Highways Infrastructure Asset Management Plan

Westminster County Council

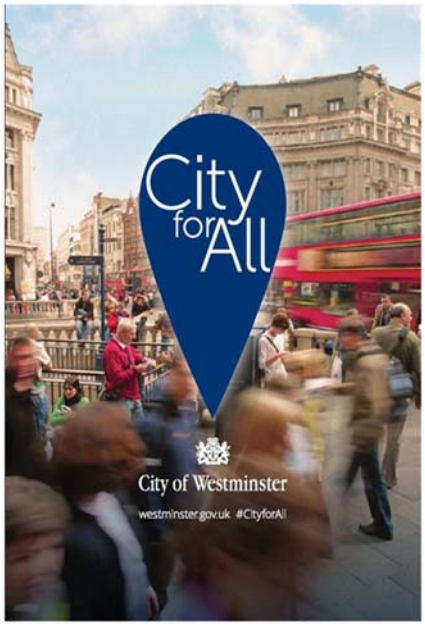
Version Draft 3.5 – 30-10-18

Westminster City Council
westminster.gov.uk

City of Westminster

Foreword

The City of Westminster supports the largest centre of employment in the UK; is the home of government; state and national ceremony and contains 40% of London's hotel beds. The transport infrastructure supports a residential population of 230,000, a daytime population of over 1,000,000 and is home to Europe's largest night-time economy.



The City of Westminster Council (the Council) is committed to providing world class city management to deliver strong communities and provide excellent services to achieve the Council's vision of a "***City for All***" – an unrivalled city of choice and aspiration where the connections amongst residents, businesses and visitors get stronger as everyone plays their part in, and benefits from the City's continued success. The Council's highway infrastructure assets play a vital role in achieving the 'City for All' vision to the economic, social and environmental well-being of the community. This vision has three components:

- **City of Aspiration –** Enabling all communities to share economic prosperity of our city;
- **City of Choice –** Creating opportunities for residents, businesses and visitors to make informed and responsible choices for themselves, their families and their neighbourhood; and
- **City of Heritage –** Protecting and enhancing Westminster's unique heritage so that every neighbourhood remains a great place to live, work and visit both now and in the future.

The transport infrastructure in Westminster has a vital role to play in achieving the Council's goal and in supporting economic stability, growth and social wellbeing.

The Council is taking positive and innovative steps to ensure this challenge is met, through the development and implementation of an asset management approach and the production of the Highway Infrastructure Asset Management Plan (HIAMP).

This HIAMP sets out the Council's strategic approach for managing its highway infrastructure assets. It has been updated to reflect a risk-based approach in line with the recently published Well-Managed Highway Infrastructure: A Code Practice (2016). The amendments will help ensure the Council maintains its highway infrastructure assets to appropriate standards whilst achieving an optimum use of available funds.

Contents

1 Introduction

The highway network is the largest and most visible community asset for which Westminster City Council (the Council) is responsible. It is used daily by its residents, those who work in the City and visitors and is fundamental to the economic, social and environmental well-being of the community. It helps to shape the character and quality of the local area it serves and makes an important contribution to the Council's wider priorities. These include: regeneration, social inclusion, community safety, education and health. The performance of the highway infrastructure assets affects the lives of everyone who lives in or visits Westminster.

As highway authority, the Council is fully committed to fulfilling its statutory duty to ensure that the highway network is safe and is fit for purpose.

The Council is one of the busiest authorities in the country. It is located at the heart of the capital city dealing with some of the most complex development, policy, social, economic, public realm and city management issues. It is also the largest licensing and parking authority in the UK.

The Council's vision is for Westminster to be a 'City for All' and to support a City that is confident, tolerant and where everybody can share in the benefits of economic success. The Council's highway infrastructure assets play a vital role in achieving the 'City for All' vision to the economic, social and environmental well-being of the community.

The Council has put in place robust technical and management processes and systems to ensure that the highway infrastructure is managed efficiently, effectively and sustainably as set out in detail in our Maintenance Management Plan (MMP). The Council has actively engaged with key stakeholders in establishing Levels of service, the required asset performance, and the asset management maintenance service.

How the HIAMP Supports the Council's Goals and Objectives

There is an increasing recognition by the Council and the Department for Transport (DfT) for the importance of asset management and the high value placed on highway assets both by users and the wider community.

Highway Infrastructure Asset Management is a way of operating a highway network to make best use of the funding available by optimising the time and nature of repairs. The development of asset management processes and the delivery of the asset management services must therefore be guided by an overarching asset management plan which translates the organisation's overall vison policies and strategic objectives into asset management policies and strategies to deliver that vision. The asset management approach uses a framework and includes defined levels of service and performance targets to which the assets should achieve over the long-term.

This (HIAMP):

- Translates the Council's Business Plan vision and objectives into the agreed Levels of service and asset management performance measures and targets for the highway infrastructure assets;
- Describes the long-term rehabilitation programmes and financial plans required to deliver the agreed asset specific Levels of service and performance targets; and
- Is instrumental in influencing the Local Implementation Plan (LIP) and the Business Plan in respect of programmes, priorities and funding requirements.

The HIAMP should be read in conjunction with the Council's other key asset management documents set out in the Table 1. These documents set out the Council's asset management vision, objectives and strategy as well as the supporting operational and tactical plans for the delivery of an effective and efficient highways service.

Table 1. *Documents to be Read in Conjunction with the HIAMP*

Document	Purpose	Level	Audience
'City for All'	Outlines the Council's vision and objectives.	Strategic	General Public
Highway Policy	Outlines the highways service objectives.	Strategic	Key Stakeholders
Highway Infrastructure Asset Management Plan (HIAMP)	As described in this document	Strategic	General Public & Highway Service Practitioners & Highway Service Provider
Maintenance Management Plan (MMP)	Sets out the technical and management processes and systems to ensure that the highway infrastructure is managed efficiently, effectively and sustainably	Tactical/ Operational	Council's Highway Service Practitioners & Highway Service Provider
Operational Processes	Details of highways maintenance processes used across the Council's highways contracts	Operational	Council's Highway Service Practitioners & Highway Service Provider
Value Management	Details evaluation and development of Planned Preventative Maintenance programme	Operational	Council's Highway Service Practitioners & Highway Service Provider
Manual for Highway Inspections	Provides guidance on inspections of highway assets	Operational	Inspectors
Planned Preventative Maintenance Guidance	Provides works programme development guidance	Operational	Council's Highway Service Practitioners & Highway Service Provider
Contract Documents	For the term maintenance contracts for Highways, Lighting, Bridges & Structures and drainage	Operational	Council's Highway Service Practitioners & Highway Service Provider

2 Asset Management

The Council will manage the delivery of highway services using a risk-based asset management approach in accordance with the code of practice: Well Managed Highway Infrastructure (WMHI). The asset management framework used by the Council is illustrated in Figure 1.

To implement the asset management framework, the Council will:

- Agree and provide an affordable Level of Service, and monitor performance;
- Use a lifecycle planning approach to understand the future investment need, and develop cost effective management strategies to deliver that investment;
- Maintain inventory of highway infrastructure assets and their condition;
- Identify, assess and control highway infrastructure asset risk and
- Have a long term financial plan which identifies required expenditure and how the plan will be funded.

The benefits of this approach include:

- Strong governance and accountability by demonstrating to stakeholders that assets are being maintained effectively and efficiently;
- Improved accountability for resource use through performance and financial indicators;
- Sustainable decisions by using a Value Management process to manage risks for investment decisions;
- Enhanced customer service through an improved understanding of service requirements;
- Improved performance and control of service delivery to required standards;
- Effective risk management by understanding the risks relating to highway infrastructure assets and service delivery and applying a framework to prioritise risk mitigation;
- Prioritisation of investments, interventions and preventative maintenance; and
- Financial planning for forward works programmes and funding requirements.

To be able to deliver the asset management framework approach, the following are desirable outcomes:

- Improved understanding of all highway assets, their location, material types', condition, performance, expected life and financial value;
- Better understanding of what the affordable level of service is required by customers now and into the future;
- Comprehensive system of performance measurement, monitoring and reporting;
- Better understanding of present and future investment need to deliver the agreed levels of service;
- Improved understanding of the risks and mitigating measures for all the highway assets;
- More effective business processes and service contracts to maintain the highway assets; and
- An organisational culture that embeds all the above and provides effective training and opportunities to achieve a 'best in class' highway service.

Through the Asset Management Board, the Council is working across the different asset types in a coordinated approach to deliver effective evidence based asset management strategies.

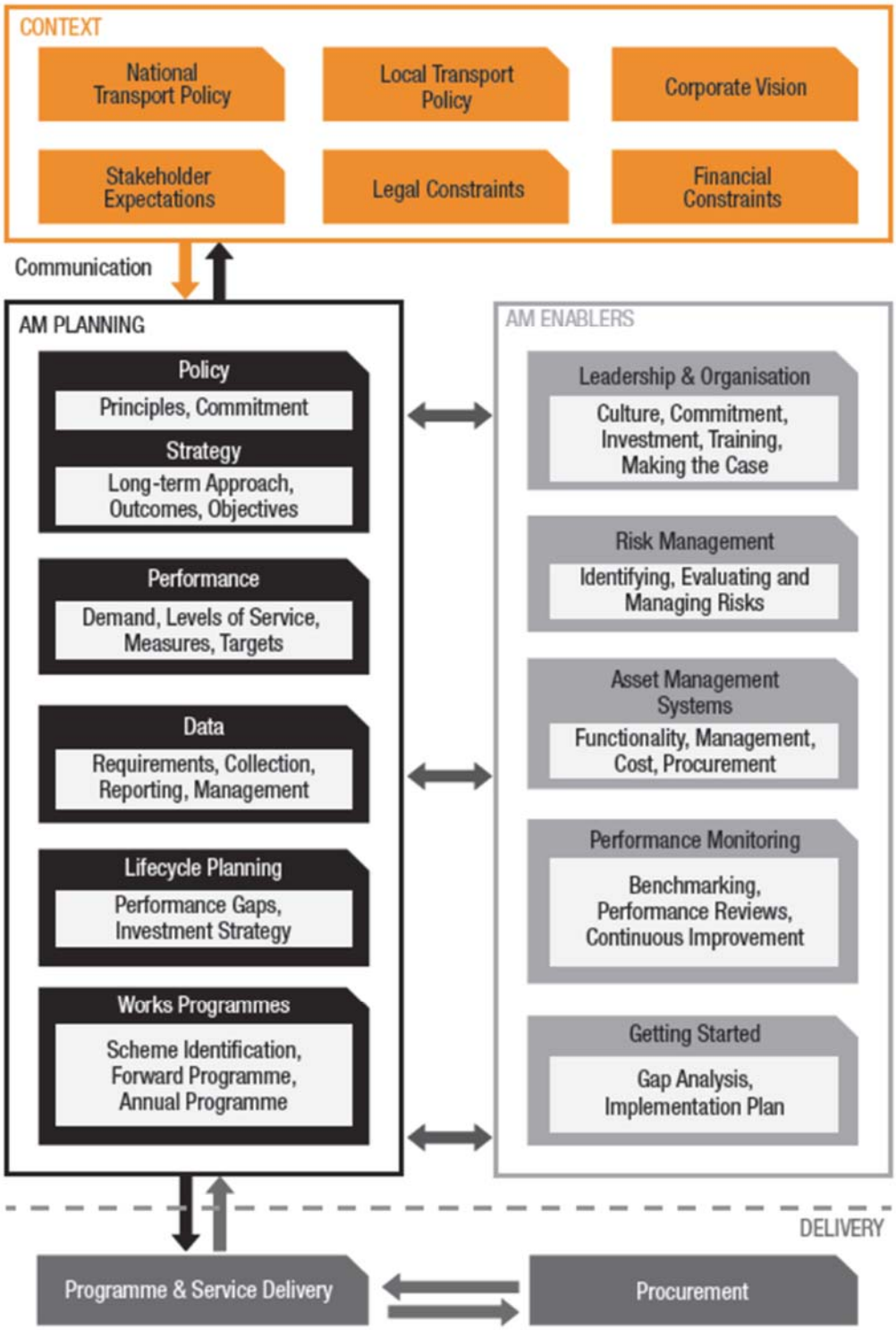


Figure 1. Asset Management Framework used by the Council (Adopted from Highway Maintenance Efficiency Programme - HMEP)

3 Highways Policy Statement

3.1 Introduction

The Highways Policy Statement (V3, April 2017) focuses on 'Contract A - Highways Maintenance Management & Public Realm Projects' and 'Contract D - Gully Services'.

The Highways Maintenance Management functions are incorporated within the Highways Infrastructure Asset Management Plan and the Maintenance Management Plan. They are aligned with the Council's vision, values, behaviours and asset management principles.

The Highways Policy Statement is to be read in conjunction with the Council's current Manual for Highway Inspections and the national Code of Practice Well Managed Highway Infrastructure (2016).

3.2 Statutory Powers and Duties

The Council has a statutory duty to ensure that its highway network is in a safe and reliable condition and is committed to complying with the applicable legal and regulatory requirements and adopting national standards and best practice.

The Highways Act 1980 sets out the main duties of highway authorities in England and Wales. Section 41 imposes a duty to maintain highways maintainable at public expense and Section 58 provides for a defence against action relating to alleged failure to maintain on grounds that the authority has taken such care as in all the circumstances was reasonably required to secure that the part of the highway in question was not dangerous to traffic.

The Traffic Management Act 2004 Section 16(1) establishes a new duty for local traffic authorities 'to manage their road network in securing the expeditious movement'. Section 31 of the Act specifically states the term 'traffic' includes pedestrians, so the duty requires the authority to consider all road users.

3.3 National Code of Practice

The Department for Transport (DfT) has published a revised national Code of Practice 'Well-Managed Highway Infrastructure' in October 2016 to replace 'Well-maintained Highways'. The Code is designed to emphasise the adoption of risk-based approaches tailored to local levels of service.

As the national Code of Practice is a live document, the Council reviews and adheres their policies in line with the latest version of the National Code of Practice (2016). The target date for adoption of the new Code of Practice is by October 2018 and until then there will be a transition period to develop local risk-based approaches, undertake appropriate analysis and to gain approval through the authority's executive process.

3.4 Risk Based Approach

Authorities should adopt a risk-based approach and a risk management regime for all aspects of highway maintenance policy. This includes investment, setting levels of service and operations, safety and condition inspections and determining repair priorities and replacement programmes. It should be undertaken against a clear and comprehensive understanding and assessment of the likelihood of asset failure and the consequences involved.

3.5 Delegated Authority

The Executive Director of City Management & Communities is responsible for the Highways Policy Statement, Highway Infrastructure Asset Management Plan, Maintenance Management Plan and associated documents and any subsequent amendments.

3.6 Asset Management Approach

Asset management is a discipline which is applied to the whole life cycle of assets to optimise their performance and to achieve desired outcomes. It is about doing things well and delivering the agreed service in the most cost effective and sustainable manner. Key drivers for asset management include the challenging economic climate, increasing network demands and an ageing infrastructure.

To meet these challenges, the Council is embracing the principles of asset management to determine optimum levels of maintenance and a long-term programme of planned investment, supported by effective management systems and procedures.

3.7 Service Principles and Service Levels

The Highways Maintenance Management & Public Realm Projects and Gully Services contracts were awarded based upon the following principles and objectives:

- Accommodate a new target operating model for the service;
- Improved customer service;
- Improved interface between projects and maintenance;
- 'Right First Time' approach to reactive repairs;
- Places customers at the core - from report to resolution;
- Transparency and audit of all works and services;
- Ensuring value for money; and
- Budget revenue saving through operational efficiencies and innovation.

Levels of service and performance measures have been established to ensure that assets remain in a safe and reliable condition. Levels of service bandings are being determined using the four categories, of 'Excellent', 'Good', 'Fair' and 'Poor'. Service levels include safety inspection frequencies, prioritisation and response times.

3.8 Highway Network

The Council's highway network was generally constructed before 1920 and includes some the busiest streets in the United Kingdom. The network incorporates approximately 330km of carriageway length, 570km of footway length and ancillary assets such as street furniture.

For the purposes of complying with a risk-based approach to the maintenance of its streets, the City council has adopted the network 'Management Hierarchy' categories developed by the London Technical Advisers Group (LoTAG). The LoTAG management hierarchy takes account of the functionality of a street by taking account of various features associated with a street, such as, traffic volume, the presence of schools, hospitals, police stations, GP surgeries etc. Considering the usage or functionality of a street, informs decisions such as safety inspection frequencies and maintenance strategies.

3.9 Infrastructure Maintenance and Lifecycle Planning

There is understandably a higher level of recognition of the importance and value of highway infrastructure maintenance by users and the wider community. A sustained long-term programme of investment in local highway maintenance needs effective and efficient planning, management and technical and management systems.

Lifecycle Planning is a core process through which the Council's asset management strategy and objectives are delivered to provide value for money. The core highway lifecycle management activities are:

- Inspection, testing and monitoring to check that assets are safe for use and to provide the data for decisions;
- Routine maintenance such as cyclic gully cleaning;
- Reactive maintenance to repair unplanned defects;
- Programmed maintenance and planned preventative maintenance to maintain structural capacity and durability as assets deteriorate over time and renew and replace assets when they reach their end of serviceable life; and
- Programmed improvements.

To support lifecycle planning for carriageways and footways the Council carries out several surveys:

- **Annual Condition Surveys (ACS**) - Provide a measure of the network condition which is compared year on year to ascertain whether the network is in steady state, improving or deteriorating;
- **SCRIM (Sideway-force Coefficient Routine Investigation Machine) Surveys -** Machine-based surveys which provide data that is then used to assess the skid resistance performance of carriageways in line with the Council's Skid Resistance Policy;
- **SCANNER Surveys -** Machine-based condition surveys used on the Council's Principal Roads.

To identify opportunities to reduce costs and realise highway maintenance savings the Council has carried out service reviews with its Service Providers to re-prioritise works and shift emergency repairs to planned works. This has required reviews of:

- **Highways Risk Register -** Determine which repairs are done and when;
- **Highway Inspection Frequencies -** Determine how often each street is inspected; and
- **Working practices -** Ensure work is done cost effectively.

3.10 Highways Risk Register

The Highways Risk Register was approved by Cabinet on 15 April 2013 and was effective on 1 April 2014 aligning with the start date for the new Highways & Transportation contracts. The Highways Risk Register is embedded within the Manual for Highway Inspections. It is a fundamental component of the risk management process. It identifies the risks likely to be encountered. Each risk includes:

- Risk description;
- Extent of defect;
- Assessment of impact and probability;
- Risk factor; and
- Defect categorisation and response.

3.11 Safety Inspection Frequencies

The Council undertakes a system of regular highway safety inspections of all its adopted highways to comply with its statutory duty to maintain highways pursuant to section 41 of the Highways Act 1980 and to provide a special defence under section 58 of the same.

The purpose of highway inspections is to inspect the highway network, identify highway safety defects and ensure that they are rectified in accordance with approved specifications and within prescribed response times. Defects and response times are described within the Highways Risk Register.

Changes to the safety inspection frequencies were approved by Cabinet on 15 April 2013 and went live on 1 January 2015 after bedding in of the new Highways & Transportation contracts. Frequencies for highways inspections are set out for both carriageways and footways based on road hierarchy and are set out in the **Maintenance Management Plan.**

3.12 Inspection of Parking Bays

The Council operates robust procedures to inspect parking bays, including when occupied with parked cars, to provide a defence to claims. There is no statutory guidance, code or standards for parking bay inspections or how walked surveys and inspections should be carried out when parked vehicles are present. Each highway authority needs to adopt a risk-based approach and management regime.

It is difficult to inspect a parking bay when occupied by a vehicle due to a restricted field of view. Due to health and safety, it is unreasonable for an inspector to lay on the footway or live carriageway. The reasonable approach is to inspect parking bays from both sides of the footways for each street and as far as is reasonably practical under vehicles from the opposite side of the road. Exposed areas of carriageway between parked vehicles and adjacent to the kerbs line can be inspected for defects and for debris that may have originated from a pothole or a surface defect.

3.13 Training and Competencies

The Council employs experienced highway inspectors with extensive experience in the highway maintenance industry. This includes former employees of other highway authorities, contractors, utility companies and consultants. The Council requires all highways inspectors to have full supervisor accreditation of the New Roads & Street-works Act 1991 and encourage their continuous personal development.

Training is important to ensure appropriate competency levels are attained and inspectors undertake training workshops with respect to risk register, code of practice for highway inspections, changes of inspection frequencies and different defect types. Training also covers inspections under parked vehicles and mobile working.

This is set out in more detail in the **Maintenance Management Plan.**

3.14 Customer Experience and Defect Reporting

The customer experience starts when a defect is reported to the Council and the requirement for reactive maintenance arises, e.g. through:

- Our customer service call centre;
- The Council's website; or
- Highway inspectors reporting via inspections which include safety and serviceability inspections.

Figure 2 illustrates the customer defect reporting process for reactive maintenance repairs:

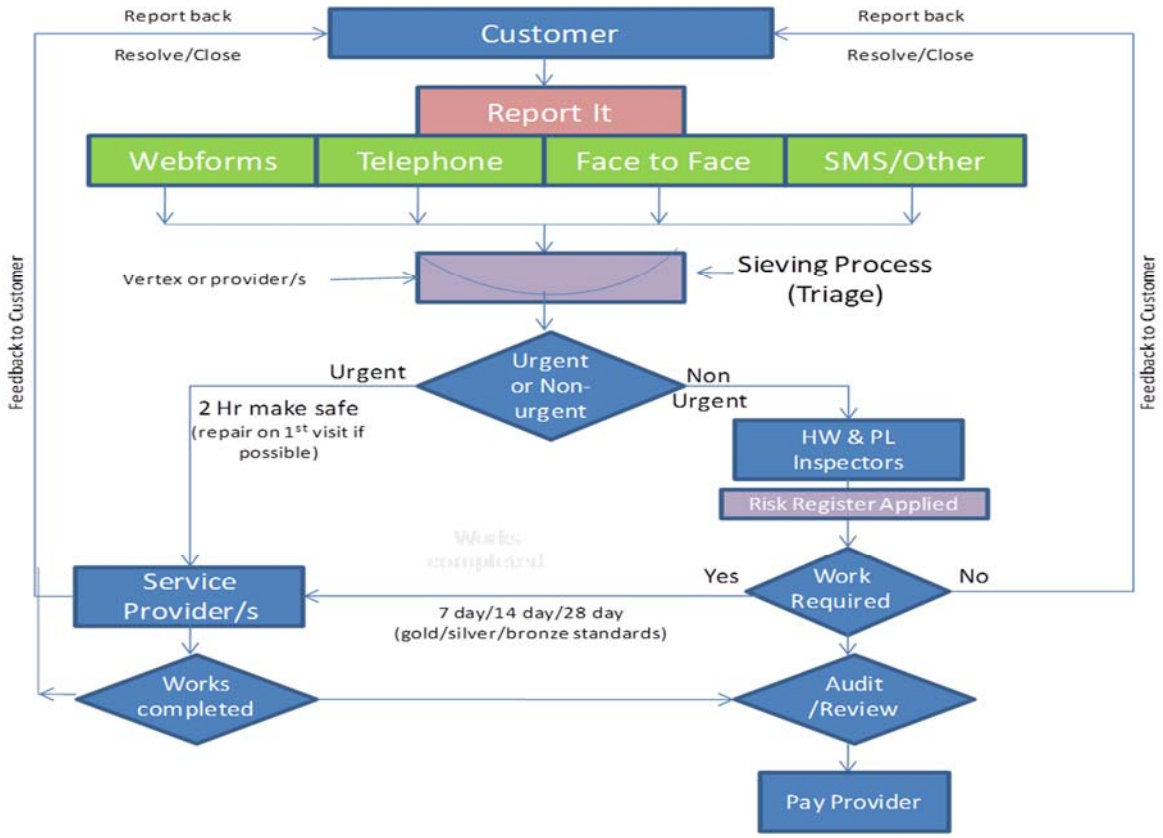


Figure 2. Defect Reporting Process

Changes to the Highways Risk Register and the introduction of a triage process shown above align to the 'Right First Time' approach to reactive repairs, where possible. The defect reporting process diverts most defects to the Council's Highway Inspectors who are the technical experts with respect to assessing and ordering the necessary work. The triage process is where an inspection is undertaken within 24 hours to determine whether the defect needs attention and if so, what the priority response would be. The highway inspector provides feedback to the customer who reported the defect highlighting the action to be undertaken by the Council.

Defects that are identified and reported as 'urgent' and require a 2-hour response are currently issued directly to a Service Provider. All defects categorised within the 48 hours response time are triaged by the highway inspectors. The process is enhanced to avoid repeated visits and duplication of ordering works.

Several changes have been introduced to improve the customer experience which has resulted in increased satisfaction levels. This has included:

- Clear guidance as to what type of defect should be classified as 'urgent';
- Improved guidance to Customer Service Call Centre operatives on different defect types and associated priorities and action to be taken;
- Improved website reporting;
- The use of the 'triage process' for assessment; and
- Ensuring that all customers get feedback at each stage of the process and upon completion of the repair.

3.15 Service Development

The Council has a reputation for being at the forefront of driving innovation, promoting good practice and adopting good asset management principles and technology. It works with other London Boroughs and LoTAG (London Technical Advisors Group) to review and adopt best practice. It wishes to build on its reputation to achieve optimum solutions for the management and maintenance of its assets. The themes for service development and continuous improvements are fundamental requirements across all its contracts which the Council operates with its Service Providers.

The Council is determined as part of the service development process to investigate, develop and adopt appropriate technology and introduce new working practices, processes and materials that produce efficiencies, cost savings and maximise value for money.

3.16 Technology

The Council is operating several integrated technology solutions to support the delivery of highway maintenance and management services including:

- **Highways Maintenance Management System (HMMS) –** Used to manage routine and reactive works and integrate and exchange information with other solutions;
- **Master inventory asset database -** Maintained within the HMMS and integrated with the Service Provider's own systems to record and track defects including 'before' and 'after' photographs which are ordered for repair. It also records a full maintenance history; and
- **Mobile inspection technology -** Integrated with Confirm to identify and manage asset inventory, defect risk, apply an appropriate priority response time and order work in real time on site.

4 Asset Management Strategy

The Council's Highways Infrastructure Asset Management Strategy sets out the long term optimised and sustainable approach to deliver the Highways Infrastructure Asset Management Policy.

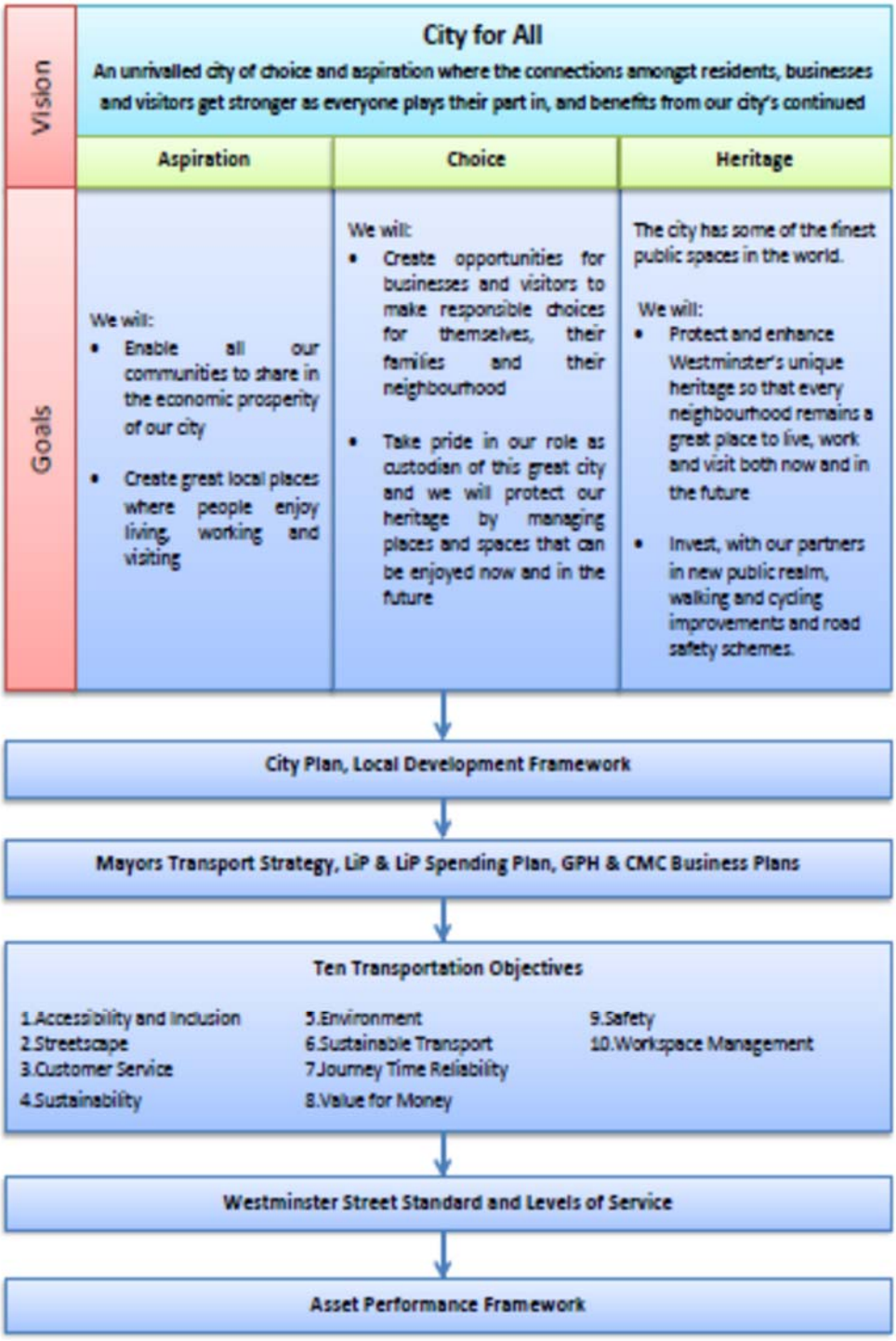
The Council recognises the importance of asset management in supporting the delivery of its Corporate Vision, Goals and Priorities and is committed to managing the performance, risk and expenditure used on its highway infrastructure assets based on optimal whole life costing and sustainably.

The alignment between Council's corporate goals, the transportation objectives, agreed levels of service and the asset performance targets is shown in Figure 3 below:

Figure 3. Alignment of Corporate Goals and Transportation Objectives

The highway infrastructure in Westminster has a vital role to play in achieving the Council's goal and in supporting economic stability, growth and social wellbeing. Table 2 outlines the Council's vision, goals and strategy.

Table 2: The Council's Vision, Goals and Strategy



These goals align with the London Mayor's Transport Strategy and are further reflected in the Council's key strategic documents, including, the City Management Plan, the Local Development Framework (LDF), Local Implementation Plan (LIP), and Asset Management Strategy and Plans.

The Highways and Transportation objectives have been rationalised into ten high level objectives that are fundamental to the Council's highways infrastructure network. They are:

1. Accessibility and Inclusion
2. Streetscape
3. Customer Service
4. Sustainability
5. Environment
6. Sustainable Transport
7. Journey Time Reliability
8. Value for Money
9. Safety
10. Workspace Management

These objectives support the Council's Corporate Vision and aspirations outlined in the City Management Plan. To effectively achieve the ten transportation objectives, an asset level of service has been established in consultation with our asset management stakeholders. This measures the service expected by the public and businesses when moving around the City.

For each of these ten objectives a set of performance measures have been developed against which 'service level bandings' have been agreed under four categories of 'Excellent', 'Good', 'Fair' and 'Poor'. These performance measures and 'service level bandings', have been adopted London-wide by LoTAG (the London Technical Advisers Group) and the LoTAMB (LoTAG Asset Management Board) Benchmarking Group.

For each performance measure an annual 'target' has been agreed for a five-year period against which the actual performance can be measured for both the figure and service band.

4.1 Levels of Service

Levels of service are statements of service objectives and outcomes that can easily be understood by the Council's customers and reflect their priorities and interests. These are split into two types:

- **Long Term Service Levels** - relate to the overall condition of highway assets, and overall performance in delivering the Highways & Transportation objectives, and
- **Short Term Service Levels** - relating to inspection frequency, the routine service delivery frequencies, and the reactive defect response times.

4.1.1 Long-term Service Levels

Recently the Council has reported its long-term service levels and asset condition trends in its State of the City Reports. Details of current long-term service levels and asset condition trends are set out in **Section 6 'Asset Condition'.**

Moving forwards the Council has an aspiration to establish long-term service levels and strategic reporting against a series of asset condition standards set out in Table 3. As the data is compiled and validated over the next two years, it is intended to report against these long-term service levels at a street level.

Each indicator will report in transparent terminology, e.g. 'Excellent', 'Good', 'Fair' or 'Poor'. The development of these indicators will include the technical condition data thresholds for the indicator assessment.

Table 3: Development of Asset Condition Standards

Asset	Condition indicator	Considerations
Carriageway	CCi	Based on current RCi
Footways	FCi	Based on current FNS
Cycleways	---	*Future development*
Structures	BCi	Nationally adopted standard
Street Lighting	LCi	Based on national development by ILP
Drainage	DCi	Locally developed indicator

4.1.2 Short-term Levels of Service

Short-term levels of service are set out in detail in the **Maintenance Management Plan.** These have been established through a review completed in September 2018 as part of the update of this document. The next review is scheduled for September 2020.

The initial assessment of risk is determined by the updated network management hierarchy based on usage criteria, also set out in more detail in the **Maintenance Management Plan.** Further and on-going monitoring of the performance of the network management hierarchy is planned through an analysis of the number of verified defects (or repair jobs) that are occurring on average in each network management hierarchy category i.e. the higher the defect density the more frequent the inspection should be. More frequent inspections will also be determined by higher usage.

Criteria considered in undertaking the review includes:

- Operational performance against current frequency;
- The financial sustainability of the current frequency;
- Customer and key stakeholder service expectations;
- The defect density that is routinely identified by each level of inspection;
- Complaints and third-party claims history;
- Operational constraints e.g. time needed to arrange permits or suspend parking restrictions to accommodate repair works; and
- Operational delivery of changed response times.

Table 4 highlights the key levels of service.

Table 4: Short-term Levels of Service

Asset	Service	Level of Service	Details
Highways: Carriageways, Footways, and Cycleways	Inspection	Monthly, 3 monthly, 6 monthly, or annually based on network hierarchy i.e. busier streets inspected more often	Refer to sections 4.2.1, 4.2.2 and 4.2.3 in the MMP
Highways and Drainage	Reactive maintenance response times	2 hours, 48 hours, and 28 days based on a risk assessment of the defect	Refer to section 3.4 in the MMP and the highways and drainage risk register
Street Lighting	Inspections	• Structural Inspection of all lighting supports: 6 years • Routine Inspection of all Lighting Units: 2 years • Private Supply Network Electrical Testing: 6 years • Sign Lighting Unit Electrical Testing: 6 years • Public Lighting Unit Electrical Testing: 6 years • Sign Lighting Unit Structural Testing: 6 years	Refer to Appendix 4 in the MMP and the street lighting risk register
Street Lighting	Reactive maintenance response times	2 hours, 48 hours, and 7 days based on a risk assessment of the defect	Refer to section 3.4 in the MMP and the street lighting risk register
Structures	Inspections	• General Inspections (GI): every 2 years; • Principal Inspections (PI): every 6 years; • Superficial Visual Inspections: annually; • Weekly walk through on the more high-profile structures in the City; • Special Inspections are carried out as and when required e.g. as the result of damage from vehicular impact.	Refer to Appendix 3 in the MMP. Note that given the size of structures portfolio there is no benefit from replacing these national standards for a risk-based approach

5 Asset Condition and Investment Planning

The condition of the highway infrastructure assets is regularly monitored in the asset management process and provides the base data for our investment decisions. It also relies on the Council's maintenance of an accurate and up to date asset inventory recording the type, nature and location of all our assets.

5.1 Asset Condition

The condition of the Council's assets as reported to the London Technical Advisors Group (LoTAG) in 2018 is set out in Table 5.

Table 5: Summary of Highway Infrastructure Asset Condition

Asset Type	Asset Group	Condition (State of Good Repair)		Data Used (Survey Type/Judgement)
		Current (%)	Desired Condition (%)	
Carriageway	Principal Roads (A)	ROADS 2010 to provide		
	Local Roads (B, C, U Roads)	91	>95	DVI Condition up to CI 70
Footway	Category 1&1a	99	>95	DVI Condition up to CI 70
	Category 2, 3, 4	99	>95	DVI Condition up to CI 70
Structures	Road bridge		100	$(0.6BCI_{Av}+0.4BCI_{crit})>65$
	Footbridge		100	$(0.6BCI_{Av}+0.4BCI_{crit})>65$
	Retaining/river wall		100	$(0.6BCI_{Av}+0.4BCI_{crit})>65$
	Culvert		N/A	$(0.6BCI_{Av}+0.4BCI_{crit})>65$
	Tunnels / Underpasses		100	$(0.6BCI_{Av}+0.4BCI_{crit})>65$
Lighting	Lighting Columns			
	Feeder Pillars			
	Illuminated Bollards			
	Illuminated signs	90	>95	Estimated
Drainage	Gullies	90	>95	Estimated
	Pipes	95	>95	

5.2 Life Cycle Plans

The analysis of the condition, deterioration phases, and effects of interventions and treatments of highway infrastructure assets is considered through life-cycle plans. These will:

- Deliver the long-term asset management strategy for maintaining an asset while minimising whole life costs and
- Justify all expenditure based upon asset condition need.

While developing the lifecycle plans, the Council will:

- Determine the required asset performance (i.e. condition, capacity, availability, standard) aligned to asset specific performance measures and targets which are in turn linked to the asset management objectives;
- Define the respective asset deterioration mechanisms and the deterioration rates based on both deterioration modelling and engineering judgement;
- Identify the treatment options for each asset type and the associated cost options (revenue and capital expenditure); and
- Undertake options appraisal to identify the optimal solution based on a comparison of Whole Life Costs (WLC) over a 30-year period.

Life-cycle analysis is run for each of our asset types as follows:

- **Carriageways -** Under development by Service Provider;
- **Footways and Cycleways -** Future aspiration (data quality and deterioration model);
- **Structures -** Annually supported by Bridge-station;
- **Public Lighting -** Under development by Service Provider;
- **Drainage -** Future aspiration (data quality and deterioration model).

Details of how life cycle plans have been developed for the respective asset types are contained within the **Maintenance Management Plan**. The following section describes the decision support tools used by the Council to deliver its life-cycle plans.

5.2.1 Decision Support Tools

A key part of any asset management framework and regime is the asset information that supports the decision-making and valuation processes. Asset information typically includes asset inventory, condition and the performance of the individual highways infrastructure assets and much more.

The Council's regime for asset inspection, testing and monitoring process gathers information in respect of asset defects and deterioration over time. The prime purpose is to check that the physical highway assets are safe for use and fit for purpose. This approach also collects condition data to support good management practices in accordance with the Code of Practice and the Council's maintenance strategies.

The Council holds a comprehensive set of asset data in a number of computerised systems illustrated in the Table 6.

Table 6: Summary Asset Systems and Decision Support Tools

Asset Type	System Name
• **Carriageway** • **Footway** • **Public Lighting** • **Street Furniture**	HMMS
• **Drainage (gullies)**	HMMS and Flood Station
• **Bridges and Structures**	Bridge Station
• **Road Markings (parking related)**	Park Map

It is important that the information contained within these systems is up to date, and shows a true reflection of the assets Westminster is responible for maintaining. A Data Management Strategy is used to continuously update and maintain the core asset data held within the respective asset systems.

All service contracts require the Service Provider to update the asset management systems. Their Operational Plans set out agreed business procsses for the updating, maintaining and auditing these assets systems.

The asset information is referenced spatially (geo-referenced) to aid locating assets and utilising hand held capture devices, internet and intranet portals and Global Positioning Systems (GPS).

The Council also use several decision support tools to support life-cycle planning, including:

- **Asset Deterioration and Cost Prediction Tools for Footways and Carriageways -** These are used to support 'what-if' analyses of different investment and/or asset condition scenarios.
- **Condition/Funding Model for Highway Structures -** This enables Westminster to predict the long-term maintenance needs for bridges and structures and the impact of different levels of spend on the Bridge Condition Indicator.

5.3 Investment Planning

The Council undertakes investment planning by combining asset management and life-cycle planning processes described above with the other risks managed through our Value Management process to determine prioritised works programmes.

The Value Management processes and tools for each major asset type include:

- **Highways- Footway and carriageway maintenance schemes** - Take account of a range of criteria including condition, number and type of safety defects, visual appearance, accessibility and customer service complaints;
- **Bridges & Structures -** Uses a risk-based approach for the identification and prioritisation of maintenance needs on bridges and structures. It is based upon element level defects, structure dimensions and usage to model the risk of failure and the allocation of funds to those structures which are in most need.
- **Public Lighting** - Uses a risk-based prioritisation system, known as WAPP (Westminster Automated Prioritisation Process), and prioritises lighting improvement/replacement schemes and targets investment to those lighting assets that are most in need. Note WAPP uses an aggregated score of structural risk, lighting deficiency, visual condition of the column, lantern and electrics and

taking account of other factors including, accidents, lighting levels, high crime areas, prime site/important streets, area of significant pedestrian use and complaints.

- **Highway Drainage Improvements -** Uses a risk-based approach considering gully condition, traffic route importance and flood risk. Cycle routes providing cycle friendly gullies have been given a separate priority.

The Council is undertaking a review of the current value management process during 2018 with an intention to update in 2019.

5.4 Asset Valuation

The Gross Value of the Council's highway infrastructure assets is £3.642 bn and is summarised in Table 7.

Table 7: Key Asset Inventory Details and 2017 Gross Replacement Cost

Asset Type	Quantity	Gross Asset Value
Carriageway	332km (2,672,000m^2) Including 468km of road markings Including 14,600 gullies	**£576m**
Footway	628km (1,403,000m^2) Including 41,630 units of street furniture	**£168m**
Structures	73 structures (57,882m^2) Includes over 4,000 lighting units	**£628m**
Public Lighting	22,044 lighting units	**£105m**
Street Furniture	Not available	**£7m**
	Sub Total:	**£1,484m**
Land	2,672,000m^2	**£2,158m**
	Total:	**£3,642m**

5.5 Funding for Highway Infrastructure Asset Management

5.5.1 Revenue funding

Revenue funding is provided within the Council's annual budget established from the government's revenue support grant, business rate retention, council tax charges and other revenue sources as set out in the annual council budget, shown in Table 8.

The Council's maintenance management activities that are funded from revenue funding include:

- Inspection & testing;
- Routine maintenance activities;
- Reactive maintenance; and
- Energy for street lighting and other electrical assets.

Table 8: Summary of Investment in Highways Asset – Routine and Reactive Maintenance

Financial Year Maintenance (£000's)		2016/17	2017/18	2018/19
Carriageway	Principal Roads (A)	£93,000	£85,000	£85,000
	Other Roads (B, C, U)	£527,000	£485,000	£485,000
Footway		£1,190,000	£950,000	£950,000
Structures		£1,150,000		£1,053,000
Lighting		No information available	No information available	No information available
Drainage		£179,000	£427,000	£495,000
Street Furniture		£129,000	£102,000	£126,000
Other		-----	-----	-----
	TOTAL (£000's):	**£3,268,000**	**£2,049,000**	**£3,194,000**

5.5.2 Capital Funding

Capital funding is provided within the Council's annual budget established from government grants primarily the Department for Transport annual highway capital maintenance grant as set out in the annual council budget and shown in Table 9.

The Council's maintenance management activities that are funded from capital funding are delivered through its Planned Preventative Maintenance programmes. Planned Preventative Maintenance (PPM) is work that prolongs the life of the asset and/or maintains structural capacity. This includes asset renewal, upgrading, improvements and asset or component replacements. A sustained long-term programme of investment in PPM of all highway assets is crucial. The annual prioritised programmes of PPM are developed using the Value Management processes.

Table 9: Summary of Investment in Highways Asset – Routine and Reactive Maintenance

Financial Year Maintenance (£000's)		2016/17	2017/18	2018/19	Comments
Carriageway	Principal Roads (A)	£887,000	£721,000	£0	No principal road funding from TfL in 18/19
	Other Roads (B, C, U)	£3,375,000	£6,650,000	£6,150,000	
Footway		£1,347,000	£1,250,000	£1,500,000	
Structures		£2,000,000	£1,600,000	£3,470,000	
Lighting		£2,207,000	£2,512,000	£3,068,000	
Drainage		£338,000	£334,000	£645,000	
Street Furniture		£50,000	£60,000	£66,000	
Other		-----	-----	-----	
TOTAL (£000's):		**£10,2004,000**	**£13,127,000**	**£14,899,000**	

5.5.3 Minor Works Programme

A minor (Capital) works programme is currently under development for highway (carriageway, footway and cycleways) and drainage repairs. This will be designed to support the management of reactive interventions and repairs and drive efficiency and effectiveness in maintaining these assets whilst complementing the existing planned preventative maintenance programmes.

Reactive repairs will always be required for the Council's highway assets. The Council records early signs of deterioration and using the new risk-based approach will identify instances where a more planned response is needed using a minor works solution. These instances are expected to be below the financial threshold that would require Value Management and formal prioritisation. This in turn should help minimise future reactive works. Types of works that will be considered include:

- Resurfacing of a minor junction;
- Relaying of a short section of footway paving slabs;
- Where appropriate, replacement of footway paving slabs with a bituminous surface;
- Slurry sealing of cycleways to enhance the ride quality; and
- Renewal of small sections of the highway drainage system from gully to outfall/connection.

6 Risk Management

6.1 Risk Management in a Corporate Context

Robust, transparent and effective management of risk is an integral part of asset management. The Council's Corporate Risk Management Framework sets out:

- The process for identifying, assessing and managing risks (strategic and operational);
- The respective roles of Council Officers and Members in risk management; and
- The monitoring and reporting arrangements.

The Risk Management Framework has established strategic and departmental risk registers to support the delivery of the Corporate business objectives. Risk registers are monitored regularly by Senior Managers and Members to ensure that all risks are known, and mitigating measures are in place to reduce risks. The Council's top strategic and departmental risks are summarised within regular performance monitoring reports.

Asset and asset management risks are identified and managed as part of the Council's Corporate Risk Management Framework. These include:

- Asset deterioration;
- Asset failure;
- Accidents because of poor asset condition or performance;
- Introduction of new assets, IT systems or new work practices;
- Change in service provider; and
- Extreme weather events (snow, flood etc.).

Risks are also considered as part of the annual strategic review processes; when setting the revenue and capital budgets and planning major Council projects and new initiatives. Asset management scheme and project risk registers are also maintained to identify and manage risks that may impact on the delivery of projects.

6.2 Highway Infrastructure Risk Management

Historically, the Council's highway services were based upon examples and standards included within the previous Well Maintained Highways Code of Practice (2005).

The Well Managed Highway Infrastructure Code of Practice (2016) advocates the adoption of a risk-based approach to the management of highway infrastructure assets. The Council has adopted this approach for managing its highway service along with the guidance provided in the 'Well-Managed Highway Liability Risk document produced by the IHE. The adoption of this guidance has been included in collaboration with Corporate Risk & Resilience, Legal and Insurance Teams.

6.2.1 Managing Risks for Planned Maintenance

The approach used to manage risks associated with the condition of the Council's highway network and supporting investment in the PPM programmes is set out in '7. Investment Planning' section. This outlines the use of lifecycle planning techniques to provide information on the future condition, future deterioration and long-term funding requirements to develop the PPM programmes. The risks of extreme weather events on highway infrastructure assets are addressed by planned preventative works. The effective management of assets through these programmes will help reduce future reactive maintenance requirements.

6.2.2 Managing Risks for Reactive and Routine Maintenance

The Council recognises that an effective risk-based approach requires detailed knowledge of highway infrastructure assets, in respect of their quantum, condition, predicted deterioration rates and the level of funding available. The Council will use this knowledge and supporting data to inform a risk-based approach for reactive and routine maintenance programmes.

With sufficient asset knowledge, the Council can develop an affordable highways maintenance policy which supports the effective management of its highway infrastructure assets. This in turn will ensure affordable and appropriate levels of service; including safety inspections whose frequencies are targeted at those parts of the highway infrastructure assets where defects are most likely to occur. The Council recognises that when safety defects are identified, competent Safety Inspectors will need to make decisions regarding the rectification measures and resolution timescales.

Further details of operational risk management procedures for specific asset types are contained within the **Maintenance Management Plan**.

7 Performance Management

Performance management is a key part of an effective risk-based approach consistent with the Well Managed Highway Infrastructure Code of Practice (2016) and good management of highway infrastructure assets. The Council ensures its asset management objectives are clearly aligned with the metrics used to evaluate the performance of its Service Provider.

Performance is considered at the following levels:

- **Strategic performance** - The overall performance of the highway service against the delivery of the 'City for All' Plan is monitored through an annual report issued by the Service Provider to the Council's Head of Service. This is periodically supported by the development of a State of the City Report.
- **Tactical performance** - The performance monitoring of the outcomes against the Council's highway service objectives of each of the four highways contracts is brought together in a Quarterly Contract Performance Report issued to the Service Delivery Board.
- **Operational performance** - Monitoring the performance of operational outputs is achieved through a monthly report of each of the four contracts which is issued to the Service Manager.

A performance management framework has been included in the service contracts that commenced on 1 April 2014 and is used to measure, monitor and continually improve the performance of the highway network, delivery of the service and the effectiveness of the asset management practices. Performance targets contained in the service contracts are designed to ensure a continually improving service and that all targets in the HIAMP are achievable.

The Key Performance Indicators (KPIs) used by the Council to manage the performance of its Service Provider are outlined in **Section 8** of the **Maintenance Management Plan.**