

Well-managed Highway Infrastructure

Implementing the Code of Practice in
Kent
2018 - 2020

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Introduction

Our highway network is the most valuable asset we own. It enables safe and reliable journeys 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.

As the Highway Authority, the County Council has legal obligations to keep adopted highway routes available and safe for the passage of the travelling public. Our statutory duties are outlined in a number of pieces of legislation including the following:

- **The Highways Act 1980** outlines our duty of care to maintain the highway in a safe condition and protect the rights of the travelling public to use the highway.
- **The Traffic Management Act 2004** conveys a network management duty whereby we are required to facilitate and secure the efficient movement of traffic on the highway network.
- **The New Roads & Street Works Act 1991** requires us co-ordinate road works and to make best use of the existing network.
- **The Road Traffic Act 1991** describes our statutory responsibility to promote road safety and take measures to prevent collisions.
- **The Construction (Design and Management) Regulations 2015** details our duties to ensure that the work we do is designed and built competently and that risks to the work force and road users are properly considered and effectively managed. This places particular controls on how and when works are carried out.
- **The Equalities Act 2010** created the public equality duty which requires us to have due regard for advancing equality by removing or minimising disadvantage, encouraging participation and taking steps to meet the needs of all people from protected groups where these are different from the needs of other people.
- **The Wildlife & Countryside Act 1981** details the environmental legislation that we need to follow to ensure that we minimise our impact on local biodiversity whilst carrying out highway asset maintenance.

In October 2016 the UK Roads Liaison Group (UKRLG) published Well-managed Highway Infrastructure. The Code of Practice is non-statutory however it will be deemed to be guidance of best practice by the courts. The County Council will be required to demonstrate a robust decision-making process, an understanding of the consequences of those decisions, and how the associated risks are managed to ensure highway safety.

The Code of Practice, which is due for implementation by October 2018, is designed to promote the adoption of an integrated asset management approach to highway infrastructure based on the establishment of local levels of service through risk-based assessment. The County's Highway Asset Management Framework develops this approach in three documents: a policy [[Our Approach to Asset Management in Highways](#)], and two strategy documents [[Implementing Our Approach to Asset Management in Highways](#) and [Developing Our Approach to Asset Management in Highways](#)]. These documents demonstrate our commitment to an Asset Management approach and clearly outline the funding required and the wider benefits to be achieved. The Environment and Transport Cabinet Committee have endorsed all three documents, which are published on the County Council's website.

The Code of Practice recognises that the delivery of a safe and well-maintained highway network relies on good evidence and sound engineering judgement. A risk-based approach to highway maintenance needs to be founded on information that is sufficiently robust to enable decisions on levels of service, delivery methods and priorities for improvements can be taken and reviewed over time. Our [Asset Information Strategy](#) will detail how information to support a risk-based approach to highway maintenance will be collected, managed and made available in ways that are sustainable, secure, meet statutory obligations and facilitate transparency for network users.

Well-managed Highway Infrastructure provides guidance to support the development of approaches to highway maintenance that are in accordance with local needs, priorities and affordability. In the interest of route consistency for highway users, all authorities, are encouraged to collaborate in determining levels of service, especially across boundaries with neighbours responsible for strategic and local highway networks. Moreover the principles set out in the Well-managed Highway Infrastructure are intended to influence the ongoing development and evolution of the approach taken to asset management in highways. In accordance with asset management principles, the highway network should be considered as an integrated set of assets with due consideration given to the need to balancing the needs and inter dependencies of different asset groups.

Well-managed Highway Infrastructure states that “Where authorities elect in the light of local circumstances to adopt policies or approaches different from those suggested by the Code, it is essential that they are identified, together with the reasoning for such differences, be approved by the authority’s Executive and published.” However, the County Council’s Constitution states that “The Leader and Cabinet Members should...(d) participate in the approval by the full Council of Kent-wide policies and budgets; (e) lead the development of policies for the delivery of services to the whole community of Kent” [Article 2(2)]. Therefore, in addition to approving any deviations from the Code of Practice, the adoption of the principles of the Code of Practice and any fundamental changes to existing policies or service standards will be subject to Executive approval and publication.

Well-managed Highway Infrastructure - Implementing the Code of Practice outlines how we will go about applying the principles in the Code of Practice to the way we work and measure our success to ensure continuous improvement and a focus on the County Council’s Strategic Outcomes. Details of our approach will be actively communicated through engagement with stakeholders in setting requirements, making decisions and reporting performance.

The Highway Network

Network Hierarchies

There are several classifications and hierarchies used for the planning and prioritisation of highway inspections, maintenance, renewals, improvements and new installations in Kent:

- **Road Classifications** are administered by the Department for Transport and provide a system to direct motorists towards the most suitable routes for reaching their destination.
- **The Resilient Highway Network** is defined by the County Council as “the portion of our highway network that is vital to maintaining economic activity and access to key services during extreme weather emergencies and other major incidents”. The purpose of defining this network is to identify the most critical routes and associated highway assets, such as bridges, so that planned whole asset maintenance on that part of the network may be prioritised. Details of Kent’s Resilient Highway Network are published on the County Council’s website [<http://www.kent.gov.uk/about-the-council/strategies-and-policies/transport-and-highways-policies/highways-asset-management>]
- **The Winter Network** is divided into primary and secondary routes and provides a minimum essential service to the public which includes links to the strategic network, access to key facilities and local communities. Precautionary salting of these routes is undertaken in accordance with the Winter Service Policy which is published on the County Council’s website [<http://www.kent.gov.uk/about-the-council/strategies-and-policies/transport-and-highways-policies/winter-service-policy>] and reviewed annually.
- **Flooding Hotspots** are defined as “flood prone sections of the highway network” and are identified using drainage and flooding enquiry data. They are used to prioritise drainage maintenance, renewals and improvement works.
- **The Street Lighting Maintenance Hierarchy** is defined by the County Council and used to prioritise routine maintenance such as night scouting and bollard cleaning.
- **The Maintenance Hierarchy** is defined by the County Council and used to prioritise safety inspections and routine maintenance such as gully cleansing.
- **Critical Highway Infrastructure** is considered to be those assets where failure would result in significant impact to the local, and potentially the national, economy. Critical infrastructure assets form a crucial part of the highway network.

Whilst it is inevitable that different asset types might have their own hierarchies, all should be related such that each asset type can be considered in relation to others and to the whole highway network.

Network Inventory

Inventory information or “asset registers” are held for most of our major asset groups however the extent of the information varies greatly due to differing business needs. For example, an extensive inventory is needed for street lighting as it is not only used to inform maintenance activities but also the energy bills that run to several millions of pounds. Conversely, the inventory for the highway drainage network is less comprehensive because, whilst it would be nice to know construction information for each of our drainage pipes, the nature of the work we do and the processes that have been implemented do not require this level of detail.

The quality, appropriateness and completeness of asset data is reviewed regularly to ensure that the nature and extent of the network inventory collected is fit for purpose and meets business needs. The sensitivity of information is very limited but where sensitive information is held, it is managed in a security minded way.

Integrated Network Management

Kent’s residents, communities and businesses do not distinguish between the different categories of road, range of assets or types of work undertaken on the highway. They expect the network to be managed and maintained holistically to provide consistent and appropriate levels of service. To achieve this, it is vital that the whole highway network is considered and in the context of the County Councils strategic outcomes.

An integrated network hierarchy based on asset function is the foundation of a risk-based maintenance strategy. It is important that it reflects the whole highway network and the needs, priorities and actual use of each infrastructure asset. It therefore also needs to be dynamic and regularly reviewed to reflect the changing nature of the network as a consequence of short term influences such as seasonal fluctuations or longer-term factors such as climate change and development.

The whole highway

It is imperative that all highway assets are considered including traffic management and parking provisions. Moreover, it is important to consider the implications of a maintenance regime or scheme not only now but in the longer term. For example, if a road with defective drainage is resurfaced without also repairing the drainage it will remain in a good condition for a much shorter length of time. Over time standing water will cause the surface to deteriorate, increasing numbers of potholes will form and the overall lifespan of the road will be reduced. Prevention is generally more cost effective than cure and if, for example, the drainage is repaired before the road is resurfaced, efficiencies can be made on the remedial works and further savings achieved as responding to the consequences of flooding is not required.

Future Maintenance

The highway network increases in size year on year and as do the number of assets we maintain. The impact on future maintenance can vary dramatically depending on the approach taken. As local government finances become increasingly squeezed it is important that the selection and suitability of assets and their component parts and materials, doesn't place an unnecessary future burden on the Authority. For example, instead of laying a coloured road surface which is costly to maintain, white lining may demark a cycle route just as effectively.

Highway users

Highway maintenance regimes and improvements should consider the needs of all highway users, particularly vulnerable users. There may be opportunities while we carry out maintenance and improvements to minimise disadvantage, encourage participation and incorporate the needs of people from protected groups in accordance with the Public Equality Duty. Depending on the nature of the works, it may be possible to enhance safety, priority, integrity or quality of routes, crossing points, public transport facilities or freight movements and these opportunities should be given due consideration. Furthermore, the expectation of consistency means that consideration needs to be given to the hierarchy of neighbouring authorities for both the local and nationally maintained networks.

Kent County Council will apply these principles and consider the highway network as an integrated set of assets when developing our approach to inspections, maintenance, renewals, improvements and new installations.

Defining our Integrated Highway Network

The system of road classification used by Central Government does not necessarily reflect local needs or actual use now and in the future.

From April 2019, hierarchies will be defined and published for all elements of the local highway network. The inherent links between some asset groups such as signs, lines and the carriageway may mean that these network groupings are subsumed into a single hierarchy. Where asset hierarchies differ, they will all be founded on the principle of highway functionality and the desirability for a consistent approach with a view to achieving a high degree of compatibility.

Specific considerations will be dependent on the nature of the asset type however there will be consistent themes that underpin the hierarchy definition:

- **Importance** – this may include key routes between towns, connecting the strategic road network and main routes to critical infrastructure such as hospitals, schools and power stations

- **Environment** - rural, urban, busy shopping streets, residential streets, country lanes etc.
- **Usage** – this may include factors such as the volume and type of users, designations as traffic sensitive, diversion or ceremonial routes and the character and volume of traffic on the adjoining carriageway
- **Site history** - this may include factors such as historic casualty data, historic flooding data and crime statistics
- **Asset specific considerations** – this may include factors such as height or weight restrictions, historic structures, construction materials or the position with respect to the carriageway, footway or cycleway.

Kent County Council will publish a series of related hierarchies which include all elements of the highway network. They will consider current and expected use, resilience, and local economic and social factors as well as the desirability of continuity and of a consistent approach for walking and cycling.

Risk Based Approach

Context

As an organisation concerned with service provision and the social and economic development of the county, efficient and effective risk management is essential. By implementing sound management of our risks and the consequential threats and opportunities, we will be in a stronger position to deliver our business objectives, services that reflect local needs and achieve better value for money. Risk management is therefore at the heart of good management practice and the County Council's corporate governance arrangements. Our approach to risk management is proactive and enables decisions to be based on properly assessed actions and events that balance risk and reward with a view to ensuring that the right actions are taken at the right time.

It is not possible to eliminate all risk. Whilst some mitigation is often possible, it is important to understand the degree of risk and the potential consequences. These can then be balanced against the cost of reducing or eliminating the risk and the benefits of accommodating the risk.

The County Council has a mandatory approach to risk management called the [Risk Management Policy & Strategy 2018-21](#).

Risk Management in Highways

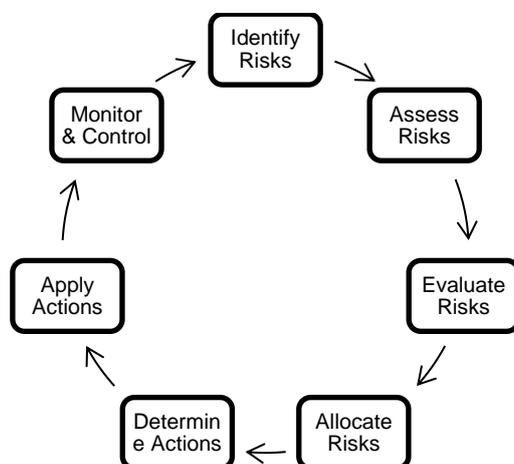
Meaningful risk management is an intrinsic part of the management of our highway infrastructure. Inspections, maintenance, renewals and improvements present extensive choices and therefore it is vital that the impact of implementation and the consequences of failure are fully understood. In addition, there are a variety of external influences which impact on the performance of the highway network. Weather, budget, political direction and demand from other service areas also need to be considered when determining the approach to maintenance and investment.

Adopting a risk-based approach will further facilitate the establishment and implementation of levels of asset condition and service standards that are appropriate to their circumstances.

Kent County Council will adopt a risk-based approach for all aspects for highway infrastructure maintenance, including setting levels of service, inspections, response, resilience, priorities and programmes. The management of current and future risks will be embedded within the approach to asset management and service delivery Strategic, tactical and operational risks will be included as will appropriate mitigation measures.

Risk Management

The County Council has adopted a risk management approach which aligns with the Office of Government Commerce (OGC) recognised best practice guidance – Management of Risk: Guidance for Practitioners. The approach is an iterative process to enable continuous improvement and is summarised below:



Identify Risks

Identifying risks is a crucial opportunity to ensure that risks are visible throughout the organisation. At this point risks are considered in their unmitigated state to allow for later prioritisation. Issues to be considered as part of the risk identification process may include:

- What are the risks to achieving the asset management strategy and levels of service?
- What is the source of each risk?
- What might happen?
- What would the effect be?
- When, where, why and how are these risks likely to occur?
- Who might be involved or impacted?
- What controls presently exist?
- What could cause the control to not have the desired effect on the risk?

A common approach is to commence the risk identification at a high level to obtain an assessment for the level of overall risk exposure. This may then be followed by a detailed assessment of more specific risks where critical assets, critical failure modes and high-risk areas can be defined and analysed in greater detail.

Assess Risks

Having identified the risks it is important to understand the potential consequences, positive or negative, and the likelihood of that impact being realised.

Consequence is the outcome of an event, such as increased journey times, isolation of local communities or a drop in public perception of the service provided. It can have positive or negative effects and can be expressed qualitatively or quantitatively. The consequences associated with an event leading to failure or service reduction may include:

- **Safety** – including fatalities and personal injuries;
- **Functionality** – impact of a loss or reduction in service at route, asset or component level, such as weight restrictions on a bridge;
- **Cost** – increased costs due to bringing forward or delaying work, repair costs, fines or litigation costs and loss of income or income potential;
- **Sustainability** – any impact on future use of highway infrastructure assets.
- **Environment** – environmental impacts, such as pollution caused through traffic delay or contamination from spillages, the sensitivity of the route/area, etc;
- **Reputation** – public confidence in organisational integrity; and
- **Community costs** – damage to property or other third-party losses, which may include business impacts, traffic delays, etc.

Likelihood is the chance of an event such as an asset failure or a fatality on the highway happening. It can be measured objectively, subjectively, qualitatively or quantitatively depending on the level of information available. However, it is measured, there are several issues that need to be considered, including the following:

- Changes in policy and funding;
- Current and historic performance (severity and extent) of the asset;
- Rate of deterioration and/or current age of the asset;
- Asset type, material type, mode of failure, extent of failure, etc;
- Exposure to incidents of all types;
- Human behaviour and workmanship;
- Vulnerability to climate change;
- Quality of asset management approach and systems.

The likelihood of physical failure of an asset is related to the current condition of the asset, hence the importance of accurate condition assessment. The likelihood of natural events is determined less easily but scientific studies are usually available. The likelihood of other events, such as poor work practices or planning issues can be difficult to ascertain. KCC have an established matrix-based approach for determining risk levels.

KCC's Standard for Determining Risk Levels

Risk Rating Matrix			Impact				
			1	2	3	4	5
			Minor	Moderate	Significant	Serious	Major
Likelihood	1	Very Unlikely	1 Low	2 Low	3 Low	4 Low	5 Low
	2	Unlikely	2 Low	4 Low	6 Low	8 Medium	10 Medium
	3	Possible	3 Low	6 Low	9 Medium	12 Medium	15 Medium
	4	Likely	4 Low	8 Medium	12 Medium	16 High	20 High
	5	Very Likely	5 Low	10 Medium	15 Medium	20 High	25 High

The target residual rating for a risk is “medium” or lower; in the event that this is not practicable the risk will be escalated for review.

Evaluate Risks

All identified risks need to be evaluated against the risk appetite and risk tolerance provides an assurance of a consistent approach to the measurement of risk and appropriate management and escalation. The County Council recognises that risk is inherent in delivering and commissioning services, including highways services, and aims to have an open approach to risk, appropriately balancing risk against reward, with risks managed in a proportionate manner.

With increasing spending demands and continued reductions in Government funding, there is a recognition that it is likely that a higher level of risk will need to be accepted in the future. This will require an approach that allows flexibility and support for well-informed and considered risk taking, promoting transparency and effective risk management, while maintaining accountability.

Allocate Risk

It is important that risks are suitably allocated to a stakeholder who is best placed to take ownership and manage them effectively. For example, the risk of a critical asset failure is best allocated to the asset manager who has the level of understanding to determine potential actions and the consequences of those actions, the authority to apply the selected action and the information and knowledge to monitor and control the risk in both the short and longer term.

Determine Actions

Mitigation options need to be identified for all risks assessed to be unacceptable and there will often be many options to reduce the likelihood and/or consequence. It is therefore important that a logical approach to determining appropriate, proportionate and viable solutions to eliminate, reduce or control risk and enhance opportunities is established.

Some risks can be addressed more easily and effectively than others and costs may range significantly. Therefore, analysis of the costs of risk reduction against different options will facilitate identification of the optimum solution. It should be noted that in addition to the financial implications, the potential actions need to be considered in the wider context of the County Council's strategic objectives and legal obligations i.e. the most

cost-effective action is not appropriate if it contradicts our strategic objectives, breaches our legal obligations or could significantly damage the Authority's reputation.

Apply Actions

Prior to applying actions, the assessment and evaluation stages need to be revisited to determine the residual risk and therefore the effect of the risk action. Having confirmed that this is satisfactory, the Action Owner is confirmed as are the appropriate reporting arrangements. For example, if the action involves significant service reductions, or significant changes in the way that services are delivered approval by the Cabinet Member; Cabinet or Leader of the County Council will be required. Moreover, if significant service changes are being made due to efficiency, economy or effectivity then formal consultation will be necessary.

Monitor & Control

Risks are not static and external and internal events can alter the likelihood and impact of risks. It is essential to continue reviewing risks and checking that actions to manage them are progressing to plan. All highway risks are routinely reviewed alongside other business management activities such as performance and financial reporting. Moreover, when emerging events or emergencies occur new and existing risks are assessed and responded to.

Inspections and Surveys

Authorities are not statutorily obliged to carry out inspections of all highway elements but are strongly advised to undertake safety inspections in accordance with the principles of Well-managed Highway Infrastructure. Inspection and survey regimes should be planned using a risk-based approach to provide increased levels of scrutiny to areas or assets deemed to be of higher risk.

An effective regime of inspection, survey and recording is the most crucial component of highway infrastructure maintenance and intrinsic to the management of risk. It provides basic information for addressing the core objectives of highway maintenance namely:

- network safety;
- network serviceability;
- network sustainability.

The characteristics of the regime are defined following an assessment of the relative risks associated with potential circumstances of location, agreed level of service and condition. For example, an 80-year-old bridge carrying a main road over a live railway line has greater risks associated with it than a new footbridge over a ditch on a rural footpath. The former may require 2 yearly visual inspections and 6 yearly detailed inspections supported by detailed reporting to reflect the complex nature of the structure. For the latter, it may be sufficient to carry out 2 yearly visual inspections with a "check list" style report and no detailed inspections if the simplistic nature of the structure means that all components are easily accessed and visible. Regardless of the specifics of the regime, it is crucial that they are applied systematically and consistently. Moreover, it is important to recognise that all information recorded, even if not primarily intended for network safety purposes, may have implications for safety and may therefore be relevant to legal proceedings and may have to be made available for public inspection and reference.

The County Council undertake a range of inspections and surveys with respect to the highway and its components:

Safety Inspections

The safety inspection regime forms a key aspect of an authority's approach to managing liabilities and risks. A countywide team of inspectors are tasked with the identification of all defects likely to create danger or serious inconvenience to users of the network or the wider community. The risk of danger is assessed on site and the defect identified with an appropriate priority response. The regime has been developed using a risk-based

approach and provides a practical and reasonable approach to the risks and potential consequences identified. Moreover, it takes account of potential risks to all users, and in particular the most vulnerable.

The processes and standards that underpin this regime are detailed in the [Highway Inspectors Manual](#) and are reviewed annually.

Service Inspections

The inspection requirements of different asset groups can vary significantly due to their composition and the way in which they function. Service inspections are tailored to the requirements of specific highway assets and elements to ensure that they meet requirements for serviceability. Examples of these type of inspections include electrical testing of lit signs and structural testing of street lighting columns. These inspections also include inspections for network integrity and for regulatory purposes, including NRSWA, intended to maintain network availability and reliability.

Condition Surveys

Condition surveys are primarily intended to identify defects which, if untreated, are likely to adversely affect long term performance, serviceability and safety. The data collected can be used to forecast life expectancy, to determine when intervention may be appropriate, to model the impact of different intervention strategies and to compare the likely costs. In addition, the information collected informs national government indicators and the annual valuation of the highway network.

Kent County Council will continue to implement asset condition surveys based on asset management need and in accordance with our statutory reporting requirements.

Structural Assessments

Structural Assessments are carried out on a targeted basis to determine the capacity of a structure to carry the loads which are imposed upon it, and increases that may be reasonably expected in the foreseeable future.

Reactive Inspections

The County Council proactively encourages our customers to report highway defects via our Online Fault Reporting Tool and a dedicated highways line to our Contact Point.

Reports from members of the public provide a further source of knowledge on the condition of the highway network. To maximise the value of this information, appropriate quality assurance measures are needed. As such, a regime of reactive inspections is in place to support the validation of reports, ensure duplicate reports are identified and combined, and to maintain auditability of information. It is not always necessary to inspect a defect to determine the required response but the decision to inspect or not, and the outcome of any inspection should be recorded systematically and consistently.

Kent County Council will develop and implement a risk-based approach to inspections for all asset groups.

Defect Recording and Repair

All defects observed during service, safety, condition and reactive inspections, need to be recorded and the type and speed of response determined on the basis of a risk assessment.

Defects that require urgent attention should be corrected or made safe at the time of the inspection, if reasonably practicable. In this context, making an asset safe may constitute displaying warning notices, coning off or fencing off to protect the public from the defect. If it is not possible to correct or make safe the defect at the time of inspection, repairs of a permanent or temporary nature should be carried out as soon as possible. If temporary repairs have been used, permanent repair should be carried out within a reasonable period.

Defects that do not represent an immediate or imminent hazard or risk of short term structural deterioration may have safety implications, although of far less significance than those which are considered to require urgent attention. They are more likely to have serviceability or sustainability implications. If repairs are to be undertaken these are likely to be within a planned programme of works with their priority determined by risk assessment. For example defects in highway trees may be identified during condition inspections and if the defect does not present an immediate safety threat, works will be ordered to reduce the risk of failure, eliminate the hazard or improve life expectancy of the tree. Access requirements, other works on the network, traffic levels, and the desirability of efficient traffic management, should also be considered as part of prioritising and scheduling the works.

Kent County Council will develop and implement a risk-based defect repair regime for all highway assets.

Managing the safety and wide range of other risks associated with the delivery of highway infrastructure maintenance requires effective and co-ordinated information systems to record inspections, defect reports, condition assessment and activity. The efficiency, accuracy and quality of information recorded is crucial both to the effective management of the service and to demonstrating that the County Council are a competent highway authority.

All information obtained from inspections and surveys, together with the nature of response, including nil returns, should be recorded consistently. It is important that the data from inspections and surveys can be reviewed and analysed both independently and in conjunction with other information to enable a holistic understanding of the likely future maintenance need, asset condition and trends related to network characteristics and use.

Kent County Council will develop and implement mechanisms for recording all inspections and subsequent activities to justify decisions made, inform future decision making and protect the authority from unjustified or fraudulent claims.

Competence and Training

To ensure that inspections, risk assessments and the analysis of the resulting information is meaningful and valid, appropriate competencies for all staff are required. Continued professional development is key to this and should be embedded in the annual Learning and Development cycle.

Kent County Council will ensure that the appropriate competency required for asset maintenance and management is identified and that training is provided where necessary.

Resilience and Sustainability

Kent, which provides key transport links between the capital and the continent, has some of the most intensively used roads in the country. Any disruption to the network has an immediate impact on road users, the economy and services. Ensuring these roads are as resilient and sustainable as is practicable must be a priority.

Managing Highways for Resilience

Resilience as defined by the Cabinet Office is the “ability of the community, services, are or infrastructure, to detect, prevent and if necessary to withstand, handle and recover from disruptive challenges”. Resilience in the context of highway infrastructure is the ability of a road network to withstand not only the impacts of extreme weather (snow, ice or flooding) but also industrial action, major incidents and other local risks. The level of resilience sought for any length of road needs to be commensurate with its intensity of use, economic or social importance and the availability of alternatives. The more intensively used and economically or socially important a route is, the shorter the disruption that is acceptable.

Kent County Council has long had robust systems in place to respond effectively to severe weather emergencies and we already take a hierarchical approach to the management of our 8,700 km highway network. In September 2017, this approach was enhanced further when The Environment & Transport Cabinet Committee endorsed The Definition for Kent’s Resilient Highway Network.

The overarching aims of Kent’s Resilient Highway Network are;

- to protect economic activity in and through the county;
- to protect access to key services; and
- to protect access to key infrastructure.

To achieve this, the following criteria have been used to identify and map a network of our most critical routes and highway assets;

- roads connecting main towns in the County of Kent with a population of 20,000 and above,
- roads connecting main towns with Highway England’s Strategic Road Network,
- roads connecting main towns with main employment sites,
- roads connecting with key operational services requiring emergency public access, such as hospitals with Accident and Emergency facilities,
- roads connecting with key infrastructure, such as power stations and main transport facilities.

The resulting network is used to inform intervention levels, prioritisation of maintenance and the case for investment in renewals and improvements to reduce the risk of asset failure.

Our Resilient Highway Network is reviewed at least every two years and after any major event to ensure it remains relevant as lessons are learnt and services and businesses within the County change.

In addition to the physical resilience of highway infrastructure, the management of disruption and speed of recovery are also key. There are several potential situations which could have a significant effect on the highway including inclement weather, subsidence, landslip or collapses, oil spills or local events such as Operation Stack.

Kent County Council have operational plans and procedures are in place with respect to winter service, severe weather events, unforeseen events and civil emergencies. These plans have been developed in consultation with partner organisations and include roles, responsibilities and contingency plans and procedures to enable timely and effective response. Clear communication plans are also in place to ensure that weather and flood forecasts are received by operational teams and disseminated to staff, contractors and our customers.

Responses to severe weather, emergency exercises and actual response are used to identify training opportunities and potential improvements to operational plans and procedures. Where appropriate, reviews are

carried out in consultation with multiple parts of the County Council and other responding organisations impacted by the event.

Climate Change and Adaptation

The Climate Change Act 2008 established a statutory framework for adaptation and set in place a five-year cycle for Government to report on the risk to the UK of climate change and to publish a programme setting out how these impacts will be addressed. The Government released the first National Adaptation Programme in 2013 containing a series of objectives and associated actions. Most notably with regards to highway infrastructure, these actions included:

- To ensure infrastructure is located, planned, designed and maintained to be resilient to climate change, including extreme weather events.
- To better understand the vulnerabilities facing local infrastructure from extreme weather and long-term climate change to determine actions to address the risks.

As such, it is important that due consideration is given to how the impacts of climate change, such as intense or prolonged rainfall, hotter temperatures and higher windspeed will impact on the types of highway assets that they manage. Some of the risks may have the potential to be reduced by mitigation action and options for mitigating the greatest risks should be explored with a view to prioritising those measures that will provide the greatest return on investment in terms of reduced risk.

Kent County Council will assess the risk of extreme weather events on highway infrastructure and identify ways to mitigate the impacts.

Sustainability

The County Council has an important role in ensuring Kent's residents and businesses benefit from sustainable growth and a competitive, innovative and resilient economy. This should be balanced with protecting and improving our natural and historic assets, for their unique value and positive impact on our society, economy, health and wellbeing. Materials and treatments used for highway maintenance can have a positive contribution to the public realm. There are a wide range of options, some of which are obligatory, but many of which provide for sympathetic application in particular circumstances. For example the selection of appropriate vegetation and trees during the planning stage of new schemes can bring environmental, drainage and social benefits.

Kent County Council will endeavour to balance the character of the area as well as whole life cost, environmental impact and sustainability when determining materials, products and treatments.

The management and maintenance of highway infrastructure have an inevitable impact on the environment and we therefore have a responsibility to make sure environmental risks and opportunities are managed positively and our use of natural resources is minimised for the benefit of future generations. The County Council's [Environmental Policy](#) outlines the actions and objectives that underpin our approach. In accordance with this policy statement highway verges, trees and landscaped areas are managed with regards to their nature conservation value and biodiversity principles as well highway safety and serviceability.

Financial Management, Priorities and Programming

Financial Planning and Budgeting Principles

It is essential that financial plans are linked to our Highway Asset Management Framework with respect to both short term activities such as routine maintenance, and for medium and long-term activities such as preventive maintenance and asset replacement. Our [Highway Asset Management Framework](#) describes how lifecycle planning principles are used to review funding levels, support investment decisions and substantiate the need for appropriate and sustainable long-term investment.

The way in which investment is prioritised needs to provide sufficient flexibility to deliver value for money. In addition to ensuring effective coordination, an asset management-based approach to managing highway infrastructure requires due consideration of different options and factors that influence their success:

- The differing life expectancies of various treatments and the future implications of these for the balance of capital and revenue funding; for example, renewing a bridge parapet might be more expensive than simply repointing the aging brickwork but doing so could generate a saving with respect to the long-term maintenance.
- The seasonal and weather sensitive nature of many treatments and the service as a whole; for example, renewing a road surface is best done during dry, mild weather as very cold or wet weather can cause the surface to rapidly fail.
- The uncertainties in prediction of out-turn costs for Winter Service, Severe Weather Events and emergencies and the need for financial year-end flexibility

Priorities and Programming

The County Council has endorsed an asset management based approach to the maintenance and management of highway assets. Part of this approach involves viewing the highway network as a whole rather than as discrete asset groups such as carriageways, drainage, lighting and structures. By sharing and coordinating both short and longer-term programmes of work efficiencies can be made, and the level of disruption caused can be reduced.

Kent County Council will take a cross asset approach when developing priorities and programmes and produce a rolling forward works programme that is updated regularly.

Performance Management

Effective performance monitoring will support the County Council in reviewing progress, performance requirements and works programmes. Our [Highway Asset Management Framework](#) establishes mechanisms for performance management, including performance measures and targets, which facilitate the monitoring of delivery with respect to the short, medium and long term strategic direction of the service.

Performance Measures and Targets

Information and data arising from implementation and delivery of asset management are used to identify actions for continual improvement of the approach, including delivery of the overall service. This enables relevant processes and practices to be assessed and form the basis for continuous improvement. Moreover, it ensures that critical performance issues are identified and addressed in a timely manner.

Performance Reviews

Regular reviews complement performance monitoring and reporting to support continuous improvement and input into the identification of opportunities for improvement. In more significant cases, these improvements should be formally documented with details of the expected outcomes, specific actions to be taken, the owner, the resources needed to deliver them and timescales. In doing so, focus is maintained, and benefit is maximised.

Benchmarking

Finally, benchmarking is a systematic process of collecting information and data to enable comparisons with the aim of improving performance, both absolutely and in relation to others. Through effective benchmarking and information sharing with neighbouring authorities and those authorities with a similar composition of highway network, the County Council can validate the approach taken and ensure that highway users' reasonable expectation for consistency is considered when developing the approach to highway infrastructure maintenance.