barriers to independent living will be recognised and inform decisions we make about levels of service and maintenance priorities.

Our Approach

Our highway network is very important; it is one of the most valuable assets we own. It enables safe and reliable journeys around and through Kent and in doing so supports social and economic prosperity. We are committed to good management of our highway

network not only now but also, for future generations and our approach is underpinned by asset management principles.

Asset management has been widely accepted by central and local government as a way of using knowledge and forward planning to manage the highway network efficiently and effectively. The benefits to Kent of implementing an asset management approach are:

- It facilitates the delivery of services that are shaped by the needs of our customers now and in the future
- It promotes a focus on the best use of resources and maximise efficiency to meet with our legal obligations
- It enables us to be more resilient and better able to respond to changes and financial challenges

We already take a largely asset management based approach to looking after our assets but there are still aspects that we want to develop to further enhance service delivery.

The following questions and answers explain our approach to asset management and highlight the actions that we plan to take to make improvements. Moving forward, progress against our Asset Management Action Plan will be reviewed and reported on an annual basis and captured in our [Business Plan](#).

1. What are KCC’s highway assets?

The highway network is made up of a diverse range of assets. Every year Central Government asks us to report on the value of our assets and we do this by estimating the value of replace them.

We have divided our assets into key asset groups as follows:

Asset Group	Quantity	Estimated Value (The cost of a like for like replacement)
Roads and Footways	<ul style="list-style-type: none"> → 8,500km roads; → 6,500 km footways → Associated lines & crash barriers 	£9.9bn

Asset Group	Quantity	Estimated Value (The cost of a like for like replacement)
Drainage	<ul style="list-style-type: none"> → 250,000 roadside drains; → 8,500 soakaways → 250 ponds and lagoons; 	
Structures	<ul style="list-style-type: none"> → 1595 bridges and viaducts → 568 culverts → 437 other structures 	£1.4bn
Street Lighting	<ul style="list-style-type: none"> → 120,000 street lights → 17,500 lit signs → 4,600 lit bollards 	£154m
Intelligent Traffic Systems	<ul style="list-style-type: none"> → 740 traffic lights → 120 CCTV cameras → 340 interactive warning signs 	£51m
Soft Landscape	<ul style="list-style-type: none"> → 500,000 trees → 8,604,000m² roadside verges → 54,000m² urban hedges 	-
Street Furniture	<ul style="list-style-type: none"> → Non illuminated signs → Pedestrian barriers → Salt bins 	£58m
Land	75km ²	£8.2bn
Total Estimated Value		£11.563bn

More detailed information about how we look after our assets can be found in our [Asset Plans](#).

In order to take an asset management approach and make informed decisions we need to understand our assets. We need to know:

- What they are,
- Where they are,
- What condition they are in,
- Whether or not they are meeting the needs of our customers and
- What we need to do to keep them working now and in the future.

To help us understand our assets we collect information about our assets. We call this information our “asset data”.

Action 1: We will ensure we have current, appropriate and complete data that supports the management of each of our main asset groups.

2. What asset data do KCC need to help them understand their assets?

We need three types of asset data:

- **Inventory:** This describes the full extent of an asset and can include location, age, size, construction and details of previous maintenance. Examples of how we collect this data include digitalisation of historic records, data collection exercises and as part of routine maintenance works.

This data helps us to plan maintenance activities and communicate with our customers. It also helps us to understand of the cost of replacing our assets with equivalent new assets. For example replacing a 2 year old Cosmo street light lantern with a new LED lantern; this cost is known as the “Gross Replacement Cost” (GRC).

Action 2: We will ensure that we have the right information to support the calculation of the Gross Replacement Cost of each of our asset groups as we collect and update our asset data.

- **Performance:** This is the data we use to determine whether or not our assets are doing what we need them to do to keep the highway safe, reliable and meet the needs of our customers. Examples of how we collect this data include routine inspections and testing, customer enquiries, third party claims, crash records, traffic flows and energy bills.

This data helps us to understand where we need to carry out maintenance activities, where our assets are going to need replacing now or in the future and where we need to think about changing, adding or removing assets . It also helps us to understand of the cost of replacing an asset with its modern equivalent less deductions for all physical deteriorations. For example replacing a 2 year old Cosmo street light with a new LED lantern minus the cost of 2 years deterioration; this cost is known as the “Depreciated Replacement Costs” (DRC)

Action 3: We will ensure that we have the right information to support the calculation of the Depreciated Replacement Cost of each of our asset groups as we collect and update asset data.

→ **Financial:** This is the data we use to assess how much it will cost to maintain or replace an asset or how much it will cost to deliver a certain level of service. Our schedule of rates for different maintenance activities is one example this kind of data.

More detailed information about the information we need to understand each asset group can be found in our [Asset Plans](#).

Action 4: We will use the Gross Replacement Cost and Depreciated Replacement Cost to inform our investment decisions.

3. How do KCC decide what data they need to collect?

We continually collect information about our new, replacement and improved assets.

It is important that the data we collect is accurate, reliable and useful. Before information is collected we consider the following questions:

- How does the data support our approach to asset management?
- Who will “own” the data and be responsible for its collection?
- Who will need access to the data and how will they use it?
- What is the most cost effective way of collecting the data?
- Can a risk based approach be taken i.e. target high risk assets only?
- How will the data be stored and managed?
- How will out-of-date data be dealt with?

The quality, appropriateness and completeness of our asset data is reviewed regularly to ensure that it fully supports our approach to asset management.

4. Where do KCC store their asset information?

Effective asset management relies on systems that can be used to support decision making at all levels. Our asset inventory, condition and defect data is currently stored and interpreted in a number of ways.

Asset Group	Systems Used
Roads and Footways	Works and Asset Management System (WAMS)
Signs and Lines	We do not record details of this asset but do undertake regular

	inspections and respond to customer requests to carry out ad-hoc visits to specific locations.
Drainage	Works and Asset Management System (WAMS)
Structures	Works and Asset Management System (WAMS) together with a specialist database with details of inspection records.
Street Lighting	Works and Asset Management System (WAMS)
Intelligent Traffic Systems	Works and Asset Management System (WAMS)
Soft Landscape	Works and Asset Management System (WAMS)
Safety Barrier	Works and Asset Management System (WAMS)

Action 5: We will set out in our Asset Plans when and how we will collect asset data and details how that data will be stored and used to support investment decisions and manage risks.

5. How do KCC use their asset data to develop maintenance plans?

We have a four step approach to developing our maintenance plans for each asset group:

(a) Firstly we need to understand the “life cycle” of our assets.

All of our assets are created, maintained and eventually repaired, replaced or removed. We need to understand what is involved at each stage, when it needs to happen and how much it costs. If we understand the life cycle of our assets we can predict the impact of different maintenance strategies and determine whether or not we can afford them.

For example, we have found that cutting urban grass verges eight times per year is more cost effective than a lower frequency which would require different equipment, more operator time to carry out cuts and generate longer grass cuttings that can blow onto pavements, clog drains and in some cases require costly manual removal.

Action 6: We will have documented lifecycle plans for each of our major asset groups and use them to inform our maintenance plans and investment decisions.

(b) Secondly we need to determine the levels of service we want to deliver.

Levels of service explain to our customers what they can expect from our assets for example, our customers should feel safe and be confident about their personal safety when using the highway.

To determine our desired levels of service we have to think about a range of different things:

- The County Council’s statutory obligations: these are the things that we must do because they are a legal requirement. For example we have a duties to maintain the highway in a safe condition and secure the efficient movement of traffic on our road network. .
- The County Council’s Strategic Statement: these are the vision and outcomes that the County Council want to achieve as an organisation. For example putting the customer at the heart of everything we do
- Our customer’s expectations: the views of our customers are very important to us, these are the things that we are not obliged to do but that are wanted by our customers.

(c) Thirdly we need to understand whether or not we are already meeting our levels of service.

We can do this by measuring performance at three different levels:

Type of Performance Measure	What are we measuring?	Example
Strategic Performance	A snapshot of overall performance which tells us whether or not we are delivering the intended benefits to our customers.	<p>We want to: Deliver services that are shaped by the needs of our customers and that align to KCC’s Corporate outcomes and vision.</p> <p>Strategic Performance Measure: We report key measures to Cabinet and use surveys such as our annual satisfaction tracker and complaints monitoring to ask a sample of our customers whether or not they are satisfied with the services we are providing.</p>
Asset Performance	More detailed information that tells us which asset groups are succeeding or failing to deliver the intended benefits to our customers.	<p>We want to: Deliver services that are shaped by the needs of our customers</p> <p>Asset Performance Measure: We use monthly data to see if our assets are performing in accordance with our asset management plans. For example our Customer 100 survey to ask a sample of our customers whether or not they are satisfied</p>

Type of Performance Measure	What are we measuring?	Example
		with the service provided by each asset group or customer enquiry demand about pothole or flooding problems.
Operational Performance	Operational information that tells us why a specific asset group is succeeding or failing to deliver the intended service standards/benefits to our customers.	<p>We want to: Deliver services that are shaped by the needs of our customers</p> <p>Operational Performance Measure: We use monthly measures to ensure we are delivering our published service standards such as “the average time taken to fix a pothole”.</p>

More detailed information about the performance measures we use for each asset group can be found in our [Asset Plans](#).

Action 7: We will review our existing performance management framework to incorporate strategic, asset and operational performance measures that fully supports our approach to asset management

(d) Finally, once we know where we are and where we want to be we need to decide on our maintenance strategy.

We can adopt one of the following strategies:

- **Reduce the level of service:** if the level of service exceeds the desired standard or is unaffordable it should be reduced. For example the frequency of maintenance might be reduced or the intervention level might be increased.
- **Sustain the current level of service:** if the level of service meets the desired standard and is affordable it should be sustained
- **Enhance the level of service:** if the level of service is below the desired standard and improvement is financial viable, the level of service should be enhanced. For example the frequency of maintenance might be increased or the intervention level might be reduced.

We have to work within the constraints of our budget so it is also important to identify the most efficient and affordable way of delivering services.

- **Minimising whole life cost:** When considering different maintenance strategies it is important to think about the future and keep costs to a minimum for the whole life of the asset. For

example repairing potholes might be cheaper than surface dressing a road in the short term but not if it means that the road needs to be reconstructed and resurfaced in five years' time.

When the desired levels of services are not financially viable it is important that we know the risks and prioritise:

- **Managing risk:** We need to understand and document the risks associated with different maintenance strategies and manage them effectively. For example, increasing the intervention level for a pot hole from 50mm to 100mm will save money but increase the safety risk to an unacceptable level.
- **Enhance priority areas of the service:** Where it is not financially viable to enhance the level of service across all assets key areas of the service should be prioritised. For example the frequency of maintenance on main roads might be increased whilst the current frequency is maintained on minor roads.

Action 8: We will publish in our Asset Plans how we minimise the whole life cost of our assets and manage current and future risks associated with them.

Our maintenance plans are reviewed annually, summarised in [Our Service Standards](#) and reported to Members before the start of each financial year.

6. Where do KCC publish their maintenance plans?

We publish information about how and when we do maintenance on the KCC website. Our customers can see how we look after our assets, the levels of service they can expect and when the work will be carried out.

7. How do KCC develop works programmes?

Forward works programmes provide an effective and efficient way of delivering maintenance, repairs and improvements. The enable prioritisation and optimisation of schemes to meet available budgets.

The process for developing a works programme is a five stage process:

- **Identification:** Potential schemes may be identified from a range of sources including inspections, surveys, local knowledge, customer enquiries, complaints and wider transport or corporate objectives. These schemes are collated into an initial works programme for each asset.
- **Prioritisation:** All schemes are prioritised to identify those that are highest risk and need to be done in the short term and those that can be done in the future. When prioritising assets the following things need to be considered:
 - The **safety** of road users

- The impact on the **movement of traffic** if the asset fails
- The **cost** of bringing forward or delaying works
- The impact on **future** use of the highway
- The **environmental** impact
- The impact on the **community** including damage to property or impacts on local businesses

Action 9: We will publish in our Asset Plans how we manage current and future risks in the way we prioritise our schemes and works programmes.

- **Selection:** The lists of schemes of each asset group need to be combined, costed and listed in priority order. The “cut off” point then needs to be determined by totalling up the cost to the point where the budget is fully utilised.
- **Programming & Optimisation:** Selected schemes can be optimised within the forward works programme. This is done by coordinating or combining works to minimise both cost and disruption.
- **Delivery:** Finally an annual works programme is confirmed and delivered from the available annual budget.

Action 10: We will develop a process that consistently balances the competing needs of each asset group to create a prioritised forward works programme for a rolling period of 3 to 5 years that is updated on an annual basis.

8. Where do KCC publish their forward works programmes?

We publish a lot of information about our programmes of work on the KCC website. Our customers can see where and when we plan to do different types of work including resurfacing, drain clearing, grass cutting and major improvement works.

9. How do KCC monitor their approach to managing assets?

We are implementing our approach to asset management to deliver the following benefits to Kent:

- A service that is shaped by the needs of our customers now and in the future
- A service that makes best use of the available resources, maximising efficiency to meet with our legal obligations
- A service that is resilient and able to respond to changes and financial challenges

It is important that we record and demonstrate that these benefits are being delivered. We can do so at a number of levels and in a number of ways:

- **Monitoring Outcomes:** We need to ensure that our approach is being implemented as planned i.e. as explained above and delivering the intended outcomes. For example, we monitor the number of claims upheld against the County Council to measure how successfully we are meeting our obligation to maintain the highway in a safe condition
- **Performance Measures and Targets:** We use a range of metrics and targets to monitor our performance against our levels of service and determine how well we are delivering the intended benefits to Kent. Examples of these measures and targets include the percentage of potholes repaired in 28 calendar days, the percentage of residents satisfied with street lighting repairs and performance against annual savings targets.
- **System Audits:** Our asset managers are accountable for ensuring that their asset data is up to date and fit for purpose.
- **Performance Reviews:** By reviewing performance we can ensure that we are continuously improving the way we work. We routinely review the performance of the service, identify areas where performance is not where we would like it to be and understand why this is the case. Having identified areas for improvement options to address any issues are identified and implemented. Performance is reported on a regular basis to key decision makers, elected representatives and our customers.
- **Benchmarking:** By comparing our service with the services provided by others, we can identify better ways of working at all levels. For example we might compare the outcomes we are achieving using asset management with the outcomes other Councils are achieving. Equally we might compare two or our own services, for example our customers might be more satisfied with the street lighting service than they are with the drainage service. By comparing the two lessons can be learnt and improvements can be implemented.

Action 11: We will continue to identify opportunities to compare the performance of our services both internally and externally and share information to support and demonstrate continuous improvement.

10. How will KCC know that their asset management approach has made a difference?

Effective Asset Management is a key factor in supporting the County Council's vision of *"improving lives by ensuring every pound spent in Kent is delivering better outcomes for Kent's residents, communities and businesses"*. We will know that our approach is helping to achieve this vision because:

- Our customers will feel safe and be confident about their personal safety when using the highway network
- Our customers will be confident that the journeys they make will be reliable and timely
- Our customers will be satisfied that we are maximising the number of assets we repair each year.
- Our customers will understand our levels of service and investment decisions

- Our customers will be assured that the highway network is sustainable and able to meet the needs of future generations
- Our customers will see that we are ready to deal with unforeseen events effectively

A Summary of our Actions

In December 2014 the Secretary of State for Transport announced that £6 billion would be made available between 2015/16 and 2010/21 for local highway maintenance funding. Of this £578 million has been set aside for an incentive fund scheme to reward councils who demonstrate they are delivering value for money in carrying out cost effective improvements. We plan to ensure we demonstrate this effectiveness and are doing well but we have some work to do before the autumn of 2016 and this is set out in the actions below.

Action 1: We will ensure we have current, appropriate and complete data that supports the management of each of our main asset groups.

Action 2: We will ensure that we have the right information to support the calculation of the Gross Replacement Cost of each of our asset groups as we collect and update asset data.

Action 3: We will ensure that we have the right information to support the calculation of the Depreciated Replacement Cost of each of our asset groups as we collect and update asset data.

Action 4: We will use the Gross Replacement Cost and Depreciated Replacement Cost to inform our investment decisions.

Action 5: We will have an asset information strategy that demonstrates when and how we will collect asset data and details how that data will be stored and used to support investment decisions and manage risks.

Action 6: We will have documented lifecycle plans for each of our major asset groups and use them to inform our maintenance plans and investment decisions.

Action 7: We will enhance our existing performance management framework to incorporate strategic, asset and operational performance measures that fully supports our approach to asset management

Action 8: We will develop maintenance plans that minimise the whole life cost of our assets and manage current and future risks associated with our highway assets.

Action 9: We will embed the management of current and future risks in the way we prioritise our schemes and works programmes.

Action 10: We will develop a process that consistently balances the competing needs of each asset group to create a prioritised forward works programme for a rolling period of 3 to 5 years that is updated on an annual basis.

Action 11: We will identify opportunities to compare the performance of our services both internally and externally and share information to support continuous improvement.