



City of
Stoke-on-Trent

**Highway Asset Management Plan
And Incorporated Policy**



Contents

Forward.....	5
1 Executive Summary	6
2 Introduction.....	8
2.1 Purpose of this document	8
Section A:	9
3 Highway Infrastructure Asset Management Framework	10
3.1 Background	10
3.2 Asset Management Framework	10
3.3 Required Asset Management Outcomes.....	12
3.4 Recommendations Achieved.....	12
Section B:	13
4 Organisational Context.....	14
4.1 Context.....	14
4.2 National and Local Transport Policy and Best Practice Guidance	14
4.3 Corporate Vision.....	15
4.4 Stakeholder Expectations	16
4.5 Legal Constraints.....	17
4.6 Financial Constraints	18
4.7 Required Asset Management Outcomes.....	19
4.8 Recommendations Achieved.....	19
Section C:	21
5 Asset Management Planning.....	22
5.1 Asset Management Policy	22
5.1.1 Background	22
5.1.2 Asset Management Policy for Stoke on Trent	22
5.1.3 Required Asset Management Outcomes.....	24
5.1.4 Recommendations Achieved.....	24
5.2 Setting and Measuring Performance.....	24
5.2.1. Objectives of Setting & Measuring Performance.....	24
5.2.2. Understanding Demand and Levels of Service	25
5.2.3. Performance Measures	27
5.2.4. Development of Performance Measures	27

5.2.5.	Data and Other Information to Support Performance Measures	28
5.2.6.	Required Asset Management Outcomes.....	29
5.2.7.	Recommendations Achieved.....	29
5.3	Asset Data	30
5.3.1.	Background	30
5.3.2.	Required Asset Management Outcomes.....	32
5.3.3.	Recommendations Achieved.....	33
5.4	Lifecycle Planning	33
5.4.1.	Background to Lifecycle Planning.....	33
5.4.2.	Performance Gap.....	35
5.4.3.	The Lifecycle Plan.....	35
5.4.4.	Asset Data	36
5.4.5.	Maintenance Strategy.....	36
5.4.6.	Determining the Investment Strategy.....	39
5.4.7.	Required Asset Management Outcomes.....	40
5.4.8.	Recommendations Achieved.....	41
Section D:	42
6	Asset Management Enablers	43
6.1.	Leadership and organisation	43
6.1.1.	Leadership, Culture & Commitment	43
6.1.2.	Organisational Delivery of Asset Management	44
6.1.3.	Asset Management – Roles and Responsibilities.....	47
6.1.4.	Competencies and Skills.....	49
6.1.5.	Required Asset Management Outcomes.....	50
6.1.6.	Recommendations Achieved.....	51
6.2.	Risk Management	51
6.2.1.	Approach to Risk Management.....	52
6.2.2.	Identifying Risk	53
6.2.3.	Identifying Risk in Critical Assets.....	54
6.2.4.	Evaluating the Risk	54
6.2.5.	Risk Mitigation & Review.....	56
6.2.6.	Required Asset Management Outcomes.....	56
6.2.7.	Recommendations Achieved.....	57

6.3.	Asset Management Systems.....	57
6.3.1.	Development of the Asset Management System	58
6.3.2.	Required Asset Management Outcomes.....	60
6.3.3.	Recommendations Achieved.....	60
6.4.	Performance Monitoring & Bench Marking.....	61
6.4.1.	Introduction.....	61
6.4.2.	Performance Monitoring.....	61
6.4.3.	Performance Reviews.....	62
6.4.4.	Improvement Plans	62
6.4.5.	Benchmarking Performance	63
6.4.6.	Required Asset Management Outcomes.....	64
6.4.7.	Recommendations Achieved.....	65
Section E:	66
7	Delivery	67
7.1.	Works Programmes	67
7.2.	Scheme Identification	68
7.3.	Programme Prioritisation.....	68
7.4.	Forward Works Programme.....	70
7.5.	Programme Optimisation	70
7.6.	Annual Programmes of Work	71
7.7.	Required Asset Management Outcomes.....	71
7.8.	Recommendations Achieved.....	72
Section F:	73
8	Communications.....	74
8.1.	Background	74
8.2.	Required Asset Management Outcomes.....	75
8.3.	Recommendations Achieved.....	75
Section G:	76
9	Governance.....	77
9.1	Approvals and Reporting.....	77
9.2	Required Asset Management Outcomes.....	78

Forward

Our highways are valuable assets which are vital to the economic and social well-being of our communities. Re-evaluation of our highway network as part of the Governments “Whole of Government Accounts” process has proven that the road network is the most valuable asset that the local authority manages, and its management will be critical to support the areas future development of commerce, new housing and jobs growth.


In recent years the investment in highway infrastructure and its performance has been increasingly under the spotlight. The current financial challenges and increased public demands and expectations have meant that we have had to re-think the way we manage our highway infrastructure. Recent severe weather has also provided tangible evidence of the fragility of our highway network, and raised awareness of the financial and other challenges involved in maintaining an ageing infrastructure.

Asset management supports business decisions and provides longer term financial benefits. It helps us to understand the asset we have, describe how it performs and determine the funding needed to meet the requirements placed upon it. Much progress has been made in the way asset management is developed and implemented in the UK, it has already been adopted by many highway authorities and is well proven in other sectors, but much more is still to be done.

This Highway Asset Management Plan has been developed utilising guidance from the Highways Maintenance Efficiency Programme (HMEP), a sector-led transformation programme designed to maximise returns from highways investment and deliver efficient and effective services. The document will help all those delivering highway services, including senior decision makers, asset managers, service providers and practitioners, to embed asset management principles and support the case for funding highway maintenance.

This document consolidates existing documents, builds upon existing good practice and offers a flexible framework for implementing asset management. It moves the focus further towards implementing asset management effectively. Its advice will be adopted by all those involved in delivering the highway service to support them in the decisions they make in managing the City’s highway infrastructure assets.

I am therefore pleased to endorse this Highway Asset Management Plan and its recommendations on behalf of Stoke on Trent City Council.



Signed: Leader



Signed: City Director



*Signed: Cabinet Member Regeneration,
Transportation & Heritage*

1 Executive Summary

This Highway Asset Management Plan will provide an overarching framework for the management of Highway Assets within Stoke-on-Trent, and support the adoption and implementation of asset management principles.

This approach will, over time, help to improve the longevity of varying highway assets and the effectiveness in the way that they are managed and maintained. Additionally, the document will provide guidance to Officers on how these principles can be delivered.

The document complies with guidance that has been issued by the Department for Transport, who are placing an ever increasing emphasis on the publication and implementation of Highway Asset Management Plans and principles. This is further reinforced by recent changes to the way in which Government LTP grant funding will be allocated to Local Highway Authorities, where a proportion of funding will be linked to production and application of Highway Asset Management Plans.

The aim of asset management is to provide Highway Authorities with a structured approach to operating and managing their highway assets to ensure they are in a condition that meets the needs of all highway users, and that a value for money approach to maintenance is achieved.

An asset management approach enables all assets to be reviewed collectively and for the development of a long term strategy for prioritisation against maintenance requirements, and strategic priorities within the authority. Options and service levels can be developed to provide an evidence based background to support funding requests both internally and externally. This would also allow for an improved methodology for the timing of works to assist in reducing levels of deterioration.

The principles of asset management are strongly linked to economic prosperity. A well-managed and maintained highway network enables greater access to business, as well as providing local communities with access to key services such as education, medical and leisure facilities. Additionally, in a modern society all people who live in our city and those who depend on services we provide as a Council also depend upon a well-managed and maintained highway network. This network is also key to the future expansion of the City.

The implementation of this Highway Asset Management Plan will help the local authority in the following key ways:

- Manage and maintain our resources efficiently and thereby deliver value for money.
- Manage and maintain the highway asset through the use of lifecycle planning principles
- Prioritise works based on different asset groups, funding available and local priorities

- Develop levels of services to either slow down the rate of deterioration or improve the overall condition based on funding levels available
- Provide a strategy for effective management of the asset, through the use of asset registers, data sharing, and communication with stakeholders

This Highway Asset Management Plan will enable the delivery of the 14 recommendations that are contained within the guidance document issued by the Department for Transport, and is split into 7 sections which coincide with these recommendations. These sections are:

- a. Highway Infrastructure Asset Management Framework
- b. Organisational Context
- c. Asset Management Planning
- d. Asset Management Enablers
- e. Delivery
- f. Communication
- g. Governance

To enable the delivery of these recommendations, there are a number of Asset Management Outcomes contained within each section of the Highway Asset Management Plan which have been transferred into an action plan. The action plan will be a live, working document which will be used to implement and monitor progress of the delivery actions that have been identified.

Contained within the Highway Asset Management Plan is an overarching Policy for the management and maintenance of the Highway Assets within the City, which support the City's Stronger Together vision. This policy has three objectives which this Highway Asset Management Plan aims to deliver, these objectives are:

Objective 1: Keeping Stoke-on-Trent Moving

Objective 2: Supporting Communities in Stoke-on-Trent

Objective 3: Delivering a value for Money Service.

Finally, to enable a continuous improvement approach to be utilised, the delivery of the Highway Asset Management Plan will be monitored by the Transportation Infrastructure Board, via the Action Plan which is contained within Appendix 3 of this document.

2 Introduction

2.1 Purpose of this document

The purpose of this document is to support all those delivering highway services, including senior decision makers, asset managers, service providers and practitioners, to develop and implement highway infrastructure asset management. This will deliver the potential benefits, including efficiencies that can be gained by taking a longer term view. It will also support the City Council in embedding recommendations associated with National reviews, such as those via DfT, UK Roads Liaison Group, and Highway Maintenance Efficiency Programme (HMEP). The document will:

- Establish a framework to enable development of asset management
- Provide advice for practitioners to interpret the requirements for asset management
- Promote good practice through a common framework
- Support efficiency in the delivery of highway maintenance
- Make recommendations in order that the City Council can comply with national best practice as defined in:
 - Highway Infrastructure Asset Management Guidance
 - Pot Hole Review – Prevention is better than cure
 - Transport Resilience review
 - Code of Practice (Well Managed Highway Infrastructure)
- Develop an action plan for each recommendation that is identified
- Provide a platform for related highway policies/procedures such as Highway Inspection Manual, Skid Resistance Manual, Winter Service, Public Rights of Way Improvement Plan etc

In order to deliver the above purpose, the asset management plan will:

- Define a Highway Asset Management Policy for the City
- Define key objectives associated with the policy
- Detail data requirements and how this data will be collected and reviewed
- Detail the wider benefits of adopting an asset management approach
- Identify other linked documents which will be utilised in the delivery of asset management process
- Provide guidance on the implementation of Highway Asset Management Principles

The structure of the document will identify optimal asset management practice and then provide recommendations in each section in order that the City Council can comply with this best practice. These high level asset management outcomes will be transferred into action plans which can be found at Appendix 3 to assist in delivery and monitoring.

Finally, a table is provided at the end of each section detailing which National best practice recommendations are complied with when each action/output is delivered, this is also summarised in Appendix 2.

Section A:

Highway Infrastructure Asset Management Framework

3 Highway Infrastructure Asset Management Framework

3.1 Background

Authorities in the UK have already made progress to embed elements of asset management in the way in which they manage their highway infrastructure. Some have made significant progress with implementing good practice and realising the benefits. Stoke on Trent City Council will continue to build on the work it has previously done and further implement Highway Asset Management principles and practice.

The authority needs to develop an Asset Management Framework which will include all asset management activities which should be undertaken by the Council in relation to the management of its highway network. Senior decision makers within the authority should endorse the approach, which should be clearly documented and accessible to relevant stakeholders.

3.2 Asset Management Framework

To successfully deliver a Highway Asset Management approach, Stoke-on-Trent City Council will utilise the Asset Management Framework created by the Highway Maintenance Efficiency Programme (HMEP) on behalf of the Department for Transport (DfT).

This framework for Asset Management comprises the activities and processes that are necessary to develop, document and continually improve asset management. The framework is shown in Figure 1 and can be split into three key areas:

- 1) Context: This element of the framework is associated with national and local policies, constraints and stakeholder expectations and the implications that these have for the management of the highway asset.
- 2) Asset Management Planning: This section of the framework is associated with the processes involved in the management of the asset, from understanding its condition and determining a programme of works that will increase the longevity of the asset.
- 3) Asset Management Enablers: This part of the framework is around the support systems and “buy-in” that is required to enable a successful asset management plan to be implemented.

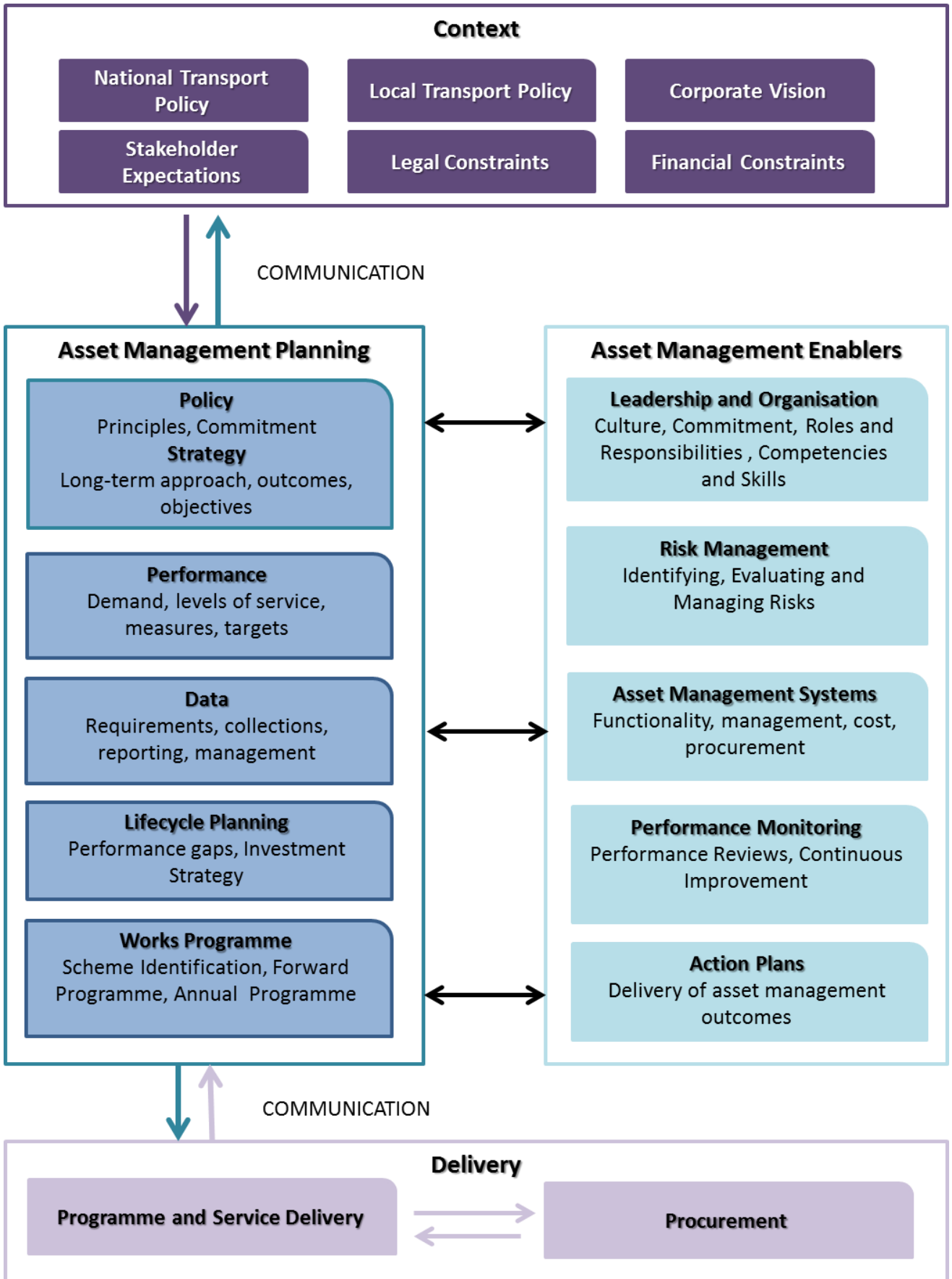


Figure 1: Asset Management Framework

3.3 Required Asset Management Outcomes

Section Reference:	Section A: Highway Infrastructure Asset Management Framework
Section Name:	Section 3: Asset Management Framework
Asset Management Outcome	Actions required
Adoption of Asset Management Framework	The City Council will endorse and adopt the asset management framework detailed in Section 3.2
Publish Asset Management Framework	The City Council will publish its approach to Highway Asset Management
The above high level asset management outcomes are transferred to Appendix 3 Action Plan where actions required are expanded.	

3.4 Recommendations Achieved

The adoption and implementation of this Asset Management Framework will ensure that the City Council achieves compliance with the following national best practice recommendation(s):

National Best Practice Guidance Document	Recommendation
Highway Infrastructure Asset Management Guidance	<u>Recommendation 1</u> : An Asset Management Framework should be developed and endorsed by senior decision makers. All activities outlined in the Framework should be documented.
Well-Managed Highway Infrastructure	<u>Recommendation 2</u> : Asset Management Framework

Section B:

Organisational Context

4 Organisational Context

4.1 Context

Delivering highway infrastructure asset management is not a stand-alone activity. It is linked with the organisation's policies and service delivery. It supports the interface with all stakeholders, including elected members, road users, the public and local communities. This Section describes the importance of highway infrastructure, summarises the setting of national and local transport policy, sets requirements for stakeholder communications, and explains the legal and financial constraints.

4.2 National and Local Transport Policy and Best Practice Guidance

Central Government sets national transport policy and local authorities that have a responsibility for transport, develop and set local transport policies which best meet the area's needs. The City Council published its Local Transport Plan (LTP3) in 2011/12 which was an aspirational policy framework which would underpin transport policy within the city for the next 15 years, until 2025/26. As part of the consultation process associated with the production of LTP3 the City Council consulted widely with stakeholders on key issues and priorities which included new roads, and highway infrastructure condition along with the Council's spending priorities in these areas. This Highway Asset Management Plan will be set in the context of this overall transport policy.

The highway network is one of the largest assets on both a local and national scale and is used by over 40 million users. In addition, the importance of a well maintained transport network in supporting economic growth and prosperity as well as local communities is being stressed more than ever before. However, while efforts are being made to improve the network, a number of challenges remain, these include:

- The pressure to "tackle potholes"
- Funding constraints faced by local and national government to find innovative techniques to do more with less.
- Increased concerns about the condition of roads

It is essential therefore that a managed approach is taken in addressing the issues confronting the highway authority. However, both the policy framework referred to above, and the corresponding legislative framework governing the highway network places no Statutory Requirement for Highway Authorities to produce and publish a Highway Asset Management Plan. However, in recent years, the importance of asset management plans is being brought to the forefront, as the national infrastructure network has begun to deteriorate due to the impact of increased severe weather events, increased traffic volumes, and funding issues. These factors have led to a number of documents being produced by the Department for Transport providing recommendations and guidance to Local Authorities for the management and maintenance of its highway network.

The Department for Transport is now linking increased Central Government Grant funding provided via the Local Transport Plan Settlement, to Highway Authorities who publish and implement Highway Asset Management Plans which place an emphasis and give weighting to the recommendations outlined in its guidance documents.

These guidance documents include:

- Highway Infrastructure Asset Management Guidance Document (May 2013)- This guidance is aimed at all of those involved in managing highway infrastructure, including senior decision makers, asset managers and practitioners and provides the basis for a consistent approach and understanding of the implementation and delivery of the benefits associated with asset management. 14 recommendations were made as part of the guidance document.
- The pot hole review (April 2012) – The purpose of this review was to consider the impact of potholes / highway defects on the network, and recommend how changes can be made to maintenance strategies to “prevent” defects from occurring, and if they do, how they can be repaired “right the first time” to minimise risk and disruption to the travelling public. 12 recommendations were made as part of the review.
- Transport Resilience Review (July 2014) – This was a review to assess how resilient the transport network is against extreme weather events, and included highway authorities, Environment Agency & Transport Operators.

4.3 Corporate Vision

Stronger Together is the message that underpins the city council’s vision for Stoke-on-Trent “*working together to create a stronger city we can all be proud of*”. It is this vision and ambition that runs through the council’s strategic plan. The plan sets out what we will strive to achieve for the city over the coming years, working with the residents of Stoke on Trent and the organisations who support us to deliver improvements in our great city.

The vision will in part be delivered directly by the council but in other areas our priorities will be achieved through working in partnership with others to deliver the very best we can for Stoke-on-Trent. Being a trusted partner that is both outward looking and good to work with is at the heart of how we will turn our vision into reality.

We are committed to making the most of what we have and how we work with people, businesses and partners to achieve the best possible outcomes, working together with our residents. With reduced resources that is a big challenge but no greater than the city has faced before in our long and proud history.

Sitting underneath the council’s vision are five strategic priorities.

- Support our residents to their full potential.
- Support our businesses to thrive, delivering investment in our towns and communities.
- Work with residents to make our towns and communities great places to live.
- A commercial council well governed and fit for purpose, driving efficiency in everything we do.
- Support vulnerable people in our communities to live their lives well.

The highway network is one of the most important assets in the ownership of the City Council. Every service we provide depends up on it and is the only asset that is used by every resident and business alike whether that be directly or indirectly. As such the development and implementation of a Highway Asset Management Plan will support in the delivery of a number of these priorities through:

- Ensuring the highway asset is well maintained
- Developing a transport network that reduces congestion and supports growth in our City
- Delivering optimal efficiency in all our services, adopting new delivery models that deliver maximum value for residents
- Delivering a customer focused approach to service delivery
- Embedding a culture of continuous improvement in our service delivery
- Attracting new developments and business by having a well-managed network with easy accessibility
- Supporting people to live independently by having a highway network that is safe and fit for purpose for all road users
- Ensuring value for money in service delivery by utilising the funding available in the most efficient manner
- Ensuring the safety of the traveling public through the maintenance of the highway network.

4.4 Stakeholder Expectations

Stakeholders are likely to include local road users, local communities, businesses, services such as emergency services, people travelling through the area, highway maintenance service providers, and organisations that have an impact on the network such as utilities. Government, through HM Treasury, DfT and other Departments, also has an interest through legislation, provision of funding, and support in other ways. There are also a number of national and local interest groups that have an important part to play in raising awareness of issues important to their members. Interest groups are likely to include business groups, freight associations, pedestrian groups, cycling and motorcycling groups, disability and mobility groups, and motoring groups. Additionally, the City Council is a member of the Staffordshire Safer Roads Partnership which is commitment to the reduction of accidents on Staffordshire's roads and a well maintained is key to that aspiration.

There is a widely held expectation that journeys should be reliable. There is also a perception that highway authority maintenance and utility company' works cause delay and travel disruption. The condition of many aspects of the highway network is important to road users. In particular, there are generally high expectations and strong views about the surfaces on which the public moves and an expectation that roads, footways and cycleways should be in good condition.

Public perceptions of road and footway surface condition are influenced by the type of user. The vulnerable, including the elderly, whether pedestrians, motorists or passengers, notice surfaces more than any others and they are at a higher risk of being affected by defect hazards and poor quality repairs.

A number of different public opinion surveys demonstrate that overall satisfaction with local highways is low. To improve satisfaction, good information is essential at a

local level about what is important and how it is perceived. This information should be considered by the City Council to develop its approach to asset management and can also be used to benchmark performance against other authorities.

Effective engagement with stakeholders is a key issue in managing expectations and therefore satisfaction with the highway service. The City Council as Highway Authority should engage with and involve key stakeholder groups such as local communities, local businesses and services such as emergency services, in a variety of different ways.

Stakeholder involvement by means of informed consultation will be beneficial in building understanding and support. Stakeholders need to be engaged at various stages in the asset management process so that they can appreciate the challenges and issues that the Authority faces. People should not be expected to understand or accept the level of service provided if they have not been involved in its development or if it is not published and transparent.

The Council will therefore commission Public opinion surveys to establish local views, initially through the National Highways and Transportation Survey (NHT), and will develop a Communication Strategy which will publish and explain its approach to asset management.

4.5 Legal Constraints

There are a number of legal requirements placed upon the City Council as Highway Authority around maintaining a safe highway network. Authorities have a range of powers they may choose to exercise in various circumstances and Elected Members, officers, service providers and others involved in asset management need to understand the extent, nature and policies relating to the authority's legal obligations. They also need to appreciate the distinction between duties and powers, and how they relate to their particular responsibilities.

There are numerous pieces of legislation that govern Highway Authorities, however, the primary legislation is the Highways Act 1980 which sets out the main duties and powers of Highway Authorities in England and Wales. This includes a duty to maintain all highways maintainable at the public expense.

The New Roads and Street Works Act 1991 was created to provide a framework for the efficient co-ordination of activities carried out on the highway by Statutory Undertakers (public utilities). There are three key objectives for the act which are to ensure safety, minimising inconvenience to the highway users and to provide standards for which any work is to be carried out.

There is also a range of wider applicable legislation, such that relating to Transportation and Traffic Management, Health and Safety, Environmental Protection, Disability Discrimination, Wildlife and Countryside, Freedom of Information, Human Rights, Civil Contingencies and general local government legislation.

To assist Highway Authorities in the implementation of the primary legislation there is a Codes of Practice which, although not statutory, provides guidance on how the legislation should be applied. Authorities will, on occasion be the subject of claims or legal action by those seeking to establish non-compliance by authorities. It's been

recognised that in such cases the contents of the Code of Practice may be considered to be a relevant consideration in any claim.

The previous Codes of Practice which consisted of a suite of documents has now been amalgamated into one Code of Practice Well-Managed Highway Infrastructure. Local Authorities will be given time to develop the new approach outlined in the Code to achieve compliance with what it is believed will be a less prescriptive and more risk based approach. However, this HAMP does comply with a number of the recommendations that are contained with the Code of Practice Well-Managed Highway Infrastructure, and remaining recommendations will be complied with at an operational/delivery level.

4.6 Financial Constraints

The highway service in Stoke-on-Trent as in all other Local Highway Authorities is managed and delivered within financial constraints. Local government funding is complex and it is not the purpose of this Asset Management Plan to review it in detail, however important points to note are given below.

Asset creation is the starting point for asset management. However, regardless of how new build is developed, operational costs and the future cost of maintenance should be considered through adopting asset management principles at the outset. Designing for future maintenance should be a key part of this process, and future revenue affordability of new build schemes is key to sustainably developing and improving the City's highway network. Therefore, it is essential that future costs are always considered and approved prior to any new or improvement schemes commencing.

Highway maintenance is funded from several sources. Day to day and routine maintenance is primarily funded via revenue streams, which comprise funds provided by Central Government, from council tax, and additional funds raised locally, which may be derived through income on works for third parties as an example.

Preventative and structural maintenance schemes enhance the value of the asset, and if applied appropriately have the potential to reduce the on-going revenue burden for the council. These schemes are often funded based on capital allocations from Central Government and local sources of capital which if continued at the current funding level will not halt the modelled deterioration of key assets such as the road and footway network. It is clear that if these sources of funding do not increase in the future then alternative sources of capital will be required if the network is to be kept in a future steady state. The Council may wish to investigate alternative methods of future funding such as Prudential Borrowing or borrowing from the Green Investment Bank.

The City Council has historically determined revenue and capital budgets for the Highway Asset annually. Which has meant that spending is usually only available year on year and is determined close to the start of each financial year. This gives little scope to plan longer term maintenance strategies, and in addition "in year" funding reductions due to austerity measures creates additional pressures in implementing maintenance plans. Therefore, the Council should attempt to improve stability by budgeting for longer time periods, for example, 3 years.

Maintenance activities funded from capital budgets are most effectively planned where there is reasonable certainty regarding the availability of longer term investment. This enables investment strategies to be developed to maximise the long term performance of the asset. Leading to greater long term efficiencies in revenue spend, and also provide confidence to local communities on works planned for future years.

Adopting an asset management approach will require a longer term commitment to a stable budget, in order that estimations of appropriate levels of funding can be achieved in order to deliver the required level of service and provide the tools and processes to ensure efficient and effective use of available resources.

It is believed that this asset management plan provides a robust case to deliver additional benefits which will ultimately lead to stabilisation / improvement of the highway network and its peripheral infrastructure, but this can only be achieved where there is an element of stability to future funding.

4.7 Required Asset Management Outcomes

Section Reference:	Section B: Organisational Context
Section Name:	Section 4: Organisational Context
Asset Management Outcome	Actions required
Ensure compliance with National Guidance documents in the delivery of its Asset Management Strategy	Monitor compliance of practice and process with applicable guidance documents
Ensure stakeholder involvement by means of informed consultation	Continue to commission public perception surveys that inform on-going action plans
Ensure a financial strategy that underpins good asset management practice	Ensure an approved minimum 3 year medium term financial plan for management of the highway asset.
The above high level asset management outcomes are transferred to Appendix 3 Action Plan where actions required are expanded.	

4.8 Recommendations Achieved

The adoption and implementation of this Asset Management Framework will ensure that the City Council achieves compliance with the following national best practice recommendation(s):

National Best Practice Guidance Document	Recommendation

Well-Managed Highway
Infrastructure

Recommendation 1: Use of the Code: This code, in conjunction with the UKRLG Highway Infrastructure Asset Management Guidance, should be used as a starting point against which to develop, review and formally approve highway infrastructure policy and to identify and formally approve the nature and extent of any variations.

Recommendation 28: Financial Plans: Financial plans should be prepared for all highway maintenance activities covering short, medium and long term horizons.

Section C:

Asset Management Planning

5 Asset Management Planning

5.1 Asset Management Policy

5.1.1 Background

The City Council's asset management policy describes the authority's commitment to highway infrastructure asset management. It will be endorsed by senior decision makers, including Elected Members and be visible to all staff involved in related activities, as well as being shared with Stakeholders.

The asset management policy aims to demonstrate to the public and all stakeholders, including senior decision makers, Elected Members, practitioners and service providers, how it supports the authority's corporate policies. It provides a visible commitment to achieving the benefits that can be delivered through asset management and should be established at the highest level within the authority.

The asset management policy has been developed through reviewing and assessing corporate and all other relevant policies, and reflecting how these apply to the highway infrastructure. The asset management policy is consistent with, and does not contradict, the authority's vision, strategic objectives/plans and other relevant policies. It has been developed to cover all highway infrastructure assets, and is written in clear and concise language and includes:

- Adherence to relevant statutory requirements;
- Commitment to satisfy relevant strategic policies, objectives and plans;
- The context within which levels of service are set;
- Commitment to continuous improvement of the approach to asset management; and
- The asset management principles adopted, for example: risk based, whole life value, sustainable, customer focused, socially inclusive and integrated.

5.1.2 Asset Management Policy for Stoke on Trent

The Asset Management Policy for Stoke on Trent is shown overleaf, and is also contained as a standalone document in Appendix1

Stoke-on-Trent City Council Policy for Highway Asset Management

Stoke-on-Trent City Council considers effective asset management to be one of the key factors to support the delivery of its corporate priorities namely:



It is recognised that an excellent transport network is essential for a successful economy and society for Stoke-on-Trent. Our roads provide access to jobs, services, schools, delivery of goods to businesses and allows us to make the most of our free time. Our local roads are at the heart of the transport network and have a key role to play in ensuring that transport in Stoke-on-Trent delivers the services our residents both want and need. In order that the transport network meets this need, the City Council's policy on Asset Management will deliver a purpose of "helping you to travel safely and efficiently".

The key objectives of the policy are:

Objective 1: Keeping Stoke-on-Trent Moving

Our first priority will be to provide a safe, well managed, maintained and more resilient highway network for all who use it. We will make every effort to understand current and future requirements for the highway infrastructure. In order to deliver this we will continue to understand our stakeholder's needs, promote levels of service and maintenance priorities for our highways. Our adoption of an asset management approach will take a long term view in making informed maintenance and investment decisions.

Objective 2: Supporting Communities in Stoke-on-Trent

We fully recognise the vital role the highway network has to play in Stoke-on-Trent's economic vitality including providing essential access by local communities to education, employment, and leisure facilities. This will be achieved through the on-going management of a safe, efficient and fit for purpose highway network.

Objective 3: Delivering a value for money service

Our adoption of an asset management approach will enable greater value for money to be delivered by taking a long term view on investment decisions. This approach will maximise benefits by ensuring the right investment decisions are made on the highway network.

5.1.3 Required Asset Management Outcomes

Section Reference:	Section A: Asset Management Planning
Section Name:	Section 5.1: Asset Management Policy
Asset Management Outcome	Actions required
Adoption of Asset Management Policy	The City Council will endorse and adopt the asset management policy detailed in Section 5.1.2
Publish Asset Management Policy	The City Council will publish its Highway Asset Management Policy
The above high level asset management outcomes are transferred to Appendix 3 Action Plan where actions required are expanded.	
A copy of the Council's Asset Management Policy is detailed in Appendix1	

5.1.4 Recommendations Achieved

The adoption and implementation of this Asset Management Policy will ensure that the City Council achieves compliance with the following national best practice recommendation(s):

National Best Practice Guidance Document	Recommendation
Highway Infrastructure Asset Management Guidance	<u>Recommendation 3</u> : An asset management policy and a strategy should be developed and published. These should align with the corporate vision and demonstrate the contribution asset management makes towards achieving this vision.
Well-managed Highway Infrastructure	<u>Recommendation 3: Asset Management Policy and Strategy</u>

5.2 Setting and Measuring Performance

5.2.1 Objectives of Setting & Measuring Performance

The purpose of setting and measuring performance associated with Highway Asset Management is as follows:

- Provide a systematic approach to measure progress in the implementation of asset management.
- Set levels of service and performance targets to enable auditing and monitoring of the delivery of the asset management strategy.
- Demonstrate how funding is being used effectively to meet the levels of service and performance targets.

- Provide the link between corporate vision, asset management strategy, levels of service and maintenance operations.
- Facilitate effective communications with stakeholders by demonstrating performance against their requirements.
- Demonstrate any shortfalls in funding.

The authority should detail what it intends to do in order to manage its highway infrastructure assets. In doing this, the authority should establish levels of service with its stakeholders. Performance measures should also be set in order to determine whether these are being delivered.

Current and future demand for the service and funding for its delivery are identified as part of the asset management planning process. It needs to be recognised, however, that the levels of funding required may not always be available. Where funding is limited, levels of service should be reviewed to confirm that they are affordable. Maintaining statutory requirements should be a priority throughout the whole of this process. A link needs to be established from corporate objectives to levels of service, performance measures and targets, and the cost of delivering these needs to be determined.

5.2.2. Understanding Demand and Levels of Service

The future demand for highway infrastructure should relate to the future requirements of the authority across its corporate vision. The performance demands placed on highway infrastructure may change over time. This may arise through changing social and commercial patterns, additional network related to development, or as parts of the network are redeveloped through economic regeneration. As local communities grow there are also greater demands for housing, schools and other services which place pressure and demand on highway infrastructure assets. Environmental demands, such as those arising from climate change, may also put additional demands on highway infrastructure such as drainage.

Changes in the authority's aspirations may be reflected in changes to its transport policy and strategy (e.g. change of function, alternative transport, congestion charging, energy efficiencies or construction of a new bypass), which is also affected by changes in stakeholder expectations, or from external factors. Therefore, the future demand which is likely to be placed on the highway network should be incorporated in defining the levels of service. Alternative options for managing and regulating the demand, as opposed to improving the network, may also need to be explored. Examples may include introducing weight restrictions for bridges or switching off street lighting.

It is probable that some demand predictions may not materialise due to socio-economic and political changes. Potential changes should be monitored and when appropriate, included in future revisions of the asset performance targets.

Levels of service are broad statements that describe the performance of highway infrastructure assets in terms that stakeholders can understand. They should relate to outcomes and cover key aspects of asset performance such as safety, serviceability and sustainability. They should consider the performance of the whole network rather than that of individual assets.

Levels of service can be described as the key business drivers that influence all asset management decisions. All stakeholders need to be made aware of the performance of the highway infrastructure asset. Senior decision makers need to be informed that the authority's corporate vision and objectives are being delivered, the quality to which they are being delivered and the contribution of the highway service in delivering them. Measures of engineering performance, such as condition indicators and the quantum of assets that comprise the network can be used to support the levels of service.

In developing levels of service, understanding the context of corporate vision, objectives and transport priorities is the starting point. Levels of service should be developed using broad statements or themes that demonstrate the relationship between higher level corporate objectives and any stakeholder requirements for delivery of the service.

Each level of service should be supported by a framework of performance measures. This will enable both individual aspects of performance to be measured as well as the overall level of service. Typically, performance measures may include both engineering and non-engineering considerations.

Information from stakeholder experience can be used to develop the levels of service. The City Council will conduct regular opinion surveys to identify the experience of the public, what is most important to them, and determine those areas where further improvements can be made. These surveys will provide important information to help identify what levels of service can be developed to support delivery of stakeholders' expectations.

The Authority will need to determine its own future levels of service, and aspects which will be considered will include:

- **Safety:** Providing a safe highway network is a statutory requirement for highway authorities. It is essential, therefore, that the approach to asset management makes a positive contribution towards a safe network;
- **Serviceability:** By improving the performance of each asset in the highway this will lead to a more efficient network which will contribute to meeting stakeholder expectations;
- **Sustainability:** The environmental contribution of the highway infrastructure and associated maintenance activity. This may include activities that reduce carbon usage and noise pollution, such as reuse of materials, recycling and low noise surfacing, and the installation of low wattage lighting & signing;
- **Accessibility:** Major target areas to improve accessibility within the city will include:
 - Measures to reduce congestion
 - Improving journey time reliability
 - Improved accessibility by opening up new sites for development
 - Improved access to isolated communities and vulnerable people;
- **Customer Service:** regular communication should take place with all Customers and Stakeholders on all aspects of highway maintenance, and the City Council will ensure reviews so that communication with residents and stakeholders is continually improved

- **Financial performance:** Aspects associated with service delivery, choice of materials, third party funding and delivering value for money.

5.2.3. Performance Measures

Levels of service will be expressed in a qualitative way which stakeholders, including the public, can understand and do not comprise the performance measures themselves.

Performance measures will be used to monitor, record and report delivery of the highway service, the asset management strategy, levels of service and the Council's overall approach to asset management. Performance measures will need to be monitored, audited and communicated on a periodic basis. Each performance measure will link to a level of service, and through this, to the asset management strategy, corporate vision and objectives.

Performance measures will be used at the following levels:

- **Strategic:** To report on annual performance through a publicly available document. This provides a snapshot of overall performance, generally for stakeholder consumption;
- **Tactical:** To provide regular management information to senior decision makers and asset managers to inform decision making, particularly in terms of investment; and
- **Operational:** To provide information on operational aspects of the service, such as the speed of repairs. This may include the performance of service providers undertaking maintenance activities.

5.2.4. Development of Performance Measures

Performance measures will be selected or developed by those responsible for asset management with the support of senior decisions makers, who should formally approve them, if appropriate. There are four types of performance measures that may be considered;

- **Input:** Which will demonstrate the amount of resources needed to complete activities and includes staff, labour and material costs and other relevant financial information. This type of measure does not necessarily demonstrate the performance of the service or whether the overall strategy is met;
- **Output:** Typically measures completed activities, such as the area of surface dressing per year. This type of measure provides information on the activities completed against a programme of works, but does not provide information on whether the level of activity met the overall strategy, whether it met any of the performance requirements, or if it delivered value for money;
- **Outcome:** Describes the results of activities provided and may include measures such as public satisfaction and the condition of various assets. These measures can be used to demonstrate the link between the asset management strategy and service delivery most effectively;
- **Efficiency:** Reflects the input cost per activity or for the total service. It could be used to support investment decisions.

In developing performance measures a number of aspects should be considered:

- Is it meaningful?
- Does it demonstrate that the strategy is being delivered?
- Is reliable data available?
- Is it simple to understand?
- Can the data be compared over time?
- Is it comparable with other authorities?
- Is the measure useful to others?
- Is it already being measured?
- Is it, or something similar, already being measured by others?
- Can the cost of data collection for the measure be justified?

The performance measures selected should be those that are most effective in supporting the delivery of the highway asset management plan. When the relevance of performance measure has been determined in principle, a SMART approach may be used to develop the actual performance measures themselves. The approach is summarised below:

- **Specific:** the measure should be specific, clear and unambiguous, explaining clearly what is expected;
- **Measurable:** there must be a simple method for measuring it;
- **Attainable:** the measure must be realistic and there needs to be a clear action plan of how it can be achieved;
- **Relevant:** must be important in achieving the asset management objective; and
- **Time-bound:** must be measured in a timeframe.

For each level of service, a number of performance measures will be chosen which can be combined to give an overall performance. In doing so, performance measures may be weighted to emphasise their importance and contribution to the level of service.

5.2.5. Data and Other Information to Support Performance Measures

Typical sources of data and other information to support performance measures will include:

- Public opinion surveys,
- letters, emails and calls;
- Business reporting;
- Operational reporting;
- Existing inventory data;
- Performance data (including condition); and
- Financial reporting.

One of the considerations in developing performance measures is to maximise the use of existing data and minimise the need for collection of additional data. These may include national reporting requirements, internal management information and key performance indicators to measure performance of their service provider. Typical performance measures often include condition of carriageways and footways, response times, energy consumption and customer complaints.

The City Council will review its existing performance measures and, if appropriate, adopt these measures rather than develop new ones. Where possible, recognised performance measures with documented approaches to their measurement or procedures should be used since they are auditable and repeatable.

5.2.6. Required Asset Management Outcomes

Section Reference:	Section A: Asset Management Planning
Section Name:	Section 5.2: Setting & Measuring Performance
Asset Management Outcome	Actions required
Levels of Service	To work with Stakeholders and the Senior Management Team to establish levels of service for the various components of the highway asset and associated funding levels.
Existing Performance Measures/Monitoring	To review existing performance measures to assess their suitability, measuring whether service levels are being achieved.
New Performance Measures	To devise any new performance measures required and associated data to ensure service levels are being achieved.
Performance Monitoring	To utilise performance measures identified above and review performance against service levels.
The above high level asset management outcomes are transferred to Appendix 3 Action Plan where actions required are expanded.	

5.2.7. Recommendations Achieved

Implementation of the asset management outcomes detailed in Section 5.2.6 will ensure that the City Council achieves compliance with the following national best practice recommendation(s):

National Best Practice Guidance Document	Recommendation
Highway Infrastructure Asset Management Guidance	<u>Recommendation 4: A performance management framework should be developed that is clear and accessible to stakeholders as appropriate and supports the asset management strategy.</u>
Well-managed Highway Infrastructure	<u>Recommendation 7: Risk Based Approach</u> <u>Recommendation 16: Inspections</u> <u>Recommendation 19: Defect Repair</u>

	<u>Recommendation 26: Performance Management Framework</u>
--	--

5.3 Asset Data

5.3.1. Background

Asset data comprises information on what physical highway infrastructure assets an authority has responsibility for and includes number, location, condition, financial value, performance and public opinion. Effective asset management planning and decision-making relies on this data being available, appropriate, reliable and accurate. Asset data will be used to support the overall requirements for asset management including:

- Defining network inventory including asset condition;
- Supporting statutory requirements;
- Making effective and informed decisions;
- Understanding the impact of decisions on the asset and the subsequent level of service and performance;
- Assessing and managing risk;
- Determining investment requirements;
- Assessing and reporting financial value.

Identifying data requirements, data collection, processing and reporting should form part of the data management strategy to deliver asset management within the city. Adopting a strategic and planned approach to the collection and management of asset data may provide cost savings and other benefits such as maximising the use of data to inform works programmes etc.

The Council should as a minimum hold the following types of asset data:

- Inventory
 - This should describe the full extent of the asset and will include location, type, size, construction and maintenance history.
- Condition
 - This should describe the current condition of each asset and will be used to inform, lifecycle planning, identifying programmes of work, and support financial requirements.
- Asset Usage
 - This should include consumption of the asset such as traffic flows, energy consumption etc.
- Public Satisfaction
 - This should include public enquiries, third party claims, and accident records.
- Financial
 - This should include unit rates for activities that support asset management and maintenance. It should also have appropriate budget information relating to each area of the asset and how we are performing against each budget over time.

As a minimum Asset data will provide information on the extent of the asset and its potential maintenance liabilities, as well as supporting any critical decisions that need to be made relating to its management. Maintenance history may also be required when assessing performance and planning for future maintenance activities.

The required accuracy, reliability and repeatability of data will be considered when determining the purpose of the data and how it is used as these factors are likely to affect the cost of collection. The City Council will need to determine the level of accuracy of the data collected which must be appropriate for the investment and risk associated with that particular asset.

An assessment of data requirements will consider:

- How the data supports the approach to asset management;
- Data quality, age, coverage and currency requirements;
- Potential opportunities to share or re-use existing data to reduce duplication in data collection;
- Historic data and its appropriateness for future use;
- Removal of redundant or out of date data;
- Statutory requirements;
- Cost of data collection and ongoing management, including any software and licences and IT infrastructure requirements;
- Lifecycle planning data; and
- Value of data and/or the risk of not collecting it.

Regular reviews of data requirements and strategy, as appropriate, should be undertaken to ensure that data continues to support asset management. In order to achieve this, the Council will develop an Asset Data Management Strategy which will demonstrate the benefits of continual collection and management of the data. This Data Management Strategy will comprise:

- **Identification of business need:** This will be based on an assessment of the data requirements, demonstrating how they meet the asset management strategy and include the risk associated with the data;
- **Identification of data owner:** An “owner” for the data is required to be responsible for managing the collected information;
- **Accessibility and date stamping:** Access rights to the data will be considered, and all data will be date stamped;
- **Data collection:** When determining the methodology for data collection, the most cost effective method will be used. Requirements for the accuracy, reliability and repeatability of data will also be considered.
- **Frequency of collection and updating:** A risk based approach will be developed, particularly where assets pose low risk to the performance of the network and are unlikely to require capital investment. Decisions about the life expectancy of all data types will need to be made;
- **Data management:** Data storage and management processes will be reviewed to ensure that they are fit for purpose, especially as the quantity and quality of data is likely to increase.

- **Disposing of data:** The Data Management Strategy will consider how archiving or disposing of out-of-date data will be dealt with. This will consider whether the data will be required at a later date or whether it may be disposed of completely. In determining the performance of individual assets, historical information and trends may be invaluable to support decisions regarding future performance.

Those involved in data management need to have the knowledge and capability to specify and/ or undertake data collection and assess the quality of the information collected. Where gaps exist in this knowledge training will be need to be undertaken.

All asset data collected should be stored in an appropriate asset management system in a format that is cost effective, reliable and that enables it to be readily captured, transferred, accessed and used. The asset management system should also act as an asset register and facilitate the management of all asset data. The Council will ensure that the development of our asset management system will link as a minimum to the National Grid Coordinates and the National Street Gazetteer.

5.3.2. Required Asset Management Outcomes

Section Reference:	Section C: Asset Management Planning
Section Name:	Section 5.3: Asset Data
Asset Management Outcome	Actions required
Asset Data Gap analysis	To ascertain what asset data is required to comply with minimum baseline data referred to in Section 5.3.1 plus what data is currently held, and what additional data is required.
Procurement of Asset data	To investigate and procure additional data required that is identified as part of the Gap analysis.
Asset Data Management Strategy	Write data management strategy outlining review requirements of all data held on an on-going basis, capturing those elements in Section 5.3.1.
The above high level asset management outcomes are transferred to Appendix 3 Action Plan where actions required are expanded.	

5.3.3. Recommendations Achieved

Implementation of the asset management outcomes detailed in Section 5.3.2 will ensure that the City Council achieves compliance with the following national best practice recommendation(s):

National Best Practice Guidance Document	Recommendation
Highway Infrastructure Asset Management Guidance	<u>Recommendation 5: The quality, currency, appropriateness and completeness of all data supporting asset management should be regularly reviewed. An asset register should be maintained that stores, manages and reports all relevant asset data.</u>
Well-managed Highway Infrastructure	<u>Recommendation 8: Information Management</u> <u>Recommendation 9: Network Inventory</u> <u>Recommendation 10: Asset Data Management</u> <u>Recommendation 17: Condition Surveys</u> <u>Recommendation 34: Heritage Assets</u>

5.4 Lifecycle Planning

5.4.1. Background to Lifecycle Planning

Lifecycle planning comprises the approach to the maintenance of an asset from construction to disposal. It is the prediction of future performance of an asset, or a group of assets, based on investment scenarios and maintenance strategies. The lifecycle plan is the documented output from this process. The aims of lifecycle planning are:

- Identify long term investment for highway infrastructure assets and develop an appropriate maintenance strategy.
- Predict future performance of highway infrastructure assets for different levels of investment and different maintenance strategies.
- Determine the level of investment required to achieve the required performance.
- Determine the performance that will be achieved for available funding and/or future investment.
- Support decision making, the case for investing in maintenance activities and demonstrate the impact of different funding scenarios.
- Minimising costs over the lifecycle while maintaining the required performance.
- Invest in maintenance activity that will extend the life of the asset and drive efficiency.

Lifecycle plans will be used to demonstrate how funding and/ or performance requirements are achieved through appropriate maintenance strategies with the objective of minimising expenditure, while providing the required performance over a specified period of time.

Lifecycle planning will be applied to all highway infrastructure assets where appropriate. However, its application may be more beneficial to those assets that have the greatest value, require considerable funding, are high risk and/or seen as critical assets. In some cases, complex approaches may be applied and in these circumstances higher quality data and predictive modelling techniques will often be needed. Where minimal data is available, a risk based approach may be adopted.

The lifecycle of an asset covers the following stages:

Creation of a new asset: this may include a single asset such as a new bridge, new lamp column or sign post, or a series of new assets in the construction of a new road;

Routine maintenance: This is the reactive and cyclic activity to maintain the asset over time. Examples include pothole repairs, tensioning of safety fencing and cleaning of drainage and signs. It should be noted that strategies for routine maintenance may affect the long term performance of the relevant asset. The approach to routine maintenance needs to be considered as part of the lifecycle planning process. Effective routine maintenance has the potential to extend asset life;

Renewal or replacement: This is the process required to bring the asset back to the required performance after it has deteriorated. This generally requires capital expenditure, unless it is a smaller item of highway inventory, in which case it could be replaced as part of routine maintenance. Examples of life extending treatments would include slurry seal and surface dressing; and

Decommissioning of the asset: Most highway infrastructure assets are rarely decommissioned. However, there are instances where some assets are removed from service. This is likely to include the legal process of “stopping up” areas of the highway, closing bridges or removing street lighting, signs and barriers.

Maintenance strategies may be developed that consider different treatment options and balance renewal with routine maintenance. These should take into consideration the service life for each treatment option and balance the costs over a planned period of time. The objective of this process is to provide a lifecycle plan for an asset that supports the asset management strategy. When applying a lifecycle approach, the following questions may be answered for a short, medium and long term period of planning for each asset:

- What funding is needed to meet the performance targets?
- If there is insufficient funding to meet the performance targets, what is the resulting asset performance expected to be?
- What funding is required to maintain the asset in a steady state or any other condition?
- What is the lifecycle plan that delivers the minimum whole life cost?

Adopting a lifecycle planning approach will support the City Council in applying the principles of asset management and in setting the performance standards that are affordable and/or are desirable.

5.4.2. Performance Gap

A performance gap is the difference between the current performance and the desired performance of an asset.

The desired performance is determined by setting the performance targets described in Section 5.2. Current asset performance is assessed through collecting information and data, and monitoring performance. The performance gap may be reported through the performance management framework.

Typically, performance targets will have been selected for each asset type or group. It should be recognised that different performance requirements may be adopted across different network hierarchies.

5.4.3. The Lifecycle Plan

The approach adopted for lifecycle planning will be documented. It will include the assumptions made, performance requirements, maintenance needs, the decision making process and set out the proposed maintenance strategy, including the timing of interventions.

A lifecycle planning approach will enable the maintenance strategy for all assets to be determined. However, the principal assets, where greatest investment and/or risk will be incurred, will be considered as priorities when resources are scarce. Lifecycle planning is therefore likely to provide the greatest benefits for assets where large investments are made including carriageways, footways, structures, lighting and traffic signal equipment.

The lifecycle planning process which will be utilised for each asset type is shown in Figure 2 below:

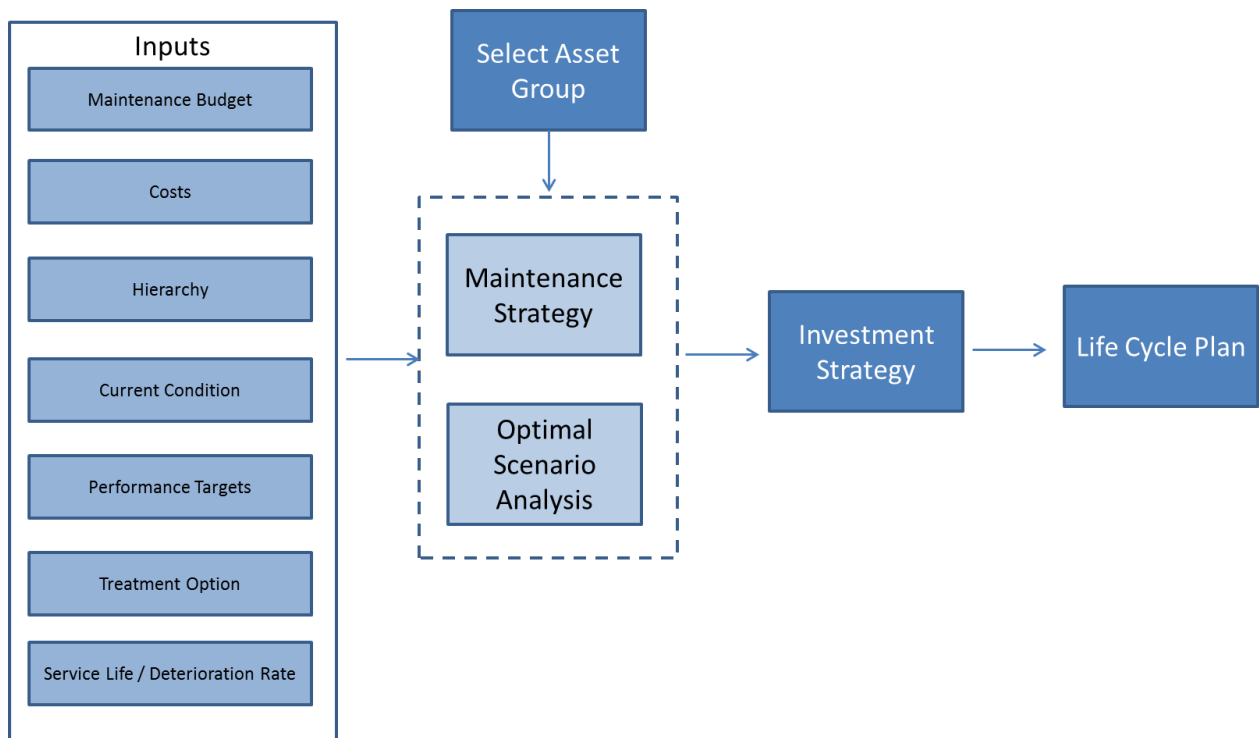


Figure 2: Lifecycle Planning Model

Lifecycle plans will be updated regularly as new asset data becomes available. They will also be reviewed against any changes in the approach to asset management.

5.4.4. Asset Data

In developing a lifecycle plan the asset group and/or its components will be identified at the network level, grouping and aggregating similar assets together. This approach is in-line with the Code of Practice on Transport Infrastructure Assets, and recommends information to be kept at three levels:

- Level 1 – Asset type e.g. highway lighting;
- Level 2 – Asset group e.g. lighting column; and
- Level 3 – Components that Level 2 implicitly covers e.g. luminaires.

Asset data for lifecycle planning should be available from the asset management system, asset register or maintenance management system. Typically, the following will be required to develop lifecycle plans:

- Inventory (road lengths, widths, structure components and dimensions, lighting column types and sizes as a minimum);
- Performance (including asset condition);
- Routine maintenance (including reactive and cyclical maintenance activities); and
- Treatment options (including their historic performance and cost).

5.4.5. Maintenance Strategy

A number of maintenance strategies will be considered for the treatment of each of the assets. These are likely to include combinations of renewal and/or routine

maintenance over a specified period. Typical options that may be considered include:

- Do-minimum maintenance (routine maintenance only – e.g. localised defect repair to maintain safety);
- Reducing the level of serviceability (below current);
- Sustaining the current level of serviceability (steady state – e.g. patching and surface dressing of carriageways and footways);
- Prioritised performance to improve targeted parts of the assets (funding being targeted on a prioritised basis – e.g. principal roads); and
- Enhanced level of performance to meet performance targets (this maintenance strategy is important particularly where additional capital funding may be sought – e.g. inlay/overlay or reconstruction of carriageways and footways).

The maintenance strategy should take into account the likely modes of deterioration and/ or failure of the proposed treatment, and when the next intervention (the time for the asset to reach the end of its serviceable life) will occur. Therefore, the following needs to be considered:

Service Life: Service life should be based from the date of construction of the asset to the point where the next intervention based on industry best practice and local knowledge is required. This may vary according to traffic or environmental conditions.

Deterioration Profile: Deterioration profiles for an asset can be determined from a variety of sources including historical performance, local knowledge and best practice.

Consideration should be given to the selection of the planning period for the lifecycle plan. Depending on the planning period, different maintenance strategies may provide the lowest whole life costs, as shown in Figure 3:

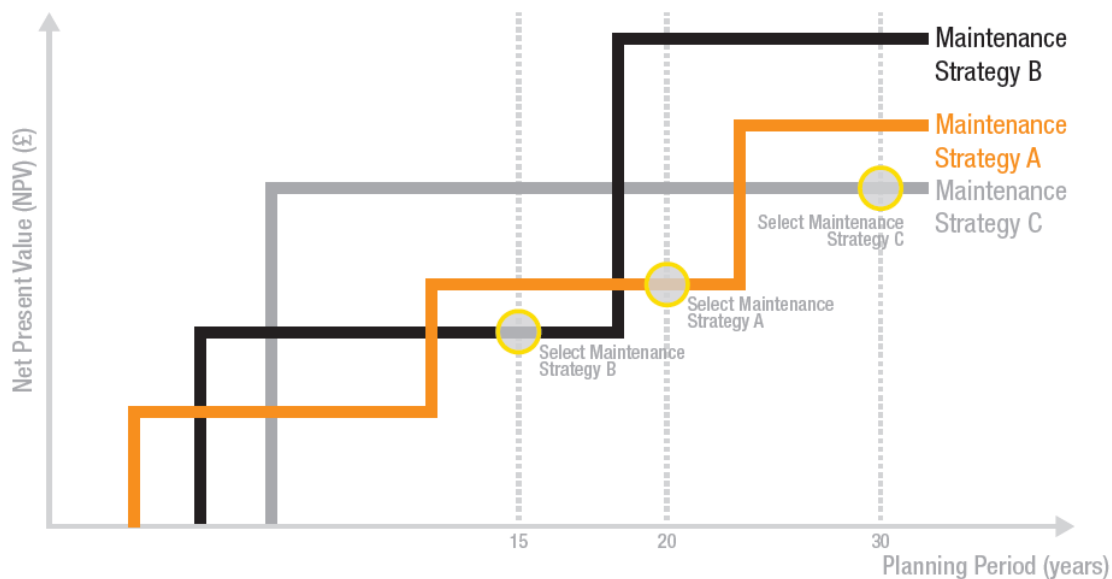


Figure 3: Comparison of Maintenance Strategies to give lowest whole life costs

The process adopted to select the maintenance strategy should not only look to provide value for money through the delivery of optimal Net Present Value (NPV) whole life costs, but also align with the approach to asset management and in particular provide the most efficient and affordable way of achieving the performance requirements. Typically, the selection of maintenance strategies should consider:

- Minimising whole life costs;
- Meeting statutory requirements;
- Meeting performance targets;
- Managing risk.

A number of techniques may be used to select the most appropriate maintenance strategy, and are detailed below:

Risk Based Evaluation: Risk based evaluation focuses on minimising the risk associated with the asset through an appropriate maintenance strategy, while ensuring that any risks are managed at the minimum cost.

Whole Life Cost: Whole Life Cost is a cost benefit analysis that quantifies the investment costs, including the cost of the treatment and subsequent maintenance interventions, against economic benefits, including safety, traffic delays and pollution. These should be assessed for each maintenance strategy. The maintenance strategy with the lowest Net Present Value (NPV) over the period of analysis provides the lowest whole life cost. Costs may be determined as described above. Benefits should be determined by each authority and considered in the context of their overall approach to asset management.

Multi Criteria Analysis: Multi Criteria Analysis may be used to prioritise competing treatment options from which the maintenance strategy may be selected. A number of criteria may be selected that align with the levels of service and/or goals and objectives of the authority. Typically, these may include: safety, serviceability, sustainability and accessibility. A weighting to demonstrate the relative importance of these factors may be selected from which an overall score is determined. The necessity to meet statutory requirements needs to be reflected in the scoring. This technique can be used where benefits and costs are less tangible to define. However, it supports a qualitative assessment as well as a quantitative one.

Maintenance Costs: The costs selected for any routine maintenance and asset renewal should be as reliable as possible. The selection of the maintenance strategy may be sensitive to the accuracy of this information. A rigorous process should be developed for the collection and recording of cost data for the purposes of lifecycle planning. This cost data may be different from current contract rates as it takes other factors into account such as overheads. Rates that are used should take into account inflation and be reviewed and updated as more cost information becomes available. The source of all cost data should be referenced. The build-up of cost data is likely to include a number of assumptions, such as the inclusion of traffic management, contractor's overheads, scheme design and supervision costs. Such information may not be directly available from unit rates which may be obtained from sources such as term maintenance contracts or framework contracts. Care therefore needs to be taken in building up the rates in order to understand the item coverage.

5.4.6. Determining the Investment Strategy

The outcome of the lifecycle planning process is an investment strategy for the highway infrastructure asset that comprises an asset group and its components, that is affordable and delivers the required performance at the minimum cost. In meeting this outcome, it should also support the asset management strategy. A number of iterations, with different maintenance strategies, may be necessary to optimise the investment strategy.

In developing an investment strategy, the following issues will be considered:

What is the level of performance required to maintain steady state condition and what is the budget required? Lifecycle plans may be used to demonstrate the investment required to maintain the asset at its current level of performance. This is useful if the Council is satisfied with the current performance of the network and also to compare the impact of different funding scenarios

What is the level of performance that can be achieved with a fixed budget? If funding made available to manage the highway is fixed, lifecycle planning will be used to determine the performance of the asset for the funding allocated. It may also be used to target or prioritise funding in those areas that are most in need. It can also demonstrate the effect of reduced funding on the performance of our assets over the short, medium and long term

What is the budget requirement to deliver the performance required? The Council can use lifecycle planning to determine future budget requirements. Performance targets may be selected for hierarchy, asset groups and their components. In doing so, we would need to consider work needed to sustain the agreed performance requirements and any performance gaps;

Cross asset considerations: No Highway Authority has unlimited funds to invest in the asset. Cross asset prioritisation, or “trade-off” techniques, may be used to determine where budgets are spent most effectively or at the lowest cost. Consideration of risk, cost and performance associated with each asset is a key consideration; and

Timescale: Lifecycle plans should be prepared for a period of at least 10 years.

Lifecycle plans are essential to assist our senior decision makers in developing their financial plans and to substantiate any additional funding needed to achieve the required performance. Equally, they provide evidence on the effect on the asset if funding is not made available and what the future performance of the asset may be as a consequence.

5.4.7. Required Asset Management Outcomes

Section Reference:	Section C: Asset Management Planning
Section Name:	Section 5.4: Lifecycle Planning
Asset Management Outcome	Actions required
Lifecycle Plans	For each asset type develop lifecycle plans based on a number of agreed scenario's
Investment Strategy	For each lifecycle plan determine the level of investment required for delivery, taking into account cross asset consideration
Agree Plan and Investment	Agree lifecycle plans and associated investment with Senior Leaders
The above high level asset management outcomes are transferred to Appendix 3 Action Plan where actions required are expanded.	

5.4.8. Recommendations Achieved

Implementation of the asset management outcomes detailed in Section 5.4.6 will ensure that the City Council achieves compliance with the following national best practice recommendation(s):

National Best Practice Guidance Document	Recommendation
Highway Infrastructure Asset Management Guidance	<p><u>Recommendation 6</u>: Lifecycle planning principles should be used to review the level of funding, support investment decisions and substantiate the need for appropriate and sustainable long term investment.</p> <p><u>Recommendation 9</u>: The case for implementing the Asset Management Framework should be made by clearly explaining the funding required and the wider benefits to be achieved.</p>
Well-managed Highway Infrastructure	<p><u>Recommendation 13: Whole Life / Designing for Maintenance</u></p> <p><u>Recommendation 29: Lifecycle Plans</u></p> <p><u>Recommendation 30: Cross Asset Priorities</u></p>

Section D:

Asset Management Enablers

6 Asset Management Enablers

6.1. Leadership and organisation

6.1.1. Leadership, Culture & Commitment

Leadership has a strong influence on the culture and behaviour of all organisations. Clear direction and priorities help to ensure that all decisions taken across the organisation support a consistent approach to the delivery of business objectives, and asset management principles.

Time and effort spent on leadership and organisational development will pay dividends in the long-term. This will mean the purpose, objectives and responsibilities for the implementation of asset management will be clearly established.

Leadership is reflected in the behaviours and culture developed within an organisation. Senior management can demonstrate leadership by creating the culture and environment that will support an authority-wide commitment to asset management. This may be demonstrated through adopting asset management principles when making investment decisions. Other important aspects include endorsing the development and implementation of the Asset Management Framework, including the policy, and by supporting continual improvement through management reviews.

Strong leadership and an asset management culture should run throughout the authority due to the range of functions required to manage highway infrastructure. Functions that may have operated separately should have strong links and all relevant functions need to understand and be part of the wider asset management approach.

An asset management culture, with appropriate behaviours, will usually be characterised by a consistent approach across the authority to the long term management of the highway network. Behaviour of teams and individuals will be aligned to common objectives rather than to individual priorities that may encourage short term actions that will not meet the longer term vision and strategy.

An asset management culture should avoid conflicting priorities and messages, lack of understanding, or lack of a collaborative approach, all of which can lead to inefficient and ineffective working.

Adoption of a preventative approach to maintenance is an example of where a common culture in delivering asset management is important. There may be a less immediate gain in terms of responding to stakeholder pressure and satisfaction compared to repair of some obvious defects, but timely intervention is known to preserve the asset, and be good value for money. If a common approach to asset management is not shared, preventative work may be delayed or omitted in favour of more apparently pressing activities, deterioration occurs, and higher long term costs result.

It is helpful for the senior decision makers to demonstrate commitment to asset management by giving one of their number the responsibility for sponsoring asset management across the authority. This will help to ensure that asset management issues are given appropriate priority associated with the resources available, that an asset management approach is being effectively developed and implemented, and the benefits of asset management achieved. It will be helpful for the sponsor to meet with asset management teams on a regular basis to ensure good communication and understanding.

Achieving good leadership requires a certain amount of knowledge on the part of leaders and senior decision makers. Therefore, there is a role and a responsibility for asset management staff to articulate the key issues and benefits of asset management in ways that are non-technical and meaningful.

6.1.2. Organisational Delivery of Asset Management

Asset management may be developed in different ways and to various degrees for different assets, so it is important that a coordinated view of asset management policy and strategy is taken by the Council at a leadership level. It is essential to have an organisational structure that facilitates implementation and delivery of asset management by appropriately empowered and competent staff.

Decision making on key matters such as lifecycle planning, financial planning, works programmes and investment in asset management systems should be made for the long term and be sustainable. Depending on the way risk is allocated, this will normally imply that such decisions are the responsibility of the authority, rather than service providers.

An exception may be where asset management risk has been transferred to another organisation for many years, such as through a Private Finance Initiative (PFI) arrangement over 25 years, as is the case with the City's public lighting stock. Where asset risk is transferred, the performance of the assets in the period after their return should also be considered.

Asset management will be considered at three levels within our organisation and are detailed in Figure 4. These three levels are:

- Strategic
- Tactical
- Operational

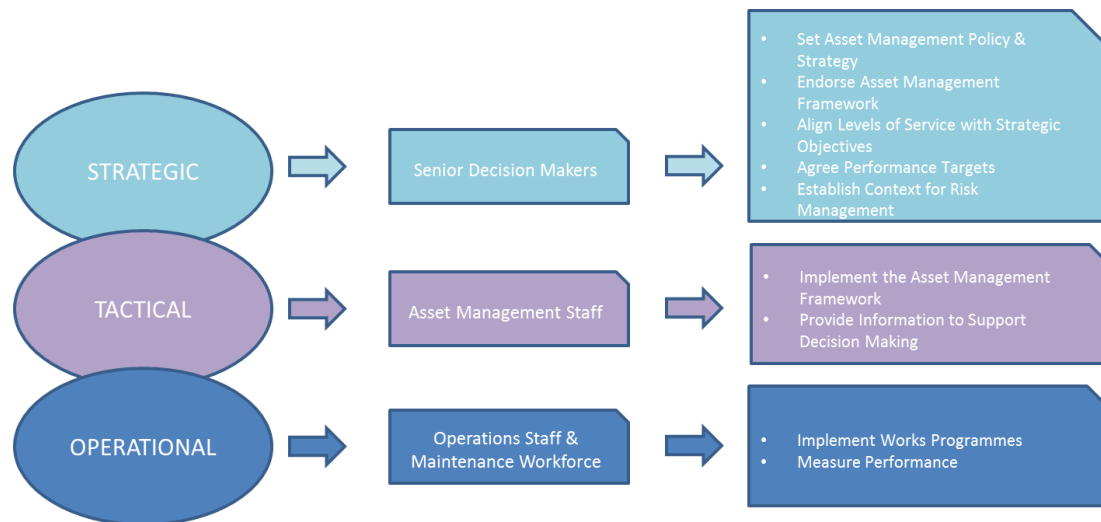


Figure 4: Organisational Hierarchy- Recommended for good highway asset management in the city.

Strategic

Typical strategic aspects of asset management will include:

- Development and endorsement of an Asset Management Framework;
- Developing and agreeing asset management policy, strategy and levels of service and performance targets;
- Reviewing achievement of outcomes and benefits.

In developing the strategic aspects of asset management senior decision makers will need to have clear sight of the outcomes they wish to achieve.

Tactical

At a tactical level decisions will be made on how to meet the performance requirements arising from the Highway Asset Management Plan. These decisions will require knowledge, information and data in the form of asset inventory, condition data and predicted performance of the network. Tactical aspects of asset management include:

- Preparation of the Highway Asset Management Plan (HAMP) and/or other supporting documents
- Development of an Action Plan to support the delivery of the Highway Asset Management Plan
- Development of a functional network hierarchy;
- Preparation of lifecycle plans and financial plans to meet either budgets or performance targets;
- Developing the approach for prioritising schemes;
- Developing works programmes; and
- Developing annual programmes.

Operational

The operational level is about delivery of maintenance activities that align with the approach to asset management. Typical operational aspects include:

- Collection of data, including inspections, safety and serviceability defects and asset condition;
- Management of asset data;
- Reactive work, including rectification of defects and winter service;
- Cyclic maintenance;
- Confirmation that works programmes can be implemented to budget and timescale;
- Implementation of a works programme;
- Co-ordination of works, including utilities,
- Reporting on the performance of the asset.

There are a number of key roles in developing and delivering asset management:

Senior Decision Makers: Asset management policy, strategy and performance requirements need support and endorsement from senior decision makers. Successful asset management requires leadership, an organisational culture and structure to implement asset management and financial commitment from senior decision makers. Senior decision makers should undertake a formal review of the approach adopted for asset management from time to time.

Asset Managers and Practitioners: Asset managers and practitioners should be responsible for developing and delivering the approach to asset management that has been agreed with senior decision makers and documented in the Highway Asset Management Plan and performance requirements. Collection and management of appropriate data, development of lifecycle plans, forward programmes of works will be required to support the approach and to meet the asset management requirements.

Operations Staff & Maintenance Workforce: there needs to be a “golden thread” from the senior decision makers setting policy to the operational staff and maintenance workforce who carry out the day to day works that keep all of the assets in functioning order. Therefore, it is essential that training takes place to ensure all staff understand the principles of asset management and how these can lead to better management and overall condition of the network.

6.1.3. Asset Management – Roles and Responsibilities

It is important to identify the roles and responsibilities for staff who are involved in asset management activities. It is critically important that roles are clarified and clearly defined including the scope of the role and their decision making responsibility. The responsibilities within the City Council for Highway Asset Management are detailed in Table 1:

Role (Responsibility Owner)	Responsibilities
Elected Members and Director with responsibility for Highways (Strategic)	<ul style="list-style-type: none"> • Leadership, culture and direction for highway asset management across the authority
Assistant Director: Operational Services (Strategic)	<ul style="list-style-type: none"> • Demonstration of senior management commitment at senior management team level by actively sponsoring a highway asset management approach.
Strategic Manager: Highways & Transportation (Strategic)	<ul style="list-style-type: none"> • Asset Management Champion • Delivery of asset management benefits • Embedding behaviour relating to a whole life view
Highways Asset Manager (Strategic and Tactical)	<ul style="list-style-type: none"> • Development of highways asset management strategy • Production of documentation to support asset management • Produce and develop asset management plan • Identification of resource requirements • Review asset management activities and develop improvements where necessary • Manage PFI contract to deliver asset management principles to arm's length contractual arrangements in lighting, illuminated signs and bollards and energy consumption • Data collection and management including <ul style="list-style-type: none"> ○ Inventory ○ Condition ○ Construction and management records • Safety and serviceability inspections • Condition surveys • Coordination of life cycle plans across various speciality areas • Monitor/measure that works programmes are consistent with levels of service • Overview of information systems to ensure they meet asset management needs • Development and implementation of a communication strategy

Highways Maintenance Manager (Operational)	<ul style="list-style-type: none"> • On-going reactive maintenance associated with the highway network including such areas as: <ul style="list-style-type: none"> ○ Roads and footways ○ Paved public realm/pedestrian areas ○ Drainage ○ Road markings ○ Street furniture
Engineering & Commissioning Manager (Operational)	<ul style="list-style-type: none"> • Procurement associated with large maintenance schemes • Integration and optimisation of planned works • Production and delivery of works programmes • Ensure new assets embed “whole life” planning during the design, prior to construction
Structures Manager (Operational)	<ul style="list-style-type: none"> • Ensure management of the following structures within an asset management framework: <ul style="list-style-type: none"> ○ Bridges ○ Retaining walls ○ Large culverts ○ Small span structures ○ Vehicle restraint systems ○ Geotechnical assets ○ Fences, walls, screens and environmental barriers • Ensure maintenance and management of surface water management / drainage operations on the highway network
Traffic Manager (Operational)	<ul style="list-style-type: none"> • Management of advanced transport telematics equipment including: <ul style="list-style-type: none"> ○ Urban traffic control systems ○ Traffic signal installations ○ Variable message signs ○ Electronic information systems • Minimising impact of asset management works on the network
Transportation Policy & Highway Development Control Manager (Tactical)	<ul style="list-style-type: none"> • Collection of traffic data

Table 1: Asset Management Roles and Responsibilities

6.1.4. Competencies and Skills

It is critically important that the City Council identifies the competencies necessary to meet its requirements for asset management. Where these competencies are not available in the organisation, training of staff will be required. Recruitment, mentoring or collaboration with other authorities will need to be considered to ensure staff have the appropriate skills to deliver asset management moving forward.

If all the competences or resources are not immediately available, external support will be an effective way of addressing gaps, particularly if part of the role is to build capability in the organisation. It is important however that ownership is retained within the authority and that asset management staff have sufficient knowledge to deliver identified asset management outcomes.

Competencies will fall under several broad headings namely:

- Leadership and governance;
- Communications and relationship management;
- Strategic thinking and decision making;
- Risk management;
- Business management, finance, resources, tools, information management;
- Planning development and review;
- Asset understanding;
- Lifecycle management;
- Technical skills, including choice of treatments and materials;
- Procurement and contract management; and
- Delivery.

Training and Development

To ensure competency regular training should be considered for staff undertaking roles in asset management. This will ensure the authority has the continuing ability to efficiently and effectively prepare, implement and review their approach to asset management.

Investment in development of staff will support the overall improvement in the implementation and delivery of asset management supporting the subsequent business benefits.

Succession Planning

Long term asset management involves many different people over time. As people change and as the approach evolves it will be necessary to ensure an orderly transfer of knowledge. This can best be achieved where those involved in asset management have clear roles and where due consideration is given to succession planning and the smooth hand-over of responsibilities.

Managing Change

Step changes to service delivery will require significant change to the established asset management processes. Failure to recognise this may lead to slow progress in implementing asset management and realising the benefits it offers. The Council needs to ensure good change management practices are applied to delivering the management of its highway infrastructure assets. The City Council will identify resources required to support change management and ensure that input in this area is considered appropriately.

6.1.5. Required Asset Management Outcomes

Section Reference:	Section D: Asset Management Enablers
Section Name:	Section 6.1: Leadership & Organisation
Asset Management Outcome	Actions required
Endorsement of Asset Management by Senior Leaders and Decision Makers	Senior Decision Makers to support and endorse the adoption of highway asset management principles, including the appropriate level of investment required to maintain the asset.
Adoption of an Organisational Framework	The Strategic, Tactical & Operational model as identified in Figure 4 will be adopted.
Delivery of asset management responsibilities	Those officers identified in Table 1 will be required to develop and implement the asset management principles and strategy.
Appropriate level of competency and training within the authority to delivery asset management	Competency and skills gaps will be identified and investment in appropriate training / mentoring will be provided in order to achieve the required level of knowledge within the organisation.
Managing Change	Required changes to current asset management processes will be identified in order to ensure the change from current practice is efficiently managed.
The above high level asset management outcomes are transferred to Appendix 3 Action Plan where actions required are expanded.	

6.1.6. Recommendations Achieved

Implementation of the asset management outcomes detailed in Section 6.1.5 will ensure that the City Council achieves compliance with the following national best practice recommendation(s):

National Best Practice Guidance Document	Recommendation
Highway Infrastructure Asset Management Guidance	<u>Recommendation 8</u> : Senior decision makers should demonstrate leadership and commitment to enable the implementation of asset management.
Highway Infrastructure Asset Management Guidance	<u>Recommendation 10</u> : The appropriate competency required for asset management should be identified, and training should be provided where necessary.
Well-managed Highway Infrastructure	<u>Recommendation 15: Competencies & Training</u>

6.2. Risk Management

Risk management can be used to support the decision making process associated with Asset Management. This section will detail the recommended guidance for how risk management can be utilised to support asset management.

A risk can be defined as an uncertain event, which, should it occur, will have an effect on the desired performance of on an asset or series of assets. It consists of a combination of the likelihood of a perceived threat or opportunity occurring, and the magnitude of its impact on the objectives, where:

Threat is used to describe an uncertain event that could have a negative impact on the levels of service; and

Opportunity is used to describe an uncertain event that could have a favourable impact on the levels of service.

Highway authorities are required to manage a variety of risks at strategic, tactical and operational levels. The likelihood and consequences of these risks can be used to inform and support their approach to asset management and inform key decisions regarding performance, investment and implementation of works programmes.

Successful implementation of an Asset Management Framework requires a comprehensive understanding and assessment of the risks and consequences involved. Understanding of risk enables the asset management process to address the issues identified.

The most commonly understood risks affecting the highway service relate to safety. However, there are a wide range of other risks and their identification and evaluation is a crucial part of the asset management process. Risks will include:

- Safety;
- Reputation;
- Asset loss or damage;
- Service reduction or failure;
- Operational;
- Environmental;
- Financial;
- Contractual.

Understanding and management of risk is fundamental to effective asset management and should figure strongly in the training and development programmes for asset managers.

6.2.1. Approach to Risk Management

Risk can be managed at several levels using a consistent risk framework that enables the comparison of risks across all services. This may include risks seen as:

Corporate: High level risks that effect the whole authority. Such risks include corporate reputation, civil defence, emergencies; business continuity, health and safety, political and legal and financial risk.

Strategic & Tactical: Risks affecting the management of the highways infrastructure should be considered throughout at both strategic and tactical levels.

Operational: Risk should also be managed when undertaking operational activities and should be done via the use of work place risk assessments & method statements.

This section will focus on the management of risks at a strategic and tactical level.

The risk management approach to support asset management will build on the authority's corporate approach to managing risk. The following aspects should be considered:

The nature of the service: Does the risk affect how the approach to asset management will be achieved?

Legislation: Are risk management processes mandated, such as public health and safety or the environment?

Cost: Is the effort put into assessing and managing the risk in proportion to the risk exposure?

To enable asset management, the authority will need to have an understanding of:

- Which assets are critical to the network functioning correctly;
- What could affect the delivery of the required performance, including meeting stakeholder expectations;
- The level of funding;
- The level of risk that is acceptable; and
- Options to mitigate all those risks deemed unacceptable.

6.2.2. Identifying Risk

At the strategic and tactical level, risk types may be grouped together. These groups together with examples are shown in Table 2.

Risk Type	Example Risk
Planning Risks	<ul style="list-style-type: none"> • Strategic planning • Asset management strategy • Performance and level of service • Asset management planning • Funding and investment • Climate change / natural events and environmental
Management Risks	<ul style="list-style-type: none"> • Leadership and organisation • Stakeholder and communication • Information and data • People, including competency • Financial • IT including asset management system
Delivery Risks	<ul style="list-style-type: none"> • Procurement • Cost • Works programming • Scheme identification and design • Contract and project management
Asset Risks	<ul style="list-style-type: none"> • Risks common to all assets including investment, performance and loss of service • Risks associated with specific asset types such as severe consequence of failure, accessibility and construction

Table 2: Types of Risk

Risks can be identified at different levels of detail. Risk identification will therefore first of all be carried out at a high level to obtain an assessment for the level of overall risk exposure. This will 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.

A risk register will be established to record all relevant risks together with the agreed mitigation. A regular review of the risk register will be undertaken by asset management staff. Where other stakeholders are involved, for example Highways England, this should be clearly defined in the risk register, and the risk appropriately proportioned.

6.2.3. Identifying Risk in Critical Assets

Critical assets are those that are essential for supporting the social and business needs of both the local and national economy. They will have a high consequence of failure, but not necessarily a high likelihood of failure. These assets should be identified separately and assessed in greater detail as part of the asset management planning process.

By identifying critical assets, authorities can target and refine investigative activities, maintenance plans and financial plans at the most crucial areas. Such assets may include special and major structures such as bridges. They may also include access to assets owned by third parties such as substations, where access is via a single track road but with accessibility being critical.

Criticality can be assessed by applying broad assumptions about the implications of failure. For example, whether the non-availability of a major structure or tunnel would have a significant impact on the local or possibly the national economy, or assuming that higher trafficked roads have a larger consequence of failure than lower trafficked. Using this approach, simple criteria can be defined to assess the loss of service. For example, loss of use of a road will:

- Affect or disconnect specific parts of a community;
- Affect businesses of different sizes and significance; and
- Affect specific numbers of road users/hour.

Depending on the criticality of the asset, the risk management approach may be at a network level by ensuring diversions are available and have minimal impact, individual asset level, or at a detailed component level with extensive consideration of failure modes.

6.2.4. Evaluating the Risk

Risk assessment: Risk assessment involves determination of the likelihood and consequence of an event. Risk assessment allows the identified risks to be analysed in a systematic manner to highlight which risks are the most severe and which are unacceptably high. An authority can then determine its level of exposure to the risk and the actions necessary to minimise that risk.

Overall risk is normally described as:

$$\text{Risk} = \text{Likelihood} \times \text{Consequence}$$

Likelihood: is the chance of an event happening, for example, a failure (asset as well as organisational) or service reduction. It can be measured objectively, subjectively, qualitatively or quantitatively. It can be described using general or mathematical terms such as frequency or probability. Issues which will need to be considered include:

- Changes in policy and funding;
- Current and historic performance (severity and extent) of the asset;
- Severity of the environment, 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; and
- 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 realistic and accurate condition assessment to inform risk assessments and works programmes. The likelihood of other events, such as poor work practices or planning issues can be difficult to ascertain, but can be done through monitoring of work carried out & frequency of quality related issues occurring.

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.

An example of how assessment of the Likelihood and Consequence to establish a risk score will be determined can be seen in Figure 5:

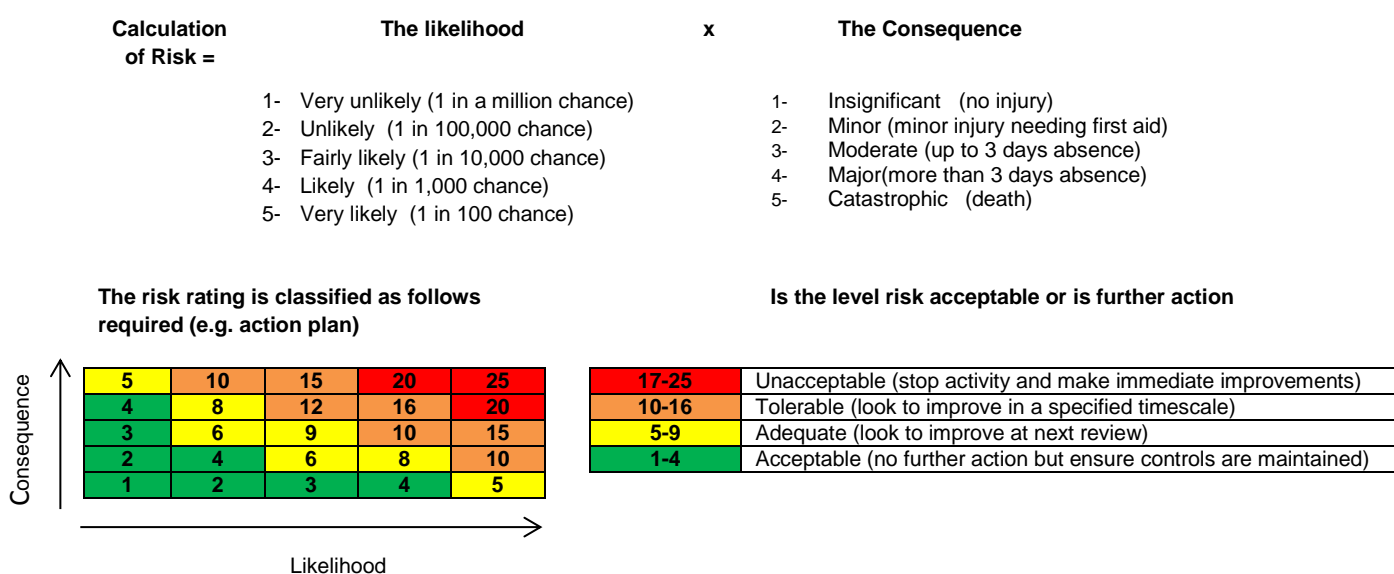


Figure 5: Calculating Risk

6.2.5. Risk Mitigation & Review

Once the initial risk assessment has been carried out and a risk score established mitigation measures can be put in place to either remove or reduce this risk, for example the provision of additional investment to reduce asset deterioration.

Regular monitoring and review of the risk register will be undertaken to review the level of risk, to identify if the mitigation measures are working and to highlight any further issues.

If required, an action plan should be developed so that areas of concern can be addressed.

6.2.6. Required Asset Management Outcomes

Section Reference:	Section D: Asset Management Enablers
Section Name:	Section 6.2: Risk Management
Asset Management Outcome	Actions required
Risk Assessment	The City Councils Corporate Risk Template will be utilised to devise a risk assessment associated with the management of all Highway Assets and mitigation measures will be identified to remove or reduce risks where possible.
Critical Assets / Network Resilience	Those assets which are of economic & social importance to the city will be identified and documented. This will enable risk associated with

	failure of these assets to be documented with appropriate mitigation measures, as well and supporting a resilient network.
The above high level asset management outcomes are transferred to Appendix 3 Action Plan where actions required are expanded.	

6.2.7. Recommendations Achieved

Implementation of the asset management outcomes detailed in Section 6.2.6 will ensure that the City Council achieves compliance with the following national best practice recommendation(s):

National Best Practice Guidance Document	Recommendation
Highway Infrastructure Asset Management Guidance	<u>Recommendation 11</u> : The management of current and future risks associated with the assets should be embedded within the approach to asset management. Strategic, tactical and operational risks should be included as should appropriate mitigation measures
Well-managed Highway Infrastructure	<u>Recommendation 14: Risk Management</u> <u>Recommendation 20: Resilient Network</u>

6.3. Asset Management Systems

Asset management systems provide information on location and performance of highway infrastructure assets and ultimately support decision making and reporting. This Section provides advice on how these systems will enable asset management through appropriate management, reporting and communication of information and data. Advice is also provided on how investment in these systems can be made in a sustainable manner.

Good asset management must be supported by robust processes, as well as good quality, repeatable and reliable data. The data and information required for asset management is described in Section 5.3. Knowledge of the asset and its condition and performance is vital for making the right investment decisions, as well as for demonstrating to senior decision makers and stakeholders the overall investment requirements. It is also enables effective communication.

Staff undertaking asset management activities should have access to the information and data they require to fulfil their role. Effective management of this is required so that benefits in implementing asset management can be maximised over the short, medium and long term.

It is recognised asset management systems are essential for managing highway infrastructure assets and in particular required to deal with the increasing amount of information and data available. It is proposed to develop the existing asset

management systems, utilised by the Council and where possible to integrated these systems.

6.3.1. Development of the Asset Management System

Making the Case for Asset Management Systems

It is recognised that varying requirements for existing systems, as well as developing and implementing new systems can be a costly process. The associated licensing and training can also be expensive.

The business benefits of any large investments need to be clearly understood. The Authority recently had a business case approved to purchase and develop an asset management system as this is key to managing data, reporting and supporting decisions to deliver effective and efficient asset management. This system is now being developed in line the principles below.

GIS: This system will hold and present all types of spatial data related to highway infrastructure assets. It may enable visualisation of the asset and analysis of data and presentation in a format usually with background mapping;

Asset database: The new asset database is a register of assets, which it is hoped will be a single integrated database containing the majority of the highway assets. It will hold inventory and condition data for each asset type.

Maintenance management: A maintenance management module will record routine maintenance defects from safety inspections or reported by the public, and support raising works orders for their repair;

Asset valuation: An asset valuation system will calculate Gross Replacement Costs and Depreciated Replacement Costs as part of Whole of Government Accounts, based on information provided in the asset database including inventory and condition.

Decision support systems: These separate systems will link to the asset database and support predictive modelling to determine future condition of an asset. They will be used to develop lifecycle planning and develop works programmes. They should also be able to support prioritisation of candidate schemes;

Access, Training and Competency

The asset management system will be accessible to all relevant staff involved in asset management to ensure they have the information and data required to undertake their role effectively. This may include staff from service providers and staff in remote locations, such as depots. Access arrangements will be made based on the Council's IT management approach and function. In providing access to staff, all corporate information assurance and security requirements will be complied with.

Staff using the asset management systems should be competent in their use. This may necessitate training in certain aspects that are appropriate to their requirements. Training may be provided from a number of sources, including the system provider, through collaboration with other authorities using similar systems, or through user groups.

Benefits of Asset Management Systems

Asset management systems are designed to enable value from asset information and data to be maximised. With continual advancements in systems and technology, a number of potential benefits may be achieved through our integrated asset management system including:

- A single source of asset data, reducing the risk of multiple databases with similar but inconsistent data;
- Visual representation of the network, enabling senior decision makers to better understand the performance of the network and the consequence of investment decisions;
- Support for objective investment decisions using lifecycle planning approaches, enabling the consequences of funding scenarios to be identified and presented quickly and efficiently;
- Providing evidence to justify service outcomes or maintenance budgets;
 - Reporting against performance targets developed as part of the asset management planning process using visual displays such as dashboards;
 - Reporting and presenting long-term prioritised works programmes in a way that can be communicated effectively to stakeholders, including the public, staff, and service providers;
 - More effective management, through scheduling and optimisation of maintenance activities, including combining of works, potentially in single road closures; and
 - Improving consistency, transparency and accountability through process efficiencies, reducing duplication and supporting better data management.

Review and Upgrade

Asset management systems, like all computer systems, require upgrading from time to time. In particular, as our maturity and experience in asset management improves, systems that support more advanced analysis of data may be required. As with other aspects of asset management, systems will need to be reviewed regularly to ensure that they adapt to changes within the authority, including information and data requirements.

Total Cost of Ownership

Asset management systems can be expensive both in terms of initial capital cost and also in terms of licences, upgrades, and training. It is therefore important that the asset management system is sustainable in the long term. The City Council has considered the Total Cost of Ownership when making the investment decision to purchase and integrated system. This included:

- Annual software licence costs, including associated database and other software licences and user licences;
- Hardware and communications infrastructure;
- Third-party software licences;

- Implementation and product configuration costs;
- Initial and continuing user training;
- Data cleansing and migration from existing systems;
- Establishment of any interfaces with existing systems;
- Continuing support and maintenance, including upgrades;
- Potential changes to business processes;
- Internal project management costs;
- Costs of externally managed systems;
- Cost of IT support; and
- Data Security

6.3.2. Required Asset Management Outcomes

Section Reference:	Section D: Asset Management Enablers
Section Name:	Section 6.3: Asset Management Systems
Asset Management Outcome	Actions required
Asset Management Systems Review	The City Council has recently carried out a review of its asset management systems and recently procured a new Asset Management System.
System Implementation	Working with all relevant stakeholders implement new asset management system, and where necessary review and amend current working practices.
The above high level asset management outcomes are transferred to Appendix 3 Action Plan where actions required are expanded.	

6.3.3. Recommendations Achieved

Implementation of the asset management outcomes detailed in Section 6.3.2 will ensure that the City Council achieves compliance with the following national best practice recommendation(s):

National Best Practice Guidance Document	Recommendation
Highway Infrastructure Asset Management Guidance	<u>Recommendation 12: Asset management systems should be sustainable and able to support the information required to enable asset management. Systems should be accessible to relevant staff, and where appropriate, support the provision of information for stakeholders.</u>
Well-managed Highway Infrastructure	<u>Recommendation 11: Asset Management Systems</u> <u>Recommendation 18: Management Systems and Claims</u>

6.4. Performance Monitoring & Bench Marking

6.4.1. Introduction

Performance monitoring is the process of monitoring and reviewing the Asset Management Framework. A well-developed approach to performance monitoring will support the Highway Asset Management team in reviewing progress in the delivery of their asset management strategy, performance requirements and works programmes.

6.4.2. Performance Monitoring

Information and data arising from implementation and delivery of asset management will be used in identifying actions for continual improvement of the approach, including delivery of the overall service. Such an approach will enable relevant processes and practices to be assessed and improved where required and lessons learnt. This will form the basis for continuous improvement.

The City Council should establish, implement and maintain processes to monitor the performance of their approach to asset management. This will assist in demonstrating the benefits of their approach and equally any performance improvements they choose to make. These processes will cover:

Strategic monitoring: To ensure that asset management is being operated as intended, and whether the asset management strategy outcomes are being met.

Performance measures and targets: To assess the effectiveness and efficiency of asset management it should be monitored using a series of metrics at the strategic, tactical and operational levels. This will include monitoring against levels of service and supporting performance targets and determining whether they have been met;

System audits: Monitoring the data in the asset management system in order to determine whether it is fit for purpose, as well as reviewing the output and how it is being used; and

Compliance monitoring: Depending on contractual relationships, the performance of maintenance contractors against their contractual obligations will need to be assessed.

Frequency: When setting the frequency for performance monitoring, consideration will be given to the balance between the cost of collecting the monitoring data and the risks of not having the information available. This is particularly important when considering compliance with statutory obligations and demonstrating value for money.

Benefits Realisation: It is important that the benefits from implementing asset management are captured and measured against those identified in the case for investment, support value for money initiatives, and greater efficiency in delivery of the service. Recording and demonstration of the benefits may provide essential evidence for further investment. It is therefore a key success factor in the implementation of asset management and should form part of the monitoring process.

6.4.3. Performance Reviews

The authority will consider regular reviews to support continuous improvement. It is anticipated that the performance monitoring and reporting regime will be complemented with activities to review progress in achieving the overall requirements from asset management that have been set in the strategy.

Performance Reviews: Performance reviews will consider results, factors contributing to performance, and options for when performance requirements have not been met. Reviews can be carried out at regular intervals, but it is proposed for them to be carried out on an annual basis. Reviews should focus on the performance requirements that have been developed to support the asset management strategy and measure the progress in delivering the Asset Management Framework. They can also consider more operational requirements. Lessons learnt and improvement actions should be captured for all aspects of the process, especially where performance is below that expected.

Management Review: Senior decision makers should ensure that their asset management approach continues to be effective by conducting Management Reviews at regular intervals. These will consider performance reviews, other reviews, and any supporting improvement programme. The Reviews should include:

- Results of internal audits and evaluations of compliance with applicable legal and other requirements;
- The results of stakeholder engagement and relevant communications, including complaints;
- Records or reports on performance of the highway infrastructure;
- The extent to which the performance requirements have been met;
- Follow-up actions from previous Management Reviews;
- Changing circumstances, including changes in legislation, funding or other requirements related to the highway infrastructure;
- Changes in technology; and
- Comparisons of performance with similar organisations.

The outputs from Management Reviews may include improvement actions and possible changes to:

- Asset management policy and strategy;
- Asset management performance requirements;
- Resources for highway infrastructure maintenance and support; and
- Other elements of the Asset Management Framework.

6.4.4. Improvement Plans

As a result of any of the reviews, it is likely that a number of improvements may be identified. These improvements may be formally documented in an improvement plan. It should detail the expected outcomes of the improvement plan, the specific actions to be taken, the owner, the resources needed to deliver them and timescales. This will ensure that focus is maintained on the outcome of the improvement and the ultimate benefit it may provide to the authority and stakeholders.

The difference between current and desired practice can be identified through a gap analysis. The output will be a series of agreed improvement actions. Improvement actions can be classified as corrective or preventive as described below:

Corrective actions: These are required to eliminate the reasons for poor performance whilst using the asset management approach;

Preventative actions: These are required to eliminate potential reasons for poor performance.

Improvement actions may include:

- Reviewing the asset management strategy;
- Creating or improving a process or advice to ensure processes are applied consistently;
- Developing improved maturity levels or competence levels through training of staff;
- Revising and implementing the asset management planning processes to improve efficiency;
- Reviewing service provision arrangements; and
- Implementing data quality improvements.

Improvement actions should be prioritised and placed into timeframes that are realistic and affordable. In prioritising the actions, a balance between risks, costs, strategic priorities, levels of service and expected benefits should be achieved.

An improvement plan should have the support of senior decision makers and can be established using the following steps:

- Confirm the programme of improvement actions;
- Identify resource requirements (internal and external);
- Monitor and control the plan in terms of time, cost and quality;
- Report on progress;
- Review project outcomes to ensure they are as desired, and take action if they are not.

6.4.5. Benchmarking Performance

Benchmarking is a systematic process of collecting information and data to enable comparisons with the aim of improving performance, both absolutely and relatively to others. It provides a structure to search for better practice in similar authorities that can then be integrated into an asset management approach.

There are four approaches to benchmarking that may be considered, each of which provides a different perspective:

Strategic benchmarking: Compares outcome performance in the implementation of strategic or policy objectives across organisations;

Functional benchmarking: Compares the performance and structure of an entire service area or function within an organisation;

Process benchmarking: Compares and measures processes, sequences or activities with those of other organisations to identify how existing methods can be improved; and

Data benchmarking: Involves the use of objective data for comparing performance, very often cost or measurement related.

There are a number of local authority benchmarking groups or networks dealing with highway maintenance. These enable authorities to share best practice and performance, including cost. The City Council is currently participating in a number of benchmarking groups and this will continue as part of the proposed asset management process.

In addition, the National Highway & Transportation Survey, a national public opinion survey in England that many highway authorities subscribe to allows comparison of an authority's performance, in relation to customer perception. Customer perception of performance across a number of functions is a powerful way for an authority to understand views of service users. The City Council takes part in this survey and will continue to do in the future.

6.4.6. Required Asset Management Outcomes

Section Reference:	Section D: Asset Management Enablers
Section Name:	Section 6.4: Performance Monitoring & Benchmarking
Asset Management Outcome	Actions required
Performance Monitoring	Review and develop performance monitoring strategies to measure and monitor the performance of the asset management plan and delivery of actions.
Benchmarking	Review attendance at benchmarking groups to ensure that these are fit for purpose and that the Local Authority is getting the best possible benefit.
The above high level asset management outcomes are transferred to Appendix 3 Action Plan where actions required are expanded.	

6.4.7. Recommendations Achieved

Implementation of the asset management outcomes detailed in Section 6.4.6 will ensure that the City Council achieves compliance with the following national best practice recommendation(s):

National Best Practice Guidance Document	Recommendation
Highway Infrastructure Asset Management Guidance	<p><u>Recommendation 13:</u> The performance of the Asset Management Framework should be monitored and reported. It should be reviewed regularly by senior decision makers and when appropriate, improvement actions should be taken.</p> <p><u>Recommendation 14:</u> Local and national benchmarking should be used to compare performance of the Asset Management Framework and to share information that supports continuous improvement.</p>
Well-managed Highway Infrastructure	<u>Recommendation 27: Performance Monitoring</u>

Section E:

Delivery

7 Delivery

7.1. Works Programmes

The delivery of the works programme is the tangible outcome of the asset management planning process. The programming and delivery of works should align with the asset management strategy and meet the performance targets.

The objectives of our programmes of work will be:

- Develop effective and efficient works programmes to meet the approach to asset management and delivery of the service.
- Identify potential maintenance works – candidate schemes.
- Develop works programme of candidate schemes.
- Prioritise and optimise schemes in the works programme to meet the available budgets.
- Monitoring of works to ensure it meets the approach to asset management.

The process to develop a works programme for asset maintenance comprises the identification, prioritisation, optimisation, programming and delivery of individual schemes. It should accord with the annual budgets that have been developed by the authority, ideally with the support of lifecycle planning.

Key aspects of progress in delivering the asset management strategy and performance requirements will be monitored through the long term performance of the schemes delivered each year from the works programme.

A process for identifying and developing schemes is described below:

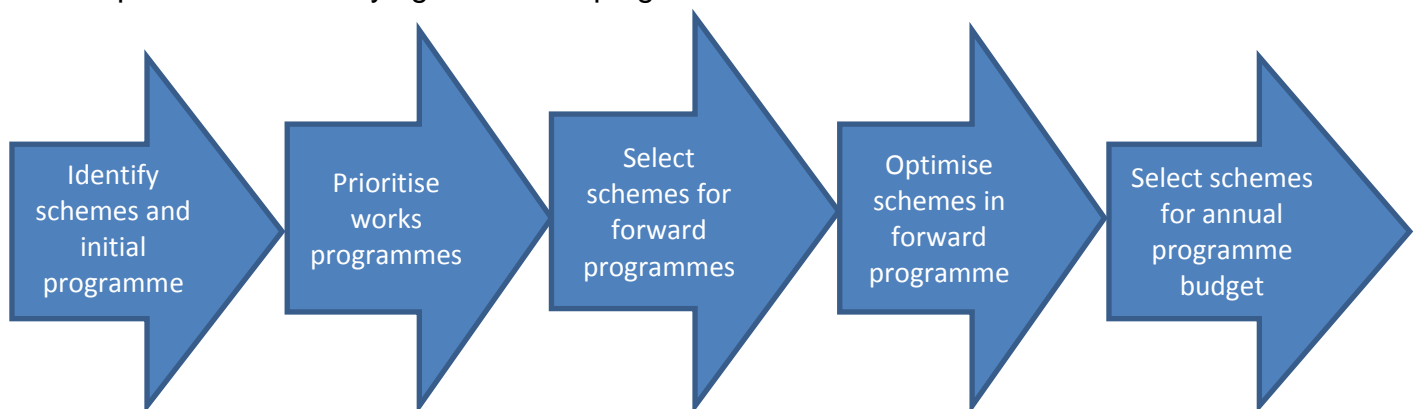


Figure 6: Developing a programme of works

7.2. Scheme Identification

Schemes for possible inclusion in a programme may be identified from the following sources of data and information:

- Asset data including results from inspections and condition surveys including SCANNER, Principal Inspections to structures, Footway Network Surveys, structural and electrical testing of street lighting and illuminated traffic signs, and general service inspections. Depending on the output of the asset management system, this data may be available visually via GIS, which may assist in the assessment process;
- Surveys where the primary objective is not to assess asset condition, such as safety inspections. These may provide useful information on the performance of assets as well as identifying risks. Ideally, this information should also be available from the asset management system;
- Local knowledge from operational staff involved in managing the network, including inspectors and contractors. Typically, this may include information on drainage, signs and lines and those areas of the network that are inspected or surveyed less frequently.
- Stakeholder needs, particularly those aspects of the service that are important to the local community;
- Service requests from the public and areas where there are a large number of personal injury accident claims. This information should be available from the asset management system;
- The requirements of meeting wider transport and corporate objectives.

These schemes may be collated into an initial works programme for each asset.

7.3. Programme Prioritisation

Schemes in the initial works programme will be prioritised to identify those maintenance schemes that will deliver the most advantage asset management outcome. Some sites will require immediate action but then a list of future schemes will be development sufficiently in advance to ensure effective planning and preparation.

Those assets most in need of maintenance are likely to be:

- Those which are safety critical to the network
- Carry a high level of risk, such as highly trafficked principal roads;
- Those with condition at or below the specified intervention level;
- Schemes which will extend the life of the asset
- Have keen stakeholder interest; and
- Support the corporate vision.

It is likely that there will be insufficient budget to deal with all these needs. Where this is the case it is likely that those that are safety critical or have a high level of risk will carry the highest priority. It is also essential that schemes are prioritised to ensure that those that provide greatest contribution to the asset management strategy at the minimum cost are undertaken, especially where funds are limited. Adopting such an approach will ensure value for money is achieved.

Before schemes can be prioritised, priced options for maintenance should be developed for each. Ideally, selected treatment options should align with those developed for lifecycle plans. A process for prioritising competing maintenance demands will then be required. The lowest whole life cost may be useful for prioritising candidate schemes for carriageways, structures or lighting (including consideration of energy consumption).

A risk-based approach may be more appropriate for assets such as drainage, earthworks, and safety fencing. This would identify the impact on local communities in terms of safety and serviceability of not undertaking the work by calculating a risk rating. Those with the highest risk rating would carry the highest priorities.

Prioritisation on single criteria may not contribute fully to meeting the asset management strategy and therefore may be less effective in meeting the performance requirements.

Value Management is an example of a multi-criteria decision making process that can be used to prioritise candidate schemes. Ideally, the criteria adopted should align with the approach to asset management particularly the levels of service and may also include some of the single criteria described above. An example of a multi-criteria approach is described below:

Safety: Schemes that are aimed at maintaining a safe network and meeting statutory requirements, such as restoring skidding resistance or replacing safety fencing;

Socio-economic and environmental: Wider policy issues, including providing for the vulnerable, impact on local communities and businesses, environmental impact, sustainability, carbon reduction, noise reducing surfacing and recycling of bituminous materials;

Value for money: Cost benefit determined from the whole life cost approach i.e. invest now to deliver savings later and defer a more costly future repair

Risk: The individual risk associated with each of the schemes. This could include a number of factors including the impact of climate change, engineering risk, claims and legal risk, and reputational risk.

The prioritisation process requires each criterion to be assigned a weighting which represents its importance in the delivery of the asset management approach. While it is recognised that safety will be of primary importance, other issues should also be addressed, including serviceability, sustainability, stakeholder requirements and value for money.

Adopting the above techniques will enable a prioritised programme of works to be developed from the initial list of schemes identified. The lifecycle plan and investment strategy approach described earlier will have determined the appropriate finance and schemes are selected from the prioritised programme of works by totalling the indicative costs up to the point where the budget is utilised. This is referred to as the “cut-off” point. In adopting such an approach, a contingency can be considered to manage any risk associated with delivering the schemes.

7.4. Forward Works Programme

The period the forward programme covers will vary according to individual requirements. Realistically however, a works programme of three to five years provides greater flexibility in programming than an annual programme and may allow consideration to be given to grouping works to provide cost savings in delivery, also potential purchase of more modern expensive equipment that has a longer term saving and is more efficient.

Flexibility also has to be allowed in the programme for unforeseen schemes that may arise from issues such as the effects of severe winters and flooding. Such works may require immediate action with other schemes having to be deferred.

The forward programme comprises schemes for each asset programmed to be carried out within the next three to five years. In some cases where the information is available, indicative forward works programmes can be developed for longer periods of time, for example, up to ten years or even longer.

The forward programme supports financial planning. Ideally it will be communicated through a communication strategy to elected members, other stakeholders and the public. It can clearly demonstrate what, where and when schemes are to be undertaken. It should be subject to annual review and updated using the latest sources of data and other information.

For schemes in the forward programme, and particularly those around the budget 'cut off' as well as those that require significant investment, additional data may be required to verify any assumptions made. Where this will incur significant cost, the risks and benefits of undertaking additional investigation to obtain this data should be carefully considered.

A robust forward programme provides short to medium-term evidence of the level of funding required for the authority to maintain its assets. It is likely to be challenged by senior decision makers and can form part of the case for justifying additional funding. As such, it will need to be robust and therefore based on reliable information and data. It should clearly demonstrate how it will meet the requirements of the asset management strategy.

7.5. Programme Optimisation

Schemes may be optimised within the forward programme around selected criteria. This may include the following considerations:

Minimise occupation of the network: Value of these schemes will be maximised by co-ordination with other works programmes and integrated transport projects on related parts of the network, thus minimising disruption to users and maximising benefits to the community; and

Deliver efficiencies by combining activities: A number of schemes may be combined and delivered together, for example this may include schemes identified as being in close geographic proximity within the forward works programme, but shown in different years.

Consideration should also be given to those operational activities in the Highway Maintenance Plan and how they can be combined to be more efficient. Equally, involvement of statutory undertakers and coordination with their work may also be beneficial.

At a programming level, the objective of optimisation is to provide greater efficiency. Before commencing an exercise on optimising schemes, the Council need to ensure that the identified efficiencies can be delivered. At this stage, early involvement of the maintenance contractor undertaking works will be beneficial.

7.6. Annual Programmes of Work

The annual works programme should be developed from the forward programme and is effectively the highest priority projects that can be delivered from the available annual budget.

Ideally, projects in the annual programme should have been already designed and be ready to be delivered. This will enable the maintenance contractor to plan the works properly and minimise any potential risks associated with delivery. In designing these projects, consideration should be given to collecting additional detailed data on the performance of the respective assets to ensure that the intervention proposed delivers the desired outcomes. It is important for financial control purposes to ensure that a more detailed cost estimate of each project is produced and a suitable contingency is allowed for risk.

7.7. Required Asset Management Outcomes

Section Reference:	Section E: Delivery
Section Name:	Section 7: Works Programme
Asset Management Outcome	Actions required
Programme Criteria	Develop an agreed set of criteria for the development and prioritisation of schemes on a works programme
Programme Development	Development of 3 year programme based on the agreed criteria
The above high level asset management outcomes are transferred to Appendix 3 Action Plan where actions required are expanded.	

7.8. Recommendations Achieved

Implementation of the asset management outcomes detailed in Section 7.7 will ensure that the City Council achieves compliance with the following national best practice recommendation(s):

National Best Practice Guidance Document	Recommendation
Highway Infrastructure Asset Management Guidance	<u>Recommendation 7: A prioritised forward works programme for a rolling period of three to five years should be developed and updated regularly.</u>
Well-managed Highway Infrastructure	<u>Recommendation 31 : Works Programme</u> <u>Recommendation 32: Carbon</u> <u>Recommendation 33: Consistency with Character</u> <u>Recommendation 35: Environmental Impact, Nature Conservations and Biodiversity</u>

Section F:

Communications

8 Communications

8.1. Background

Engaging with stakeholders to understand their needs and expectations provides the information needed to determine level of service required for highway infrastructure assets. The highway network is of significant interest to the public and the media. This interest is likely to continue with robust public expectations of how the network should function. In addition, weather conditions and possible resulting damage to the highway network often provide the focus for significant national and local media coverage.

Greater transparency in the public sector is resulting in increased availability of a wide range of information in the public domain. The City Council will need to provide clarity and transparency in how it makes decisions in the identification, assessment, programming and delivery of asset management activities. This includes how the public are involved in the decision making process.

Highway defects and the condition of the highway network can be a major area of requests for service, complaints or claims to the authority. Processes will therefore be in place to deal with these communications and the provision of high quality reporting and feedback. It will be made easy for the public to make a report and track progress through more efficient and effective customer facing systems which will directly integrate with back office systems.

Additionally, understanding the public perception of the highway network is of utmost importance. One such method of gauging the public's perception of the service are annual surveys such as those provided by the National Highways & Transportation Survey (NHT). The NHT survey is a collaborative venture by a number of local highway authorities to give residents the chance to comment on highways and transport services provided in their local area. It is governed by a local highway authority steering group and the same questionnaire is used across all authorities so that comparisons can be made. The survey analysis enables benchmarking, trending, mapping and overlaying of data from national down to local ward level. Survey results are publicly available on the survey website and provide transparency. Authorities can use the feedback to manage and improve local services. Repeatability of the survey allows authorities to monitor, with some accuracy, the impact of service improvement activity on different aspects, as well as on the service overall. Results are gathered under the themes of: Accessibility, Public Transport, Walking and Cycling, Tackling Congestion, Road Safety, Highways Maintenance & Enforcement. The City Council will endeavour to understand its stakeholder perception of the service by utilising surveys such as NHT.

A Communications Strategy will be developed to provide a mechanism for describing how the asset management approach is actively communicated through engagement with relevant stakeholders in setting requirements, making decisions, reporting performance and the receipt and delivery of feedback.

8.2. Required Asset Management Outcomes

Section Reference:	Section F: Communication
Section Name:	Section 8: Communication
Asset Management Outcome	Actions required
Communication Strategy	Write communication strategy and develop methodology for communication with stakeholders regarding the asset management approach, including receiving requests for service and subsequent updates.
Effective and efficient method for receiving requests for services and associated updated	To review current processes for receiving requests for service and the provision of feedback, and amend processes where necessary.
Customer Satisfaction	To establish methodology to assess and understand Customer Satisfaction and Perception, through utilising mechanisms such as the NHT Survey.
The above high level asset management outcomes are transferred to Appendix 3 Action Plan where actions required are expanded.	

8.3. Recommendations Achieved

Implementation of the asset management outcomes detailed in Section 8.2 will ensure that the City Council achieves compliance with the following national best practice recommendation(s):

National Best Practice Guidance Document	Recommendation
Highway Infrastructure Asset Management Guidance	<u>Recommendation 2</u> : Relevant information associated with asset management should be actively communicated through engagement with relevant stakeholders in setting requirements, making decisions and reporting performance.
Well-managed Highway Infrastructure	<u>Recommendation 4: Engaging and Communicating with Stakeholders.</u> <u>Recommendation 24: Communications</u>

Section G:

Governance

9 Governance

9.1 Approvals and Reporting

To ensure that this Highway Asset Management Plan is effectively delivered an approval and reporting body will be required. To enable this, the Transportation Infrastructure Board will consist of those members shown below who have delegated authority to:

- Approve programmes of work as they relate to the management and maintenance of the highway asset
- Agree alternatives to approved programmes of work, where the funding allocation is not altered.
- Approve the delivery of schemes following consultation exercises, this could involve keep the scheme as is, or, amending the scheme to support objections that have been raised
- Approve and amend documents and strategies that are contained as recommendations within this documents (e.g. Communications Strategy)
- Approve and amend supplementary Highway Strategies/Procedures as they relate to the management and maintenance of the Highway Asset. This will include, but not exhaustively, Highway Inspection Manual, Wet Road Skid Resistance Strategies, Public Rights of Way Improvement Plan etc
- Approve or reject ad hoc highway schemes of small value that are requested from a multitude of sources
- Recommend that approval be sought by Cabinet or Full Council, or that the issue/proposal is not taken any further

The Transportation Infrastructure Board will consist of (delegated bodies):

- Portfolio Holder for Regeneration, Planning & Transportation or agreed Representative
- Director of Place, Growth & Prosperity or agreed Representative
- Assistant Director: Operational Services or agreed Representative
- Section 151 Officer or agreed Finance Representative

The Transportation Infrastructure Board will also have named representatives who will be responsible for proposing items of business above, and giving appropriate advice. However, these representatives will have no delegated decision making authority:

- Strategic Manager: Highways & Transportation
- Strategic Manager: Planning
- Team Manager: Engineering & Commissioning
- Team Manager: Highway Asset Manager & Group Coordination
- Team Manager: Transportation & Highway Development Control
- Any Programme Manager who has a transportation related project proposal update to deliver

As requests for additional minor schemes can occur throughout the year which require Capital Funding, it is proposed that a Capital Funding allocation is factored into the Capital Programme for the delivery of ad hoc highway schemes that can be approved at the discretion of the Transport Infrastructure Board. The types of

schemes that could be utilised for this funding could be, requests associated with Traffic Management, and areas not identified in the current year programme for highway works etc. Should the funding not be utilised within the financial year, it is proposed that this is transferred into the Capital Highway Works Budget to enable Highway Works (such as resurfacing) to take place.

The Transportation Infrastructure Board will meet on a quarterly basis to:

- Review the progress of the Highway Asset Management Delivery Plan (Appendix 3)
- To give any approvals required associated with those areas identified above
- To discuss progress of high level Transportation Infrastructure Schemes
- To review progress on the delivery of the Highway Capital Programme.
- Recommend any progress updates required to other Council bodies.

In addition to fixed quarterly meetings, the Transportation Infrastructure Board can be called as required to provide approvals as described above to ensure efficiency of delivery.

The utilisation of the Transportation Infrastructure Board in this manner will enable the efficient implementation of the Highway Asset Management Plan, ensuring that the maintenance and management of the Highway Network is managed as effectively and efficiently as possible. It will also allow approvals to be delegated to the appropriate Cabinet Members / Officers.

Additionally, it will ensure that that delivery of the action plan as detailed in Appendix 3 is being implemented, so that issues can be identified and mitigated against accordingly. This approach will encourage a “continually improving” method of working which will support the authority in improving and maintaining its performance in accordance with the Department for Transport Self-Assessment, which is linked to the Authorities Local Transport Plan (LTP) funding settlement.

9.2 Required Asset Management Outcomes

Section Reference:	Section G: Governance
Section Name:	Section 9.1: Approvals and Reporting
Asset Management Outcome	Actions required
Transportation Infrastructure Board	To agree the constitution, operation, and delegated decision making authority of the governance structure
Transportation Infrastructure Board Budget	To agree the source and size of any delegated budget that is attached to the Transportation Infrastructure Budget
The above high level asset management outcomes are transferred to Appendix 3 Action Plan where actions required are expanded.	