

# DRAFT Highway Asset Management Strategy 2016



# DRAFT HIGHWAYS ASSET MANAGEMENT STRATEGY

## Introduction

The Metropolitan Borough of Bury is just under 100 km<sup>2</sup> in area and has a population of around 187,500. It is composed of six towns: Bury, Prestwich, Radcliffe, Ramsbottom, Tottington and Whitefield.

The highway network is one of the main elements underpinning the strong performing economy of Bury. It provides access to jobs, commerce, services, schools, health care and communities that are the drivers of the economy and is a major influencing factor on how the quality of everyday life within the Borough is perceived.

Effective and efficient management of the highway network is a key factor in the ability of the Council to deliver its services and enable the economy of the Bury to continue to thrive. A well maintained highway network plays an essential role in supporting growth and attracting increased investment in the Borough and it is the single most valuable asset owned and operated by Bury Council, currently valued at £921 million.

The highway network comprises all the carriageways, footways, street lights, cycleways, verges, signs, drains, road markings, street furniture, structures, verges and highway trees within the adopted highway maintained by Bury Council as a Local Highway Authority (LHA) at the public expense.

Asset Type	Quantity
Carriageways	660 km
Footways	1,200 km
Highway Structures	228 no.
Road Gullies	36,500 no.
Liahtina Columns	19,000 no.
Public Rights of Way	310 km
Guardrail	15 km
Signs & Bollards	24,000 no.

Table 1

Table 1 outlines the extent of the various assets that fall under the stewardship of Bury Council.

## Implementation of Highway Asset Management

In recognising the importance of asset management, and to support the Council's HAMP (Highway Asset Management Plan) policy, an asset management framework will be introduced as set out in this strategy to formalise asset management responsibilities and aims.

### Asset Management Framework for Bury

The Highway Maintenance Efficiency Programme (HMEP)<sup>1</sup> have identified in their Highway Infrastructure Asset Management Guidance publication, the need for asset management to be understood, championed and implemented at all levels of a Local Highway Authority in order to maximise efficiency gains. In accordance with the HMEP publication, Figure 1 below shows the framework levels and relevant staff.



Figure 1

By defining these roles and responsibilities in the framework, asset management will become

<sup>1</sup> HMEP is a Department for Transport (DfT) funded and sector led transformation programme designed to maximise returns from highway investment and deliver efficient and effective services.

# DRAFT HIGHWAYS ASSET MANAGEMENT STRATEGY

embedded in our day to day processes, allowing leadership and communication supporting a consistent approach and ensuring the longer term benefits of asset management are realised.

The tactical level staff will be responsible for review of all the processes supporting the framework and will feedback any deficiencies to the strategic levels. Where change is required this will then be cascaded through the levels ensuring the strategic approach is maintained.



Figure 2

## An Evolving Strategy Approach

Asset management policy and practice by definition will evolve to meet changing circumstances. Ongoing review and challenge of this HAMP will ensure strategies and practices are relevant, and that there is a continuous development of understanding, leading to better decision making.

## Good Asset Management Practice

Bury is committed to developing asset management practice taking opportunities to learn and share knowledge. Staff currently attend and contribute, where appropriate, on a regular basis at the following groups and bodies:

- Association of Greater Manchester Authorities (AGMA) Transport Groups
  - Asset Management Partnership
  - Highway Asset Management/Highway Maintenance
  - Highway Claims
- The Chartered Institute of Public Finance and Accountancy (CIPFA) Highway Asset Management Planning Network
- Highway Maintenance Efficiency Programme (HMEP)

We will continue to actively engage in activities where appropriate to ensure we progress in line with the DfT/HMEP aspirations.

## Legislation & Policies

There are a number of acts of law and regulations that impose duties on the council acting as the highway authority which are considered in this HAMP and the wider service policies. They are set out in Appendix G - Legislation & Policies Relevant to Highways Authority Services. Legislation will be kept under review and our HAMP will change to reflect anything new or changed where required.

## Whole of Government Accounts

From April 2016, the Authority will conform to legislation requiring the Whole of Government

# DRAFT HIGHWAYS ASSET MANAGEMENT STRATEGY



Accounts (WGA) valuations to be formally adopted as the basis for accounting for highway assets.

## Financial Reporting Requirements

The Local Authority Accounting Code, to be implemented from 2016 requires asset management techniques to be established in order to provide auditable reporting information based on Depreciated Replacement Cost (DRC) and Gross Replacement Cost (GRC) of the highway asset.

- GRC: The cost of constructing an equivalent new asset.
- DRC: GRC less deductions for all physical deterioration and impairment.

The asset value will be reduced each year based on depreciation and impairments, and increased based on capital expenditure on improvement of the asset. Should depreciation and impairments be greater than capital expenditures, this will result in a charge to revenue of the difference, highlighting unfunded consumption being passed to future generations.

We will continue to improve our methods of calculation as better inventory and/or calculation techniques are established.

## Historical Funding Arrangements

Funding for highway maintenance in Bury has been provided historically from revenue and capital supplied centrally from the Government.

Revenue money is typically used to fund day to day reactive maintenance of the highway in order to meet the statutory requirements to provide a safe network for users.

Capital funds are used for more extensive and planned works typically extending the life of the asset or adding new components. Historic capital and revenue funding which has been used for highway works is shown in [Table 3](#).

## Lifecycle Approach

A key function of the asset management framework is to enable an understanding of the asset components' long term funding needs. With successful implementation of the Information Systems and Data Strategy for Asset Management set out in this document, more thorough and cost effective life cycle plans can be put in place that would allow such information to be readily available to key strategic decision makers, ensuring the most informed decisions can be taken at any given time.

This will only be achieved if all levels of the asset management framework understand the long term aims and ensure that regular and reliable data is recorded. Inventory has to be kept up to date and maintenance works and costs need to be recorded at the component level wherever possible in the Confirm<sup>2</sup> system, for Highway and Street Lighting assets, whilst Structures will instead use whichever system is selected for GM-wide use.

For the purposes of carriageway WGA calculations, rudimentary lifecycle plans for each DfT carriageway classification have been agreed by the AGMA asset management group. These lifecycle plans were considered as a near to optimal estimation based on current understandings of treatment design lives, and are used as parameters in the UKPMS<sup>3</sup> to calculate the depreciated value of the carriageway.

<sup>2</sup> Confirm is a software application that...

<sup>3</sup> United Kingdom Pavement Management System

# DRAFT HIGHWAYS ASSET MANAGEMENT STRATEGY

June 2016 Valuations (Bury)		
Asset Group	WGA DRC £ million	WGA GRC £ million
Carriageway	623	674
Footway/Cycleways	135	161
Structures	91	120
Lighting	?	?
Traffic Management ***	0	0
Street Furniture	2	6
Land	723	723
<b>Total Excluding Land</b>	<b>1,574</b>	<b>1,684</b>

Table 2

Financial Year	Capital Outturn	Revenue Outturn
2007/08	£ 2.2M	£1.3M
2008/09	£ 1.7M	£1.4M
2009/10	£ 1.2M	£1.3M
2010/11	£ 1.5M	£1.3M
2011/12	£ 1.4M	£1.1M
2012/13	£ 1.4M	
2013/14	£ 1.3M	
2014/15	£ 1.2M	

Table 3

\*\*\* Traffic assets such as signals and some variable message signs are operated and maintained by Transport for Greater Manchester (TfGM).

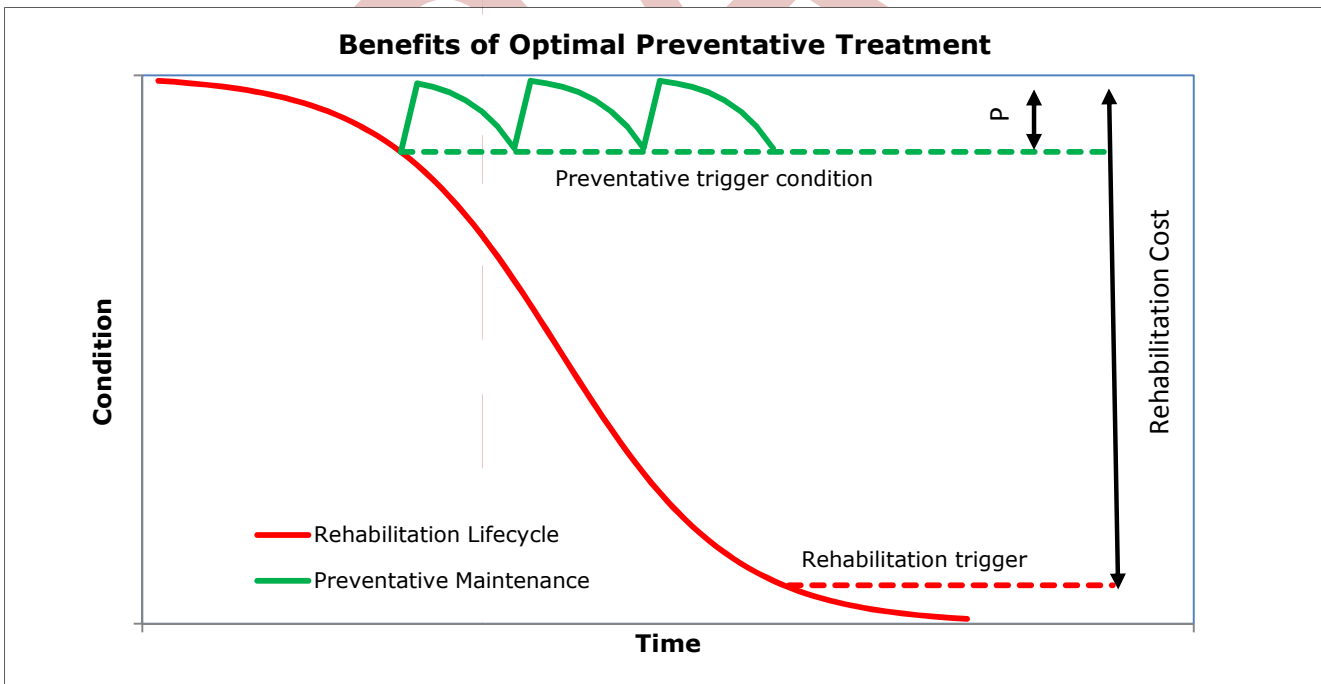


Figure 3

# DRAFT HIGHWAYS ASSET MANAGEMENT STRATEGY



In the case of Bury's carriageways, this optimal maintenance plan amounts to an annualised average of £ 5.8 million.

Lifecycle plans have not yet been calculated for the other asset groups, though from this figure alone and the recent total capital annual maintenance funding for all highway assets, as shown in [Table 2](#) above, ranging from **£2.2 million in 2007/2008 to £1.2 million in 2014/2015**, it can be readily seen that an overall deterioration of the asset as a whole would be expected.

The carriageway condition data that is reported to the Government's single data list however, and is the basis of the WGA valuations does not show a deteriorating asset. Given the importance of the data to the HAMP we need to gain more understanding of this and be able to scrutinize unexpected change from year to year.

The long term effect of underfunding capital maintenance treatments is that assets are allowed to deteriorate beyond the point where cheaper whole life cost intervention treatments are feasible. Furthermore, in the case of carriageway and footway pavement assets, underlying layers that would otherwise have significantly longer life expectation than surface layers, will also deteriorate and may eventually fail.

The general concept of intervention treatment efficiency is shown in [Figure 3](#). In an optimal lifecycle plan, long term cost benefit of preventative maintenance is achieved, as treatment costs, although required more often, are many times cheaper than rehabilitation.

The overall network condition is also kept at a reasonable level, whereas following an approach of allowing assets to deteriorate to the point where full rehabilitation is required means they are in a poor condition for extended periods of time.

The HMEP lifecycle planning toolkit has given further weight to the use of Markov chain probabilistic methods, to estimate future condition of infrastructure assets based on deterioration. Bury has

further developed the method to model the improvement effect of investments alongside the deterioration over time. The tool will be developed over time to understand the trade off between capital investment and dependence on revenue funding for reactive maintenance, which is generally understood to be many more times expensive than planned interventions. Asset management staff will continue to develop such tools and contribute to their understanding through collaboration with AGMA colleagues and HMEP.

## Service Level Strategy

### Highway Assets

Capital funding allocated to highway maintenance is currently prioritised to DfT A, B & C classified roads, which are more strategically important to the region as they constitute the main distributor network and link roads.

We will however, chose a limited number of planned treatments for local unclassified roads using capital funding, in order to allow rectification of streets where it is no longer feasible to use reactive repair techniques. We have also started to apportion amounts upward of approximately £150k in each financial year for planned preventative maintenance of streets that are not necessarily those the public would identify as the worst.

Pressures on revenue funds available for highway maintenance have become so restrictive that they are limited to reactive maintenance and mainly focussed on carriageway and footway assets, with no revenue funding available for planned preventative maintenance. In the majority of cases having used HMEP 'Right First Time' guidance, reactive maintenance is carried out using sealed patches.

Preliminary modelling carried out on the effect our current methods are likely to have on carriageway assets does show that it is not a long term sustainable approach and we will now work on considering costs and outcomes of other service delivery options. Even using HEMP 'Right first time'

# DRAFT HIGHWAYS ASSET MANAGEMENT STRATEGY

principles, patch repairs have a relatively short lifecycle and contribute to an exponential rise in defects on a network that is not having full surface course treatments in a timely manner i.e. a deteriorating asset.

Our current service levels are described in [Appendix A – Service Levels](#).

In order to take a new approach to setting our levels of service, several options for engagement with the public, councillors, and senior management stakeholders will be considered:

- The National Highways & Transport Survey
- Consultation with the public using social media and online mapping interfaces.
- Regular Asset Management forums held with Members

The council will however, aim to fulfil the following broad principles:

- Ensure a safe and accessible highway network for the public.
- Ensure street works are managed in a way that as far as practicable does not unduly delay journey times.
- Ensure utility company reinstatements are routinely inspected, to ensure as far as possible compliance with the Streetworks code.
- Promote strong local communities.
- Promote economic development.

## Performance Management Strategy

Performance monitoring will be developed from the various ad-hoc methods currently used into a suite of performance indicators expanded upon in [Appendix D - Performance Management](#). The performance indicators will be automated through data collection used for other asset management and operational functions, aligning with and indicating our position in relation to the aims

established in [Technical Supporting Data Appendix A – Service Levels](#)

# DRAFT HIGHWAYS ASSET MANAGEMENT STRATEGY

The measures will be in the following form:

## Strategic

- Annual performance
- Publicly available document
- Outcome and Efficiency based

## Tactical

- Regular performance information
- To inform decision making
- Review strategies and resource/investment against service levels

## Operational

- Speed/quantum of repairs
- Repair performance
- Internal and External service providers
- Public satisfaction

A regular review of the performance indicators will be conducted and published in a manner suitable for public, staff and service providers. Should there be a consistent failure to achieve the service levels, then a report to senior management will be prepared. A tactical level management review will then consider the attainability of the service levels and any changes required.

An annual review of the performance measurements will consider whether they are fit for purpose following the general tests:

- Is the measure clear unambiguous and specific?
- Is the measurement simple?
- Is the measure realistically attainable?
- Is the measure relevant to achieving the asset management objective?
- Is the measure bounded in a relevant timeframe?

Annual condition surveys will continue to be an important monitoring tool for the highway network and are also used to produce returns annually for the Government's single data list.

The Confirm asset system has been configured to allow geographical analysis of maintenance spend, accident occurrence and highway inspections. We will develop key reporting metrics from this data, in order to review our strategies and make changes if they are required to achieve better outcomes for the public.

## Risk Management Strategy

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

Critical Assets Separate and more detailed

Risk = Likelihood x Consequence

## Communication Strategy

A draft communications strategy for the HAMP has been developed and is included at **Appendix ???**

## Information Systems and Data Strategy for Asset Management

Reliable, up to date asset data is essential to the asset management planning process. Data collection, storage, maintenance and reporting needs to be of a sufficient standard to support the asset management decision making processes, which will ensure that we can target future investment in a way that will be cost effective.

Our Asset Management approach will require the following types of asset data to be collected.



# DRAFT HIGHWAYS ASSET MANAGEMENT STRATEGY



- Inventory
- Performance
- Financial

In order to produce an action plan for our data strategy, we need both to know information about our data (meta data) and also how fit for use that data is. **Table 3** below summarises the meta data for each dataset that will be documented further in an Asset Data Gap Analysis. **Table 4** below, defines how we describe the coverage, whilst **Table 5** defines how we rate the reliability of the data.

## Asset Meta Data

Asset Item	Asset Group, element or Attribute	Description of data
Records	Coverage	%
	Reliability	Poor/Good/Excellent
	Data Format	Paper/Electronic
	E System Name	
	Initial Collection Date	
	Last Updated	
	Update Frequency	Annual/Monthly/Quarterly/Weekly
	Data Owner	
	Schema	Path/Name
	WGA Compliance	Y/N/NA
	Improvement Notes	
Geography	Referenced to network	Y/N
	Reference Network	UKPMS/Gazetteer
	Accuracy	+/- % by unit of measure
	SQL db server/name	

Table 4

## Asset Data Coverage Criteria

Status	Definition
Nil	No data
Low	<45%
Medium	45 – 70
High	70 – 95
Complete	>95%

Table 5

## Asset Data Reliability

Status	Definition
Poor	Data is only sometimes correct
Good	Data is mostly correct
Excellent	Data is rarely incorrect

Table 6

In terms of the computer systems used to manage our assets, the disciplines of highways and street lighting commonly use Confirm, whereas structures assets are handled in a different system. For the purpose of this strategy, the two areas will be considered under separate headings.

## Highway & Street Lighting Asset Systems

The 'Confirm' asset management system has been developed to meet the principle that the same data should be used for asset management, financial management and financial reporting, with the more efficient management of assets being the key driver.

### Financial

- Linked to finance system
- Council Accounts
- WGA

### Mapping/GIS

- Scheme Identification
- Maintenance Records

# DRAFT HIGHWAYS ASSET MANAGEMENT STRATEGY



## Asset Management Strategy

- Lifecycle Plans
- Performance Management

A geo-referenced inventory of the majority of the network assets is in place and has been recorded in Confirm. We are now in a position where that can be used to record all activities at a good level of detail following the CIPFA CoP guidance. This new approach to recording works will be implemented throughout the operational areas of the service from April 2015.

Further investment in hand held computers for operational staff will create a seamless, paperless service which will fully support the CIPFA CoP and the Authority's digital by default aspiration.

The Confirm system will be the focus of highway asset information, though some supporting systems will be necessary. The UKPMS system will support highway DRC calculation from condition survey data, scheme identification and lifecycle planning.

Confirm is automatically interfaced to the Authority's central finance system, which enables the cost data necessary for asset management analysis to be produced by re-measurements of works by operational staff in Confirm and transferred to the central finance system.

Using Confirm as the primary source for cost data, allows the use of other functionality such as work/resource programming and whole life costing. As Confirm is a geospatial system, all the data can also be used for publication in web map services to the public and other stakeholders.

Wherever possible, older paper based processes will be migrated to digital functions utilising mapping which will ensure the service is fit for a future whereby the public will access services and information from a spectrum of computer devices, streamlining communications and removing as far as possible the need for back office data punching operations to support such functions.

## Structures Systems

Presently, Bury holds all structures data (this includes both details of the structure and bridge inspection forms) in a Microsoft Access database called SAMIS which was developed by Stockport Borough Council and purchased by the majority of AGMA Authorities. The features of this database are limited and do not include such things as whole life costing/life cycle planning for example.

TfGM have lead on a project to purchase a bridge management system for the whole of Greater Manchester to use (10 AGMA Local Authorities plus TfGM).

The procured system is called Pontis developed by a company called Asset Plan and is programmed to be up and running at all 11 sites before the end of 2016.

## Forward Planning and Scheme Identification

Scheme identification and forward planning of planned maintenance is an area where our asset management planning tools will be developed as our processes and the data they collect improves.

We will develop a planning toolkit that utilises our condition data, lifecycle data, deterioration models and ongoing reactive maintenance cost data that will allow GIS analysis to drive more intelligent decision making.

In developing our forward planning and prioritisation systems, we will use the HMEP lifecycle planning tools, incorporating deterioration modelling that have been developed to support Authorities exploring different maintenance and funding scenarios along with our own modelling tools.

It is understood that there may be a lengthy period where the new techniques are learnt and improved upon, during which time, it is essential that the framework roles are observed. For highway maintenance capital scheme selection the following process is laid out in [Figure 5](#)

# DRAFT HIGHWAYS ASSET MANAGEMENT STRATEGY

