

HIGHWAY INFRASTRUCTURE ASSET MANAGEMENT STRATEGY

November 2015

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1 - Summary of advantages of this Highway Infrastructure Asset Management Strategy

Adoption of asset management principles has long been recognised as an effective way in which to manage highway assets. The Department of Transport (DfT) is promoting the use of asset management of highway assets as the most effective and efficient means of managing highway assets, through its funding mechanisms, such that only those that use asset management in a robust way will be able to obtain funds on an ongoing basis from the DfT capital highway maintenance 'Incentive Fund'. The Incentive Fund will be introduced from 2016/17 onwards and grow incrementally until 2020/21 when it will be at its peak.

Using an asset management-based approach will provide:

- An improved understanding of the extent and condition of the highway infrastructure;
- A clear methodology for linking goals, aspirations and objectives with levels of service;
- A sound approach for predicting the levels of funding required to deliver the desired levels of service at minimum cost over the assets' whole life;
- A recognition of the potential impact of funding constraints;
- Understanding risks and mitigating them;
- A consistent approach which facilitates managing service user expectation;
- Maximising funding opportunities and making best use of monies available;
- Minimising lifecycle costs and reactive repair costs;
- Alignment and coordination of existing initiatives, including competency development;
- Greater engagement of the workforce, including leadership, communications and cross-disciplinary teamwork.

2 - Why asset management

2.1 Background

The adoption of asset management principles has long been recognised as an effective way in which to manage highway assets with all their complexities and demands. The Highway Maintenance Efficiency Programme (HMEP) - a DfT financed sector-led transformation programme designed to maximise returns from highways investment and deliver efficient and effective services - generated a number of documents to help local highway authorities improve their asset management. Asset management is designed to maximise returns from highways investment, deliver efficient and effective services and promote the sharing of best practice.

Asset management supports business decisions and provides longer term financial benefits. It helps to:

- Understand the assets in place;
- Describe how they perform;
- Determine the funding needed to meet the requirements placed upon them.

A sound asset management approach will deliver maintenance at the lowest cost over the term of the life of the asset.

The DfT is encouraging all local highway authorities to utilise asset management as a key tool to getting better value for money from its local highway maintenance funding grants. On 23 December 2014, Transport Secretary Patrick McLoughlin announced how the DfT would allocate the £5.8billion funding to English highway authorities outside of London in three components. Whilst £575m would be allocated to a bids-based 'Challenge Fund' from which money would be allocated in two financial tranches for schemes meeting specific DfT criteria, the main component (£4.7billion) would be highways maintenance needs-based allocations.

In 2015/16, local highway authorities received 100% of the needs-based funding but, from 2016/17 onwards, the financial value of such allocations will reduce and be replaced on an annually increasing basis by monies from a new Incentive Fund, for which the Government set £578 million aside. However, Incentive Fund allocations would only be made to councils that demonstrate they are delivering value for money in carrying out cost effective improvements. In effect, this is incentivising local authorities to use asset management principles and they have been asked to complete a self-assessment questionnaire to apply for their Incentive Fund allocation. The questionnaire was sent on 11 June and is to be assessed against a maturity framework, with many of the questions requiring higher level responses that are outcome-based.

Questions are based on the following subjects:

- Asset management;
- Resilience;
- Customer;
- Benchmarking and efficiency;
- Operational delivery.

It is only by using asset management principles that the Council can maximise its Central Government funding and spend this efficiently and effectively.

This document presents the Council's strategy for the management of the Council's highway assets as at November 2015 and allows planning for the longer term. This Highway Infrastructure Asset Management (HIAM) Strategy builds on the 2006 Transport Asset Management Plan and its 2011 replacement, which has led to improved use of resources whilst maintaining the majority of assets in a sound

condition. Much has been achieved. This HIAM Strategy aims to build on the knowledge acquired, highways sector best practice and complete the transformation to an asset management philosophy amongst Council personnel (officers and members) to enable even better deployment of limited resources for the users of Suffolk's Highways infrastructure.

This HIAM Strategy considers customer needs, local priorities, asset condition, and Government and highways sector advice. It considers both the short and long term need, whilst delivering a minimum whole life cost approach for the Council's highway assets.

The HIAM Strategy will be used to inform which highway maintenance schemes are to be implemented (both capital and revenue) within the Council's integrated works programme. The selection of such schemes will be driven predominantly by condition data (such as from SCRIM and Scanner surveys), visual comparative assessment and proposed by the works of third parties (i.e. public utilities and developers) on the highway network.

Maintenance plans will be considered in a holistic manner to ensure logical programming of works e.g. footway resurfacing will not be carried out if lighting cabling or street light columns need to be replaced.

2.2 Objectives of highway maintenance

Our highway maintenance strategy will be systematic and logical, being based on legislation, guidance, best practice and local requirements. Our highway maintenance strategy will be directed towards optimising the contribution of maintenance to the service provided, by:

- Delivering statutory obligations;
- Being responsive to the needs and views of users and communities;
- Contributing to effective asset management and thus maintaining and enhancing the assets value;
- Supporting the effective delivery of our statutory Network Management duty;
- Supporting corporate policy and local transport objectives.

This can be expressed as the following service levels:

Network safety	Complying with statutory obligations Keeping users safe
Network serviceability	Ensuring availability & reliability Achieving integrity & enhancing condition
Network sustainability	Minimising costs over time Maximising value to the community Maximising environment contribution

Customer service

- Delivering customer satisfaction
- Providing effective consultation & communication
- Providing efficient enquiry & complaints processes

This hierarchy moves from the mandatory (safety) through enhancing network (serviceability) and long-term effectiveness (sustainability) to delivering high level customer aspirations (customer service).

These levels of service, risk management, needs-based budgeting and competitive service delivery provide the basis for an effective Highway Infrastructure Asset Management Strategy.

2.3 Required components of a Highway Infrastructure Asset Management Strategy

There are core components required of any Highway Infrastructure Asset Management Strategy, which are:

- An understanding of the extent of the highway;
- A detailed inventory of the highway assets;
- A detailed understanding of each asset's condition;
- An understanding of asset deterioration rates;
- A defined hierarchy for the network;
- A robust framework of levels of service linked to the authority's aims;
- A robust framework of policies and objectives for the service.

2.4 Vision

The Council's vision is to be a lean, focused and motivated organisation, providing strategic leadership for Suffolk. As part of the Suffolk Growth Strategy, the Council is committed to improving the infrastructure of the county, to improve the quality of the road network to make it easier for people to access work and businesses to reach their growth potential. The Council's Mission Statement is that:

We will make a positive difference for Suffolk. We are committed to working together, striving to improve and securing the best possible services.

This Mission Statement translates into a number of corporate priorities which include:

- Raising educational attainment and skill level;
- Support the Local Enterprise Partnerships (LEPs) to increase economic growth;

- Maintain roads and develop Suffolk's infrastructure;
- Supporting those most vulnerable in our communities; and
- Empower local communities.

Associated with these corporate priorities are the Local Transport Plan priorities which are:

- A prosperous and vibrant economy;
- Creating the greenest county;
- Safe, healthy and inclusive communities; and
- Learning and skills for the future.

The Council recognises the importance of its highway infrastructure and how an effectively maintained and managed network contributes to the achievement of all its corporate aims. The Council understands that effective asset management is a platform to make best use of resources and provide an improved value for money service.

The infrastructure managed by Suffolk Highways forms the largest and most valuable public asset within the Council's control with a gross value of £19.2billion (including £11.3billion land). The management and maintenance of such a valuable asset needs to be undertaken in an organised efficient manner, which takes account of the Council's aims, service use and stakeholder aspirations, local priorities, maintenance needs and the reality of available resources. The effective management of these complex assets can only be addressed within a strategic framework that balances the demands and aspirations with the reality of the current financial situation. The aim of this Highway Infrastructure Asset Management Strategy is to outline how Suffolk Highways will approach the task of managing Suffolk's most valuable and important public assets.

2.5 Strategic framework

This strategy document together with the Highway Infrastructure Asset Management Policy, sit within a wider asset management framework (Figure 1) and forms links between the Council's vision, its priorities and key policy documents.



Figure 1 - Asset Management Framework

The benefits of this approach are:

- A good understanding of the extent and condition of the highway infrastructure;
- A clear methodology for linking goals, aspirations and objectives with levels of service;
- A sound approach for predicting the levels of funding required to deliver the desired levels of service at minimum cost over the asset's whole life;
- A recognition of the potential impact of funding constraints;
- Understanding risks and mitigating them;
- A consistent approach which facilitates managing service user expectation;
- Maximising funding opportunities and making best use of monies available;
- Minimising lifecycle costs and reactive repair costs;
- Alignment and coordination of existing initiatives, including competency development;
- Greater engagement of the workforce, including leadership, communications and cross-disciplinary teamwork.

3 - The asset management approach

3.1 Definition

PAS 55 defines asset management as:

“Systematic and coordinated activities and practices through which an organisation optimally and sustainably manages its assets and asset systems, their associated performance, risks and expenditures over their life cycles for the purpose of achieving its organisational strategic plan”.

In 2004, the County Surveyors' Society (CSS), the predecessor of ADEPT (the Association of Directors of Economy, Environment, Planning and Transport), defined highways asset management as:

“A strategic approach that identifies the optimal allocation of resources for the management, operation, preservation and enhancement of the highway infrastructure to meet the needs of current and future customers”.

3.2 The highway network and climate change.

It is now widely recognised that global man-made climate change is affecting our weather patterns. In the UK, this is reflected through greater incidence of prolonged rainfall, strong winds and heatwaves which can combine with other natural events such as coastal storm surges to create adverse conditions for our transport network. Where practical, there is a need to make our transport networks more resilient to such events.

The Transport Resilience Review, a review of the resilience of the transport network to extreme weather, was published in July 2014 and has a section on local roads which not only recommends the use of asset management principles but also states as Recommendation 35 “Each Local Highway Authority should make an early start in identifying a resilient network to which it will give priority through maintenance and other measures in order to maintain economic activity and access to key services during extreme weather”.

Suffolk’s resilient network will be used to support prioritisation within the framework of the Highway Infrastructure Asset Management Plan (HIAMP), given that the Council’s available maintenance budgets are unlikely to be able to fund all necessary actions. The evaluation behind the prioritisation needs to consider the likelihood of extreme weather events and their associated economic and social impacts. The resilient network will take account of repeat events, such as flooding, allow for recording of these events, for future examination, and use this evidence to support infrastructure and maintenance action. It will reflect which routes are absolutely essential and those that are less critical for a time. These decisions should not be constrained by traditional road classification. In the event that, because of budget and resource pressures, the decision is taken not to maintain particular roads, with clear implications for resilience, this will be recorded in a ‘Resilience Plan’.

The Transport Resilience Review was, in effect, a follow-up to the Winter Resilience Review of 2010. This earlier document identified the need for local highway authorities to identify its ‘snow network’ – i.e. the local roads that it would apply its winter service to as a priority over other roads in the local highway network. This ‘snow network’ was recognised as being likely to “include those routes crucial to the economic and social life of the area, albeit that this may not include roads subject to river flooding.

As a starting point, the Council classifies its resilient network as being its Priority 1 winter service gritting network but will refine this to take further account of key local roads that may be prone to flooding. This resilient network will be further assessed to ensure it reflects usage, traffic type, and importance to Suffolk’s economy rather than simply the traditional road type classification.

3.3 Inventory and data management

The starting point for undertaking highway asset management is to know the position and condition of the various elements of infrastructure that collectively comprise the local highway network.

Since the publication of the first Transport Asset Management Plan in 2006, great strides have been made with regards to understanding the position and condition of the Council's highway network assets and storing this on management systems, but there are still data gaps. To provide a comprehensive asset management strategy, relevant data regarding position and condition of assets must be obtained, collated and maintained.

The collection of asset data for all highway assets will be given priority, to allow practitioners and Councillors alike to understand the condition of the Council's highway assets and allow informed decision making.

3.4 Levels of service

Levels of service are a way of defining the standard of service that is provided or required. They link directly back to the Council's corporate aims and objectives, and other strategy documents such as the Suffolk's Sustainable Community Strategy. They must, as a minimum, meet the Council's statutory duties. They should also take account of the management and mitigation of risk both to the service user and the Council.

Levels of service can thus be described in:

- Broad terms for definition purposes;
- Concise standards and targets for measurement and informing the decision making process.

Drawing on the Council's corporate and Local Transport Plan priorities, as set out in Section 1.4 above, the levels of service for Suffolk's highway infrastructure can be framed as follows:

- Safe and serviceable in relation to use;
- Provides accessibility to and from communities for people, goods and services;
- Promotes the development and maintenance of sustainable communities;
- Contributes to wider sustainable economic growth;
- Appropriately maintained to conserve its usefulness, value and integrity for current and future users;
- Maintain sustainably to minimise our effect on the environment.

Appropriate levels of service will be described in the HIAMP associated with this HIAM Strategy. The HIAMP will include standards and targets which can be approved each year as part of the Council's budget setting process. It will consider the following:

- Local views;
- Lifecycle planning;
- Standard treatment regimes;
- Solutions to minimise whole life costs;
- Risks and opportunities;
- Solutions to maximise sustainability and minimise the adverse effect on the environment.

3.5 Local views

It is extremely important that local views are considered as part of the democratic process. Therefore, the HIAM Strategy should be informed by:

- The National Highways and Transportation Survey (NHT) which, in 2015, sent questionnaires to a minimum of 3,300 households in each participating local authority area. The Council has participated in this survey for a number of years;
- Councillors' and communities' engagement through the Highways Transformation Programme;
- Any other highways-related public (satisfaction) survey;
- Specific consultations with relevant stakeholders.

In 2014 with regards to highway maintenance, the lowest NHT satisfaction scores (% satisfied) related to

- HMBI1 - Condition of road surfaces (35.8)
- HMBI7 - Speed of repair to damaged roads/pavements (28.2)
- HMBI11 - Dealing with potholes and damaged roads (32.3)
- HMBI16 – Cut back overgrown hedges (39.2)

Although it is clear that the public is least satisfied with the condition of road and pavement surfaces and the speed at which repairs are made, the survey indicates that, for KBI 23 (Condition of Highways), the Council (with a score of 35.1) performs above the national average (a score of 30.6) – however, this still constitutes a poorer score than should ideally be achieved. The NHT survey suggests that funding priority should be given to carriageway condition (and associated drainage as this affects both carriageway deterioration and ability to prevent flooding).

Budget consultation responses from previous years have indicated that use of highways and roads was rated highly in terms of usage together with waste services, with respondents generally opposing cuts to highway services, especially related to repairing and maintaining local roads and pavements.

4 - Lifecycle planning, budget projection and valuation

Lifecycle planning is a methodology which utilises our understanding of asset deterioration and the improved qualities of the asset following treatments to derive a treatment or treatments regime which will deliver the desired level of service at minimum cost. This can be altered to reflect changing condition requirements and funding availability.

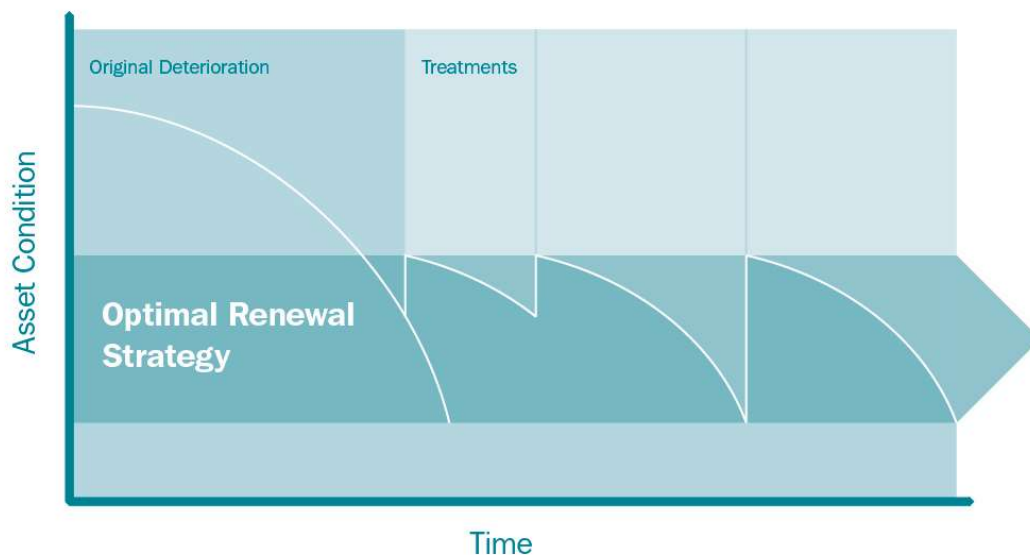


Figure 2 – Lifecycle Scenario Planning

Detailed lifecycle scenario plans will be developed for asset types charting the maintenance journey throughout the asset's life (Figure 2).

Suffolk Highways will initially use the Highway Maintenance Efficiency Programme (HMEP) Lifecycle Planning Toolkit, which utilises standard deterioration models for local authority bituminous carriageways, to support strategic level planning decisions for different asset types:

- Carriageways;
- Ancillary assets ("matrix and VMS signs", and "lighting columns");
- Footways.

Planning level decision-making for other asset types will be based on best practice from whatever source. Should best practice move on from the aforementioned HMEP guidance, then these alternate methodologies will be considered for use.

The HMEP Lifecycle Planning Toolkit will:

- Assess impact of different levels of funding on asset performance and asset maintenance needs;
- Allow investigation of current and future levels of funding required to achieve a given condition or performance target for the asset;
- Identify the levels of funding required to minimise whole life costs;
- Inform the allocation of resources to assets and treatment types to manage whole life costs;
- Provide long-term estimates of expenditure and associated asset performance and hence likely performance of the asset under budget constraints or the budget required to support a target asset performance.

Scenarios to be assessed for each asset type could include but are not limited to:

- Do nothing – assessing consequences of not carrying out maintenance;
- Steady state – determining the required funding level to keep the road network at approximately the current condition;
- Budget constraint - assessing the consequences of reducing the budget required for a 'steady state' scenario by 25% throughout the period;
- Performance target - assessing the consequences of reducing the budget required for a steady state by 25% for the first 10 years of the analysis period and then investing as required for the remainder of the period to return the condition to the 'steady state' scenario.

Once budgets have been allocated, it is essential that data-based asset management analysis, backed up by engineering judgement, is used to determine schemes and not simply engineering judgement, as has sometimes been the case in the past. In other words, all funds must be carefully allocated to the right schemes to minimise whole-life costs.

This will require a change in culture from all stakeholders. ***The Council will support this change through all the levels of the Council and its service providers through a communication strategy and by utilising available resources, such as the HMEP documentation e.g. "Maintaining a Vital Asset" and e-learning material currently being released by the Chartered Institution of Highways and Transportation (CIHT).***

5 - Risk management

Risk management is an integral part of asset management which supports decision making. A risk is an uncertain event, which, should it occur, will have an effect on the performance of the asset. This can either be a threat or opportunity producing a negative or positive impact respectively.

Risks should be managed at:

- Corporate level - high level risks that affect the whole Council e.g. corporate reputation, civil defence, emergencies, business continuity, health and safety, political, legal and financial. These risks are managed by senior decision makers in the Council;
- Strategic and tactical level – affecting the management of the highway infrastructure. These are managed by middle managers in both the Council and our service delivery partners;
- Operational level – managed when undertaking operational activities.

The likelihood and consequences of these risks and opportunities will be used to inform and support our approach, by informing the decision making process, investment and implementation.

To manage risk appropriately, the following needs to be understood:

- Which assets are critical for the network to function;
- What could affect delivery of the required performance;
- Funding availability;
- Acceptable risk levels;
- Mitigation options for unacceptable risks.

The Council will produce a risk register (based on the Corporate Risk Register format) with agreed mitigation and appropriate allocated owners for each identified risk. The risk register will be reviewed and updated regularly at least quarterly by the Assistant Director (Operational Highways) and the Operational Highways management team.

6 - Suffolk County Council's approach

In addition to the items noted earlier, there are other techniques that will need to be utilised that will strengthen the approach.

6.1 Client/provider collaboration

It is generally accepted and confirmed in the HMEP Client-Provider toolkit that the most efficient models are those where the client and the service provider have a close working relationship.

The Council will therefore move away from the current, output-focused contract management way of working and move to a culture of working together with the service provider, sharing intelligence in a virtual joint venture approach in order to focus on doing the right things as efficiently as possible to achieve the desirable outcomes.

Much of the highway maintenance service is delivered by service provider partners. They are very experienced and serve numerous clients. They are exposed to best practice in other locations. The Council needs to benefit from their knowledge and experience. Our service delivery partners will be regularly requested to input **into improving the service to reduce costs / improve efficiency.**

6.2 Supply chain integration / adoption of BS11000

Part of the DfT assessment for discretionary funding is supply chain collaboration and the adoption of BS11000 Collaborative Business Relationships.

The Council will work with our service delivery partner and supply chain utilising the principles of BS11000 and, once familiar with these techniques, will consider whether accreditation should be sought.

6.3 Outcome-based performance management

Service providers are routinely providing outcome-based performance management services for numerous local highway authorities around the UK, when they believe they can manage the risks involved.

Our service providers will be regularly asked if there are any maintenance activities that they believe they can manage more effectively at a lower cost using outcome-based performance management.

The Council will use Organisational Performance Measures (OPMs) to monitor the performance of the 'organisation' (the Council and its service providers) in relation to its HIAM Strategy and effectiveness.

6.4 Building Information Modelling

Building information modelling (BIM) is the management of information through the entire life of a built asset. It helps deliver value for money through effective creation, collation and sharing of data associated with individual and/or groups of assets.

Whilst BIM, to date, has largely focused on the design and construction stages of assets, BIM offers benefits across the entire life cycle of assets and is a key enabler of improved asset management and recognised in the ISO55000 Asset Management framework.

The availability of appropriate and reliable information about assets is integral for effective asset management and when used appropriately can support decision-making, planning and delivery of works throughout the asset life.

The Council will work to incorporate BIM principles in its approach to asset management ensuring that available resources are targeted in an informed way.

6.5 Designing for maintenance

Good asset management starts at the planning and design phase when decisions can be made that affect the amount of maintenance required, the ease with which the maintenance crews can do the work and the whole life costs of the asset. Accordingly, asset management principles will be adopted from the planning stage (new assets and maintenance projects) onwards. A good starting point is to design for safety and maintenance (DSM).

The aim through DSM is to deliver best value over the life of the project by:

- 1 Designing out the need for maintenance:
 - Don't provide
 - Different material design
- 2 Reducing hazards involved by providing:
 - Use of longer life materials
 - Reduce duration exposure
 - Reduce severity of exposure
 - Relocation of assets
 - Maintenance for serviceability
- 3 Residual hazard identification and communication.
- 4 Safe methods of working

The Council's maintenance and repair strategy enshrines the principles of design for maintenance outlined in the Interim Advice Note 69/05 – Designing for Maintenance, issued by the Highways Agency (now Highways England).

6.6 Sustainable maintenance

Maintenance activities themselves can contribute to sustainability by reducing waste and minimising whole life costs through:

- Reduce - wherever possible, waste reduction is the preferable option;
- Re-using - if waste is produced, every effort should be made to reuse it if practicable;
- Recycling - the third option in the waste management hierarchy;
- Recovering - it may be possible to recover materials or energy from waste which cannot be reduced, reused or recycled.

6.7 Sharing of good practice

Good practice can be found in various places. ***Suffolk Highways will seek out best practice wherever located and seek to learn from it and conversely share our practice with others, through the Eastern Highway Alliance (EHA) for example.***

6.8 Performance monitoring

An Asset Management Implementation Programme has been developed. Progress against this Programme is being continually reviewed and formal annual reviews will be undertaken.

The Council will work with its service delivery partner to develop asset management objectives as well as service delivery and contract delivery objectives, considering the value for money assessment tool developed by the Future Highways Research Club, an independent research group for senior industry practitioners and supported by the Cranfield University School of Management.

Performance will be monitored against these objectives to evidence where progress is being made and areas that need focus to ensure that highway assets are managed in the most efficient and effective manner and ensure that Suffolk Highways is able to continuously improve.