ANNEX

MK Highways

MILTON KEYNES COUNCIL

Highway Asset Management Strategy 2014-2019

www.milton-keynes.gov.uk/highways

Draft November 2014

Distribution

The master copy of this document is held by MKC Highway electronically, a signed copy is held by the Highways Client Service Manager.

A copy is also held by MKC Asset Manager.

Version Control

Title	**Highways Asset Management Strategy**
Version Number	1.0
Document Status	Final
Author/s	Andy Dickinson/ Sarah Mulcahy
Signature	
Date	October 2015
Date of Next Review	October 2016

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Section 1

Strategic Objectives:

"Asset management is a **strategic approach** that identifies the **optimal allocation of resources** for the management, operation, preservation and enhancement of the highway infrastructure **to meet the needs of current and future customers**."

From this definition key aspects of asset management are:

- Strategic Approach – a systematic process that takes a long-term view;
- Whole of Life – the whole-life/life-cycle of an asset is considered;
- Optimisation – maximising benefits by balancing competing demands;
- Resource Allocation – allocation of resources based on assessed needs;
- Customer focused – explicit consideration of customer expectations.

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A Strategic Approach

Taking a longer-term view of how the council manages its assets. Such a systematic approach may transcend annual budget cycles and will be key if we are to maximise the long-term benefits of the resources available to us. It is envisaged that forward works programmes for individual assets will be developed covering 3, 5, 10 years and beyond to enable long term planning.

Optimal Allocation of Resources

The management of competing demands for funding; it is likely that the council will never have all the funding that it would like. Therefore trade offs have to be made between competing demands. Asset management assists this process by enabling the allocation of resources based upon assessed need.

The use of lifecycle planning and the minimisation of whole life costs are key asset management components that will help allocate resources to where they are likely to provide the best long-term benefits. Asset management enables such decisions to be made in the light of the risks and benefits associated with these trade-offs.

Communicate More Effectively with Customers

The development of levels of service for each of the highway assets will enable the council to communicate more effectively with customers about the service standards that can be afforded and expected.

In taking this strategic approach, we will investigate the long-term needs of our highway and transport network assets, taking into account;

- The complete life-cycle, including costs, of every individual component part of the network assets.
- Cost-effectiveness and the need to achieve maximum benefit by considering all priorities competing for the available funding.
- Agreed levels of service and methods of performance measurement, including citizen expectations and needs.
- Identification of all resources required, including materials to be used and their sustainability.
- The need for continuous improvement.

Applying these principles in Milton Keynes we will;

- Develop an Asset Framework.
- Document plans for our highway and transport assets that will cover their whole lifecycle from construction to removal/ demolition.
- Define specific levels of service and document methods of measuring and reporting on them.
- Strengthen the links between customer expectations and the establishment of service standards, taking into account available budgets.
- Prioritise schemes based on robust scheme appraisal & prioritisation process.
- Explore innovation to deliver a more cost effective solution to asset management of our network.

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Asset Management Framework:

In order to effectively plan and implement a robust asset management blueprint Milton Keynes has developed a framework that links all the activities and processes that are required to establish, manage, develop, record, implement, review and improve asset management.

The core of the framework comprises of three main documents (Fig. 1) that form the basis for highways asset management in Milton Keynes ;

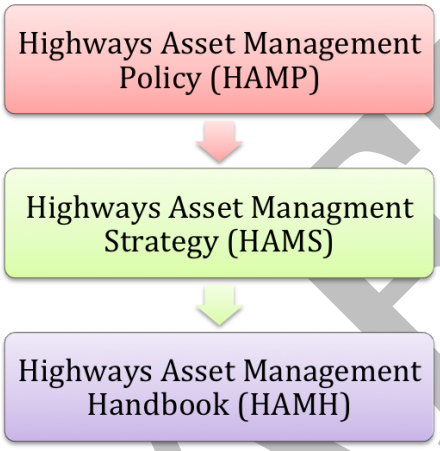

Fig. 1 – Asset Management Documents

Each of these documents is in turn developed/influenced from external policies, strategies, guidance and specifications which creates an environment which gives Milton Keynes highways asset management a strong context and planning framework for each of its individual highways assets.

These documents are delivered within this framework with the assistance of enablers and ultimately the delivery of the plans are supported by the new Highways, Street Lighting and Network Infrastructure Term Service Contract.

The responsibility for the planning and delivery of the asset management approach in Milton Keynes falls within the Highways Client Team and its current service provider Ringway Infrastructure Services Ltd.

The following diagram (Fig. 2) outlines in detail the framework for highways asset management in Milton Keynes.

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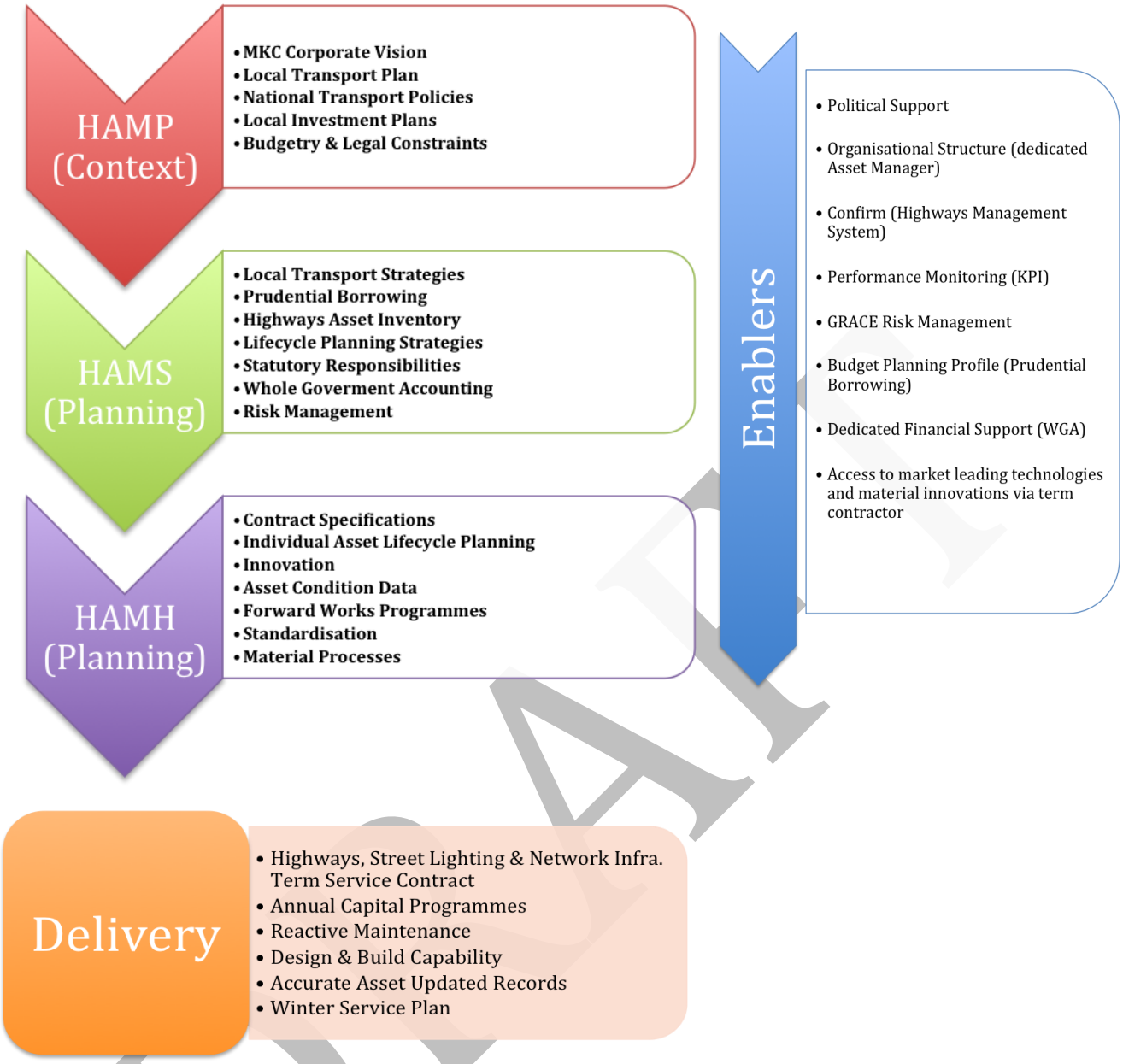

Fig 2. - Asset Management Framework

The principal elements within the above framework are outlined in the following section (Section 2) of this strategic document, they incorporate ;

- Inventory and Data Management
- Service Levels and Planning (scheme selection)
- Lifecycle Planning of Assets
- Budget Profiling (Prudential Borrowing)
- Asset Valuation and Whole Government Accounting (WGA)
- Risk Management

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Section 2

Inventory and Data Management :

To provide effective asset management planning we require knowledge of an asset, its condition and its use. This entails the collection and importantly maintenance of asset data.

The following asset data types are required:

- **Inventory:** a detailed list of asset and its components providing information on numbers, size, type etc. for each asset group.
- **Condition:** a detailed account of asset and its components state, at any point in time as recorded by inspections and surveys. (i.e. % good, fair, or poor needing maintenance)
- **Use:** detailing how the data is utilised. There are operational users requiring access on a daily basis and strategic users who will use the data on a less frequent basis to prepare programmes and reports.

The data is required for a number of reasons, as follows:

- To maintain a sound knowledge of the asset including its condition.
- The ability to report performance indicators.
- The ability to operate whole life costing.
- The assessment of different levels of service depending upon funding.
- To enable deterioration modelling.
- The identification of future funding requirements.
- To use in the development of longer term works programmes.
- Whole Government Valuation assessments.
- To assist with resident and customer expectations.

Possession of reliable data empowers asset managers to:

- Assess the performance of the asset.
- Assess the maintenance requirements of the asset and develop long term, costed, forward works programmes.
- Value the asset and analyse depreciation over time.
- Drive efficiencies.
- Enable efficient inspection and repair regimes.
- Track and respond to customer queries effectively.

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Inventory Capture

Milton Keynes Council has undertaken a number of asset data capture exercises since 2005 in order to build its asset record, these have ranged from physically capturing manually on site to a 3D electronic survey by omnisurveyor in 2007 of the A, B and C class network. In addition in 2012 a detailed full asset inventory survey was carried out of the footway and cycleway network.

In order to address the current gaps in the asset register Milton Keynes has in conjunction with its new partner Ringway Infrastructure Services (RIS Ltd) commissioned a full electronic asset survey by 'Yotta' of its entire highways network in 2014. The asset data produced from this survey will be imported in to Milton Keynes Councils Highways Maintenance Management System (Confirm) in order to enable full management of assets at an individual level. It is expected that this data will be functional in April 2015.

As part of the new term service contract for highway services the new term contractor (RIS Ltd) is required to record and update any modifications to the network and import the data as an update to the asset.

As part of the formal adoptions process of new infrastructure associated with developments the adoptions team within Milton Keynes council has engaged with developers to produce all new asset data in an electronic format that can be directly imported at the point of adoption in order that the asset is managed in accordance with Milton Keynes Councils requirements from its initial construction.

The current asset inventory data of the main categories, together with the confidence of that data and the measure of condition is outlined in the following table.

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Highway Asset Inventory

Asset Type	Amount	Unit	Inventory Data Confidence	Condition Assessment
Carriageways	1251	km	High	SCANNER,CVI, SCRIM
Footways	1400	km	High	Enhanced FNS
Cycleway (Redways)	360	km	High	Enhanced FNS
Bridges	646	No.	High	Bridge Condition Inspections (BCI)
Culverts (0.9 - 1.5m span)	57	No.	High	Bridge Condition Inspections (BCI)
Retaining Walls	91	No.	Medium	Bridge Condition Inspections (BCI)
Streetlights	55000	No.	High	Structural and Electrical Inspections
Illuminated Signs	3520	No.	High	
Illuminated Bollards	1325	No.	High	
Subway Lighting	320	No.	High	
Belisha Beacons	39	No.	High	Service Inspections
School Crossing Flashers	129	No.	High	Service Inspections
Feeder Pillars	258	No.	High	Service Inspections
Non-Illuminated Signs	220,000	No.	Low	Highway Safety Inspections
Traffic Signals	78	No.	High	Service Inspections
Traffic Signal Pelican / Puffin / Toucan	41	No.	High	Service Inspections
Vehicle Activated Signs (VAS)	20	No.	High	Service Inspections
Variable Message Signs (VMS)	2	No.	High	Service Inspections
Car Park Management Signs	60	No.	High	Service Inspections
Electrical Subway Pumps	21	No.	High	Service Inspections
Road Gullies	55000	No.	High	Operational Inspections
Footway Gullies	5500	No.	Medium	Highway Safety Inspections
Rural Land	522000	m2	Medium	Highway Safety Inspections
Urban Verge	1.068million	m2	Medium	Highway Safety Inspections
Kerb	3000	km	Medium	Highway Safety Inspections

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Asset Type	Amount	Unit	Inventory Data Confidence	Condition Assessment
Culverts <0.9m	96	No.	No Info	Reactive Service Inspections
Offlet kerbs, bypass kerbs & kerb drain		No.	No Info	Reactive Service Inspections
White and Yellow Lining		m	Not Recorded	Highway Safety Inspections
Safety Fencing	2602	m	High	Highway Safety Inspections
Pedestrian Guardrail	298	sections	High	Highway Safety Inspections
Subway Pumps	21	No.	High	Routine Annual Service Inspection
Portcocheres	288	No	High	Routine Service Inspections
Highway Drain		m	No Info	Reactive Service Inspections
Bollards		No.	No Info	Highway Safety Inspections
Weather Stations	3	No.	High	Annual Service Inspections
Trees	114,275	No.	Low	Highway Safety Inspections
Bus Stops, Shelters, Flag Posts		No.	No Info	
Street Furniture, bicycle racks etc		No.	No Info	Highway Safety Inspections
Grit bins	426	No.	High	Annual Service Inspection

High	Greater than 90% of required attributes at better than 90% accuracy
Medium	Between 50% and 90% of required attributes between 50% and 90% accuracy
Low	No Information available; Less than 50% required attributes collected. Existing information below 50% accuracy

We have recently carried out a Video Survey of our network to help complete the gaps in our asset inventory. These will be in the Asset Management System by March 2016.

Condition of Assets

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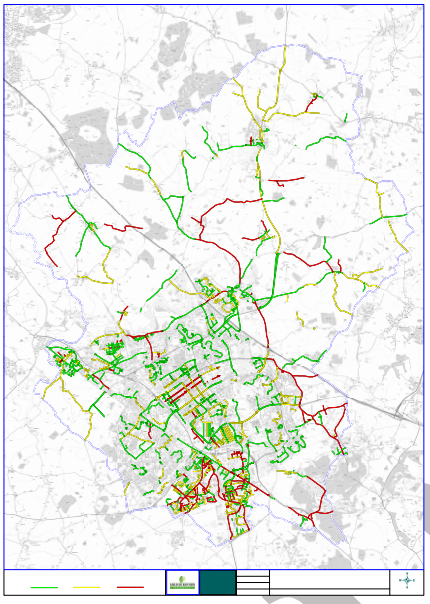
The desirable condition of the network asset is one that minimises annual maintenance costs and also maintains a steady state with the minimum expenditure. Results from a condition assessment should reflect as many parameters as possible to enable the Engineer to make a balanced view on prioritising future maintenance work.

Condition surveys (both visual and machine based) of our assets together with Safety and Serviceability Inspections build up a bank of data to enable informed decisions to be made with regard to the most suitable treatment to be investigated. Also to make good use of that data to provide robust information to enable the best programme of maintenance works to be formulated.



Survey data can be further processed through accredited software to produce visual data maps and unit cost information can also be introduced in order to automatically select schemes and determine programme cost.

These condition maps can be tailored to identify specialist road condition states such as 'loss of texture', 'rutting' and 'structural failure'. These then allow the engineer to visually select sites for subsequent treatments i.e. loss of texture sites will be ideal candidates for a 'surface dressing' treatment.

In addition national and local key performance indicators are required to be reported on with regards to condition ie 130-01 Principal Road Condition.

The Service has sought to consolidate many of its historic inventory systems into a single GIS based platform (CONFIRM). Whilst this system continues to be developed, it is reasonably well developed for most major asset groups. The quality and completeness for some assets is more variable and efforts continue to develop this further.

We have comprehensive inspection and independent survey regimes for highway assets, tailored to suit the needs of specific assets groups and in line with national guidance and statutory requirement, where appropriate, which provide us with good quality information and informs effective risk management and decision making.

The condition of each asset group is fundamental to scheme selection based on needs. The scoring mechanism for prioritisation in line with condition is outlined in ***Planning*** (***Scheme Selection)*****.**

Planning (Scheme Selection)

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All asset types in Milton Keynes are assigned a strategic budget in line with service needs. Each service produces programmes of work in line with a series of factors based primarily on ;

- Strategic Objective
- Condition
- Importance of asset by hierarchy
- Risk
- Value for money
- Network management benefit

This approach to selection of schemes will enable clear identification of schemes for programming purposes based purely on engineering principles which will then support the authorities Asset Management framework and its approach to 'lifecycle planning' which will ensure that all key assets are managed in the most effective, efficient and structured way.

Carriageways

Strategic Objective

Milton Keynes strategic objective in relation to carriageways is to maintain a 'steady state' and to address the backlog of repairs to ensure that the road condition across all classifications is improved and the network is managed to maximise the whole life costs. The detailed approach to carriageways is outlined in the lifecycle plan, this determines how schemes are prioritised in line with the split between preventative treatment schemes and needs based schemes in order to achieve a cost effective balance of preserving roads that have not yet fully deteriorated and fixing those that have, schemes will be built up independently in each category. It is the authorities objective to create a rolling 5 year forward plan of all schemes.

In order to establish a base figure for road network funding based on a 'Whole Life' cost approach a calculation based on CIPFA principles has been undertaken to establish a 15 year budget proposal for capital investment to initially create a 'steady state' and then a process of improvements and a move towards a condition of a higher percentage of preventative treatments.

Budget

The budget assigned to carriageways is broken down to the following categories, programmes will be built for each category ;

- Grid Roads
- Principle Roads
- Non-Principle Roads
- Unclassified Roads

This budget is reviewed on an annual basis to ensure that adequate funding is assigned on a needs basis to maximise improvements over and above the steady state.

Condition

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Condition	Score
Scanner (RCI) – Grids, Principal & Non Principal Roads	Max 200
Coarse Visual Survey (RCI) - Unclassifieds	Max 200
Engineers Visual Assessment	Max 200

Network Hierarchy

Hierarchy of Carriageway	Score
Category 2 – Strategic – All 'A' Roads	100
Category 3a – Main Distributor - Grid roads that are not 'A' roads and 'B' roads within the designated area.	100
Category 3b - 'B' roads outside the designated area & all 'C' roads.	50
Category 4a - Bus service routes within estates rural villages	30
Category 4b - All other roads	20

Risk

Risk	Score
SCRIM data (score if below intervention)	100
Skidding Accidents (8 points per incident)	Max 40
Claims History (10 points per claim)	Max 100
Number of reactive gang visits to repair pothole defects (10 points per visit)	Max 100

Value for money

Value for money cost savings are achieved by efficiencies driven within the new Highways Term Service Contract.

Innovative/specialist solutions may require some schemes to be deferred e.g. moving all microasphalt road surfacing to a single year will enable a specialist supplier to be identified and works programmed in the most cost effective manner.

Network Management (NM)

It is proposed that in order to maximise traffic management on the network and drive further efficiencies, capital schemes are combined, this will ultimately allow multiple work streams to be delivered to the benefit of the authority and the highway user. This category will add value to a scheme and therefore will be considered and attract a score of 50 if multiple works already programmed.

Priority Score (PS) Carriageways

PS = RCD x (Hierarchy score + Length + Risk Score + NM) x 1,000 / Cost Estimate (£)

* RCD is RCI + Engineers Assessment

Footways/Cycleways (Redways)

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Strategic Objective

The objective for the authority is to maintain the existing footways/cycleways to a condition that enables them to function effectively, provide a safe surface for users and eliminate the backlog of repairs to ensure that the asset is managed in the most cost effective way. The detailed approach to footways/cycleways is outlined in the lifecycle plan, this determines how schemes are prioritised in line with the split between preventative treatment schemes and needs based schemes in order to achieve a cost effective balance of preserving footways/cycleways that have not yet fully deteriorated and fixing those that have, schemes will be built up independent in each category. Surveys are carried out annually to determine condition and provide priorities and programme lists with costs for each treatment type. It is the authorities objective to create a rolling 5 year forward plan of all schemes to underpin this objective.

The capital investment realised by the 'Prudential Borrowing' has enabled an initial £6m investment over 2 years (2012 to 2014) to address the very worst sections of the network, this has arrested the decline and allowed the authority to start to plan towards a higher percentage of preventative treatments from 2016.

Budget

The budget assigned to footways is broken down to the following categories, programmes will be built for each category ;

- CMK Footways
- General Footways
- Cycleways / Redways

In order to establish a base figure for footways network funding the additional capital spend undertaken between July 2012 and April 2014 together with historical knowledge (internal bespoke surveys) has been used to establish a budget proposal for annual capital investment.

This budget is reviewed on an annual basis to ensure that adequate funding is assigned on a needs basis to maximise improvements over and above the steady state.

Condition

Condition	Score
Footway Network Survey (FNS)	Max 200
Engineers Visual Assessment	Max 200

Network Hierarchy

Hierarchy of Footway	Score
Category 1 – Primary Walking Route – All previously defined Primary Routes	100
Category 2 – Secondary Walking Route - Medium use route through local areas feeding primaries,local shopping areas incl. CMK not included in Cat 1	80
Category 3 - Link Footways - Link local footways through urban areas & busy rural footways	50
Category 4 - Local Access Footways - Low use,short estate roads & cul de sacs	20
Category 5 - Public Rights of Way	0

Hierarchy of Cycleway (Redway)	Score

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Category a – cycleway that forms part of the carriageway	100
Category b1 – Primary redways, identified in salting routes	100
Category b2 – All other redways	50
Category c – Leisure routes – not normally MKC responsibility	0

Risk

Risk	Score
Claims history (10 points per claim)	Max 100
Footway defects recorded 1-5	10
Footway defects recorded 6-20	30
Footway defects recorded 21-50	50
Footway defects recorded 51-100	100

Value for money

Value for money cost savings are achieved by efficiencies driven within the new Highways Term Service Contract.

Innovative/specialist solutions may require some schemes to be deferred e.g. moving all slurry sealing to a single year will enable a specialist supplier to be identified and works programmed to deliver the most cost effective solution.

Network Management

It is proposed that in order to maximise traffic management on the network and drive further efficiencies, capital schemes are combined, this will ultimately allow multiple work streams to be delivered to the benefit of the authority and the highway user. This category will add value to a scheme and therefore will be considered and attract a maximum score of 50.

Priority Score (PS) Footway/Cycleway

PS = FCD x (Hierarchy score + Length + Risk Score + NM) x 1,000 / Cost Estimate (£)

* FCD is Footway Network Survey + Engineers Assessment

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Street Lighting

Strategic Objective

The authorities objective for Street lighting is to undertake a programme of capital replacement of the existing stock over a fixed life to move towards a more sustainable asset. The detailed approach to Street lighting is outlined in the lifecycle plan. For Street lighting the major issue is the structural deterioration of the lighting column stock. The vast majority of columns in the borough are galvanised mild steel which have corroded below ground level making visual detection of any corrosion almost impossible. From specialist inspection data collected over the last 6 years it has been identified that 40,000 columns will need replacing over a 25 year period. The proposed investment would enable the replacement of approximately 2000 columns per year on a rolling programme, at a cost of £15m up to 2018/19 and follow a long term strategy of maintaining the assets for the future.

In support of this the authority has combined the column replacement with upgrading the lantern unit to a LED replacement, they will contribute to the 'dimming and trimming' programme which will reduce the energy output of the units, this will have an effect of reducing both the overall energy consumption and the carbon output. It is the authorities objective to create a rolling 5 year forward plan of all schemes to underpin this objective.

Budget

The budget assigned to street lighting is broken down to the following categories, programmes will be built for each category ;

- Grid Roads and Roundabouts
- Estate Roads
- Redways
- Unclassified Road
- CMK Parking Areas
- Industrial Estates

This budget is reviewed on an annual basis to ensure that adequate funding is assigned on a needs basis to maximise improvements over and above the steady state.

Condition

Condition of Units	Score
Structural Testing – Cat 1 (Avg. of section)	500
Structural Testing – Cat 2 (Avg. of section)	400
Structural Testing – Cat 3 (Avg. of section)	200
Structural Testing – Cat 4 (Avg. of section)	50
Engineers Visual Assessment	Max 200

Network Hierarchy

Hierarchy of Carriageway	Score
Category 2 – Strategic – All 'A' Roads	100
Category 3a – Main Distributor - Grid roads that are not 'A' roads and 'B' roads within the designated area.	100
Category 3b - 'B' roads outside the designated area & all 'C' roads.	50
Category 4a - Bus service routes within estates rural villages	30
Category 4b - All other roads	20

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Risk

Risk	Score
No. Columns over 40 years old more than 50% in section	100
No. Columns over 40 years old 25% to 50% in section	50
No. Columns over 40 years old less than 25% in section	20
Number of reactive repair visits to repair lighting defects (10 points per visit) over the last 2 years	Max 100

Value for Money

Value for money cost savings are achieved by efficiencies driven within the new Highways Term Service Contract. With the implementation of new columns for streetlighting, they will also form part of the 'dimming and trimming' programme which will reduce the energy output of the units and thus the energy cost, this will have an effect of reducing the overall carbon output. With improvements to the highways network including cycleways the general public will be encouraged to use alternative forms of transport and thus contributing to carbon management.

Network Management (NM)

It is proposed that in order to maximise traffic management on the network and drive further efficiencies, capital schemes are combined, this will ultimately allow multiple work streams to be delivered to the benefit of the authority and the highway user. This category will add value to a scheme and therefore will be considered and attract a score of 50 if multiple works already programmed.

Priority Score (PS) Streetlighting

PS = LCD x (Hierarchy score + no. of columns + Risk Score + NM) x 1,000 / Cost Estimate (£)

* LCD is Lighting Condition Index + Engineers Assessment

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Structures

Strategic Objective

The objective for the authority is to maintain the existing bridge stock and structures to a level of condition that enables them to function effectively and eliminate the backlog of repairs to ensure that the asset is managed in the most cost effective way. The detailed approach to Structures is outlined in the lifecycle plan. Structures require a variety of treatments dependant on the nature of the deterioration which can vary from the occasional full replacement of a bridge through to individual bridge schemes to refurbishing waterproofing and/or parapets to both address the short term issues and to minimise whole life costs. A 15 year programme has been built up from the program of inspections carried out on the existing stock. The programme will be updated and amended following the periodic principal bridge inspections if more advanced deterioration is identified.

£14.2m of works to Bridges to be completed to 2018/19 and the full backlog of works being addressed by 2027 with maintenance thereafter.

It is the authorities objective to create a detailed 5 year forward plan of all schemes where possible to underpin this objective.

Budget

The budget assigned to structures is broken down to the following categories programmes will be built for each category ;

- Individual Bridge Structures
- General Concrete Repairs
- General Parapet Repairs
- Waterproofing

This budget is reviewed on an annual basis to ensure that adequate funding is assigned both on a needs basis together with a preventative approach to maximise improvements over and above the steady state.

Condition

The Bridge Condition Index is determined from a detailed Inspection, in accordance with the ‘Management of Highway Structures Code of Practice 2006’ and ‘The Inspection Manual for Highway Structures 2007’.

Structures with a Bridge Condition Index of an element less than 65 would have high priority reactive maintenance carried out Structures with a Bridge Condition Index of an element less than 65 would have high priority reactive maintenance carried out. When a structural assessment identifies that all or part of a structure is considered to be, or is about to become, structurally inadequate or unsafe it would be prioritised for major maintenance.

Condition	Score

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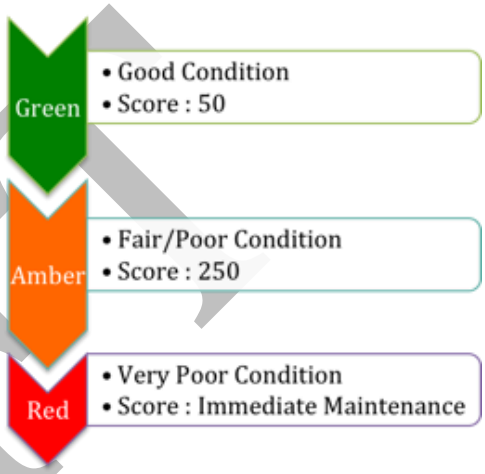
Red - Very Poor – BCI score less than 40. High risk to public safety, immediate reactive maintenance followed by priority scoring on re-scored BCI	Immediate Reactive Maintenance
Amber – Fair/ Poor – BCI score between 40 and 80. Moderate	250
Green – Good/V. Good – BCI score above 80. All elements satisfactory, low	50

BCI Range	Average Stock Condition	Critical Stock Condition
100 → 90 Very Good	Bridge stock is in a very good condition.	Represents very low risk to public safety.
90 → 80 Good	Bridge stock is in a good condition.	Represents a low risk to public safety.
80 → 65 Fair	Bridge stock is in a fair condition.	Some structures may represent a moderate risk to public safety.
65 → 40 Poor	Bridge stock is in a poor/substandard condition.	Some structures may represent a significant risk to public safety.
40 → 0 Very Poor	Bridge stock is in a very poor/substandard condition.	Some structures may represent a high risk to public safety.



Load Assessment

Assessment of load carrying capacity must be carried out with a maximum spacing between assessments of 20 years.

Load Assessment	Score
3T or less	100
7.5T	60
Above 7.5, but less than 38T	50
40T/38T	20

Hierarchy

Hierarchy of Carriageway	Score
Category 2 – Strategic – All 'A' Roads	100
Category 3a – Main Distributor - Grid roads that are not 'A' roads and 'B' roads within the designated area.	100
Category 3b - 'B' roads outside the designated area & all 'C' roads.	50
Category 4a - Bus service routes within estates rural villages	30
Category 4b - All other roads	20

Risk

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This section includes project risk, due to programming issues and the interests of third parties.

Risk	Score
Parapets not to current standards	50
Carriageway height clearance not to current standards	50
Structure on Close Monitoring List for more than 12 months	100
Weight restriction in place	100
Width restriction in place	80
Height restriction in place	80
Embankment failure	100
Scour	100
Foundation movement	100
Ecologically sensitive area – restrictions on when work can be carried out	25
Abnormal load route	50
Road over rail incursion site	100
Traffic management has been in place as an interim measure for more than 12 months	100
Bridge is owned by third party	25
Statutory undertakers plant requires diversion or supporting	25
Work requires FDC from the Environment Agency	25
Scheme requires land purchase	25

Value for Money

There is a national requirement to submit the value of bridge stock using the CIPFA Structures Toolkit.
The Bridge Management System (BMX) will enable lifecycle planning to indicate if intervention maintenance will reduce costs over the life a structure.

Network Management (NM)

It is proposed that in order to maximise traffic management on the network and drive further efficiencies, capital schemes are combined, this will ultimately allow multiple work streams to be delivered to the benefit of the authority and the highway user. This category will add value to a scheme and therefore will be considered and attract a score of 50 if multiple works already programmed.

Priority Score (PS) Structures

PS = BCI x (Hierarchy score + Load Assessment + Risk Score + NM) x 1,000 / Cost Estimate (£)

* BCI is Bridge Condition Index

Drainage

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Strategic Objective

The strategic objective for drainage has to be considered in line with the authorities role as Lead Local Flood Authority (LLFA), this establishes a responsibility upon the LLFA to investigate flooding events in accordance with Section 19 of the Flood and Water Management Act 2010. This duty also takes into account the Strategic Flood Risk Strategy and the Surface Water Management Strategy of Milton Keynes. Whilst the authority has a duty to investigate flooding events the criteria is also clearly outlined and not all events will be investigated.

Budget

The budget assigned to Drainage is purely needs based by priority and risk.

Capital drainage is a reactive service and once a problem is identified, the scheme is subject to a desktop exercise initially, followed by an investigation on site with either CCTV, jetting or tracing or a combination of all three. This will determine the extent, design and projected cost of the scheme, at this stage a priority assessment shall be undertaken in order to determine priority and at this stage it shall be entered into a programme either in the current year or in a future years programme.

This budget is reviewed on an annual basis to ensure that adequate funding is assigned on a needs basis to resolve individual problems. Should the scale of the scheme be such that a separate funding bid be made to either the Environment Agency or as a capital bid for funding within the authority the scheme shall still be programmed and a separate capital project shall be initiated in accordance with the authorities MK Approach system.

Risk by Priority (DRD)

Drainage Scheme Priority Matrix

Impact / Risk Probability	flooding affecting high speed roads and roundabouts (10)	where flood water has entered HOUSES excluding garages outbuildings and gardens (8)	flooding affecting redway underpasses (6)	flooding affecting emergency services ie fire station forecourts (4)	where flood water has entered garages outbuildings and gardens (3)	other flooding complaints sorted a) geographically, b) date order (2)	blocked gully outlets identified by routine road gully cleaning operation (1)
Extreme (7)	70	56	42	28	21	n/a	n/a
High (5)	50	40	30	20	15	n/a	n/a
Intermediate (3)	30	24	18	12	9	6	3
Low (2)	20	16	12	8	6	4	2
Negligible (1)	10	8	6	4	3	2	1

Risk Categories	
Extreme	Risk of Fatalities (including drowning)
High	Risk of Serious Injury
Intermediate	Risk of Damage to Property
Low	Risk of Flooding to non Habitable Land
Negligible	Localised Contained Flooding

Risk Factor	Priority Response Times
40-70	Immediate - Make Safe or Repair
20-40	24 Hours - Make Safe or Repair
10-20	28 Days
5-10	6 Months
< 5	Resolved by Routine Contractual Maintenance

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Network Hierarchy

Hierarchy of Carriageway	Score
Category 2 – Strategic – All 'A' Roads	100
Category 3a – Main Distributor - Grid roads that are not 'A' roads and 'B' roads within the designated area.	100
Category 3b - 'B' roads outside the designated area & all 'C' roads.	50
Category 4a - Bus service routes within estates rural villages	30
Category 4b - All other roads	20

Frequency of Incident

Frequency	Score
Frequent occurance (flooding following moderate rainfall)	100
Occasional occurance (only floods following heavy rainfall)	60
Very Occasional occurance (Only floods in exceptional rainfall)	20

Duration of Incident

Duration	Score
More than 2 hours	100
Between 1 and 2 hours	80
15 minutes to 1 hour	40
< 15 minutes	0
Unknown	40

Value for Money

Value for money cost savings are achieved by efficiencies driven within the new Highways Term Service Contract.

Network Management (NM)

It is proposed that in order to maximise traffic management on the network and drive further efficiencies, capital schemes are combined, this will ultimately allow multiple work streams to be delivered to the benefit of the authority and the highway user. This category will add value to a scheme and therefore will be considered and attract a score of 50 if multiple works already programmed.

Priority Score (PS) Drainage

PS = DRD x (Hierarchy score + Frequency + Duration + NM) x 1,000 / Cost Estimate (£)

* DRD is Drainage Risk Data Score

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Street Furniture

Strategic Objective

The authorities' objective for Street Furniture is to routinely maintain the existing stock and look to use innovation within capital schemes to upgrade the asset to ensure that it is sustainable and drives efficiencies that are then realised with the maintenance requirements. This is to include the conversion of assets from illuminated to low energy or non-illuminated assets where national standards are met.

Within Street Furniture the main assets are;

Directional Signs
Illuminated Furniture
Bollards and Pedestrian Guardrail
Street Name Plates (SNP)

The detailed approach to Street Furniture is outlined in the lifecycle plan. For Street Furniture the major issue is the high volume of a high cost asset that has again in line with a large amount of the infrastructure in Milton Keynes all been installed within a short period and is now at a stage where it has reached the end of its designed life. This is particularly evident for 'directional signs' on our grid road system where poor initial detailing has lead to structural deterioration of a high percentage of posts and during high winds a large number of failures have been experienced.
Budgets will be set aside for each groups to upgrade as individual projects on a yearly basis based on priority. This will be needs based and will be subject to an Engineers assessment and specific detailed inspection.

It is the authorities objective to create a rolling 5 year forward plan of all schemes to underpin this objective.

Budget
The budget assigned to street furniture is broken down to the following categories, programmes will be built for each category ;

- Directional Signs
- Illuminated Furniture
- Bollards and Pedestrian Guardrail
- Street Name Plates (SNP)

This budget is reviewed on an annual basis to ensure that adequate funding is assigned on a needs basis to maximise improvements over and above the steady state. However further funding avenues arise to support these assets throughout the financial year , which also enables the utilization of future technologies and enhancement of whole life cost of the asset.

For this asset group the Engineers detailed visual assessment will determine the scheme priority, but it will specifically take into account factors that

Condition

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Condition of Units	Score
Engineers Visual Assessment via detailed inspection	Max 200

Network Hierarchy

Hierarchy of Carriageway	Score
Category 2 – Strategic – All 'A' Roads	100
Category 3a – Main Distributor - Grid roads that are not 'A' roads and 'B' roads within the designated area.	100
Category 3b - 'B' roads outside the designated area & all 'C' roads.	50
Category 4a - Bus service routes within estates rural villages	30
Category 4b - All other roads	20

Value for Money

Value for money cost savings are achieved by efficiencies driven within the new Highways Term Service Contract. With the innovation in the approach to street furniture benefits will be realised by savings in energies, carbon output and reduced maintenance. Assessments will be undertaken to measure the cost benefits impact of investing in new innovative technologies to determine whether schemes and or move towards different assets are viable.

Network Management (NM)

It is proposed that in order to maximise traffic management on the network and drive further efficiencies, capital schemes are combined, this will ultimately allow multiple work streams to be delivered to the benefit of the authority and the highway user. This category will add value to a scheme and therefore will be considered and attract a higher rating in the engineers assessment.

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Planning of Lifecycle Management of our Assets:

Lifecycle planning 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.

With lifecycle planning MKC will be able to:

- Identify long term investment for highway assets.
- Predict future performance of highway assets for different levels of funding and different maintenance strategies.
- Determine the level of investment required to achieve the required performance.
- Determine the performance that will be provided to meet the 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.
- Selecting the right treatment at the right stage in the lifecycle of an asset.

The primary purpose of a lifecycle management plan is to document how a particular asset is managed and as an output identify current and future needs, and hence determine “performance gaps”, to be addressed through delivering forward works programmes and improvements in management practices.

Effective lifecycle planning is about making the right investment at the right time to ensure that the asset delivers the requisite level of service over its full expected life, at the minimum cost. With effective lifecycle planning we will detail how each asset is currently managed, and how investment decisions will be made.

In the lifecycle management plans we outline asset grouping objectives, asset performance and inventory information and what is planned for the asset group or individual asset, during each phase of life (i.e. from creation to disposal) in order to manage and operate the assets at the agreed levels of service whilst optimising lifecycle costs. In doing so, for each of the asset groupings, options will be identified and levels of service stipulated.

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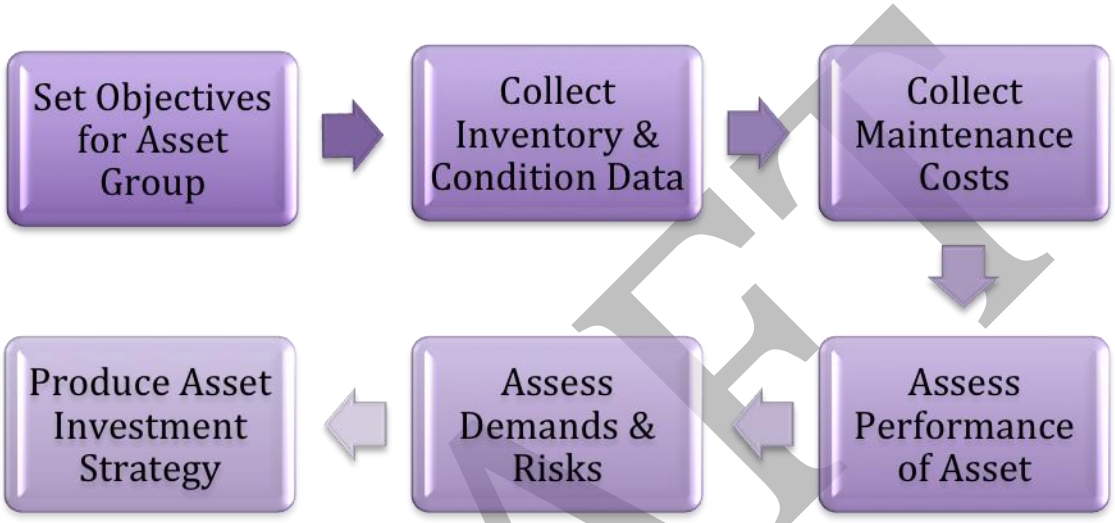
Asset Management Lifecycle Process



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Lifecycle Plans indicate long-term maintenance need of an asset and start to identify the investment required to satisfy this need; this is a function of the Levels of Service and the Performance Targets.

Highway assets have lifecycles that include the following phases:

- **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 such as would be created through the construction of a new road.
- **Routine maintenance** – This is the reactive and cyclic activity to maintain the asset over time and examples include repairing of potholes, tensioning of safety fencing or cleaning of drainage or signs. It should be noted that different strategies for routine maintenance may affect the long term performance of the relevant asset. The approach to routine maintenance need to be considered as part of the lifecycle planning process. Effective routine maintenance has the potential to improve 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.

- **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.

Lifecycle plans aim to identify the lowest long-term cost for the scope of work required in order to close the performance gap between the current and the target performance level of the asset and to sustain the performance at the desired level.

The plans start to optimise the cycle of activities that the assets will experience throughout their lives including (where necessary) planning, design, construction, operation, maintenance, rehabilitation/reconstruction and disposal. They can be used as general guidance to identify specific maintenance needs through the various stages of the asset life and provide a link to the short-term planning process.

Consideration of each of the above phases for highway assets will help drive a shift towards longer-term asset management and planning. Such a longer-term approach is a key element of the asset management approach and links all aspects of the asset management framework.

Ideally, life cycle plans present a record, from creation to disposal, of available asset information and cover key work activities used in the management of a highway network:

Operations and maintenance of the asset: Activities undertaken to ensure the efficient operation and serviceability of the asset, typically referred to as routine maintenance. Routine maintenance activities are revenue funded and are either reactive, such as pothole repair and white line replacement, or cyclical such as gully emptying and grass cutting.

Renewal or replacement of the asset: Provision for progressive replacement of individual assets that have reached the end of their useful life and cannot be sustained by routine maintenance alone. Typically referred to as structural maintenance these activities are funded by capital expenditure and include reconstruction, overlay, resurfacing and surface dressing of carriageways or footways, replacement of lighting columns and lanterns, remedial earthworks and replacement of highway drainage systems, i.e. pipe-work, manholes, etc, or major repairs to these systems.

Lifecycle Planning Outputs;

Typical outputs of lifecycle plans include:

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- Identification of the short-term routine maintenance need (revenue cost);
- Identification of the long-term maintenance need (capital cost);
- Cost per year, i.e. the spend profile;
- Cost per treatment per year;
- Performance per year, i.e. performance progression.

Lifecycle plans will be updated throughout the maintenance planning process to improve the long-term predictions for maintenance need. This is due to assumptions being made about the deterioration models, resulting in change in performance due to treatment, and unforeseen changes to unit rates for maintenance work during the implementation of the process. The quality and completeness of inventory and condition used in the lifecycle plan will also have a bearing on the quality of the outputs. We will take into account the planned maintenance, including asset renewal/replacement, and routine maintenance and emergency activities. We will use detailed road condition data from annual surveys to produce estimates of maintenance backlogs, deterioration rates and standstill costs (the cost of maintaining the asset in its current condition).

Maintenance Strategies of our Assets:

As a direct input to the lifecycle planning is the development of the maintenance strategies for various asset groups. Maintenance strategies take into consideration different treatment options and balance renewal with routine maintenance. These take into consideration the service life for each treatment option and balance the costs over a predetermined period of time. The objective of this process is to provide a lifecycle plan that meets the asset management strategy.

The application of a lifecycle approach enables us to answer the following questions for a short, medium and long term period of planning for each asset:

- What funding is needed to meet the required performance targets?
- If there is insufficient funding to meet the required 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?

The process adopted to select the maintenance strategy has been aligned with the approach to asset management and provides the most efficient and affordable way of achieving the levels of service and performance targets. Typically, the selection of maintenance strategies considers:

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- Minimising the overall whole life costs
- Meeting statutory requirements (as a minimum)
- Meeting performance targets
- Management of risk

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Lifecycle Plan Contents

Section	Answers	Contains
The Asset	What assets do the council own?	Inventory details (type size, etc) Asset growth statistics
Service Expectations	What is each asset group required to do?	Customer expectations Council objectives for transport Specific user requirements Safety considerations, 3rd party use Environmental requirements, Network availability Amenity considerations
Management Practices	How is this asset group managed?	Policies Inspection Regime Condition Assessment Asset Acquisition standards Routine Maintenance standards Operational/Cyclic Maintenance Planned Maintenance standards Disposal standards
Investment	How much should be and is spent on this asset group?	Historical Investment Output from historical investment Forecast Financial Needs Valuation: GRC, DRC & ADC
Works Programme	How are works programmed for this asset group?	Existing forward works programme Works programme coordination Option Appraisal: treatment selection -At a project level -At a budget category level?
Risk	What are the risks associated with this asset group?	Risk identification and mitigation Major asset risks
Performance Management	How is the performance of this asset group measured and managed?	Performance indicators Current performance figures Target performance figures Performance Reporting
Strategies	What strategies are there for the future management of this asset group?	Details of specific strategies that direct where investment is targeted and what is expected to be achieved from them.
Service Improvement actions	What improvement would improve the council's management of this asset group?	Asset specific improvement actions

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As part of the development of this plan we have created lifecycle plans (LCP's) to document how each of the key asset groups that make up our highway infrastructure are managed. Each lifecycle plan provides a definition of the standards that are applied to the management of the asset group in question and details of the processes that are used to ensure that these standards are delivered. Documenting the LCPs has allowed us to capture the knowledge of individual asset groups, to record this and enable it to be shared and developed.

Lifecycle plans are the core of our approach to highway asset management planning enabling us to manage the asset in the most cost effective method. They contain the detail that enables asset management practices, such as long term cost projection, performance management and risk mitigation and management, to be applied consistently across all asset groups.

An example Lifecycle Plan (Carriageway Lifecycle Plan) is given on the next page, the Highways Asset Management Handbook (HAMH) gives details of the lifecycle plans for all our asset groups.

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Budget Profiling (Prudential Borrowing)

It has long been understood that Milton Keynes' Highway Infrastructure (roads, footways, redways, streetlights and bridges/structures), having been constructed over a relatively short period of time, will require significant capital investment to address the current backlog caused by this asset reaching the end of its 'working life'. We are currently at the point where the asset backlog is growing and we are not arresting this decline with current investment levels, therefore the asset is and will continue to decline.

In anticipation of this pressure and in line with the Financial Principles adopted by the Council in 2009 to address future liabilities, the Council has since 2011/12 been setting aside £1m of revenue funding each year to contribute towards financing the necessary investment through prudential borrowing.

By 2014/15, therefore, the Council had financial resources to borrow approximately £50m to invest in the repair and replacement of highway infrastructure to start addressing this backlog. If that investment is properly targeted, it will significantly extend the life of the current highway assets and reduce maintenance costs. Indeed, over the long term (25+ years), the investment should be repaid by savings on short term maintenance costs.

This section sets out an evidence-based investment programme in highway infrastructure, designed to make best use of the capital resource that is now available.

The Council's largest asset in value terms is contained in the highways infrastructure which consists of :-

- 56,000 street lighting columns
- 14,000 illuminated signs and electrical units
- 1251 km carriageway
- 1800 km footways
- 791 bridges
- 300 km redways
- 115 structures (mainly retaining walls)

As well as this there are significant numbers of street nameplates; un-illuminated traffic signs, traffic signal junctions, bus shelters and highways drainage systems. Also the asset will continue to grow in size year on year with the planned population growth for the borough to 300,000 people between now and 2026.

A highway must be available in perpetuity, so the council as the highway authority cannot allow the network to deteriorate to point where it becomes unsafe to use.

Like all assets that are subject to constant use by traffic of varying intensity from a young child pedestrian through to an abnormal load the asset suffers from wear and tear. It is also constantly exposed to the weather so suffers from UV degradation, rain water attack, and corrosion as a result of ground conditions and the use of rock salt. All of these things mean that the highway network needs constant attention to maintain it in a satisfactory condition for its use by residents to safely pass and repass along it.

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Periodically more sustained attention is required than simply a 'patch up' and major interventions are either required to extend the life of the asset through preventative maintenance such as surface dressing (tar and chip) or major reconstruction.

Looking at the key asset types individually:-

For Street lighting the major issue is the structural deterioration of the lighting columns. The vast majority of columns in the borough are galvanised mild steel which have corroded below ground level making visual detection of any corrosion almost impossible. From specialist inspection data collected over the last 6 years it has been identified that 40,000 columns will need replacing over a 25 year period. The proposed investment would enable the replacement of approximately 2000 columns per year on a rolling programme, at a cost of £15m up to 2018/19 and a long term strategy maintaining the assets for the future.

Bridges require a variety of treatments dependant on the nature of the deterioration which can vary from the occasional full replacement of a bridge through to individual bridge schemes to refurbish the waterproofing and/or parapets to both address the short term issues and to minimise whole life costs. A 15 year programme has been built up from the program of inspections carried out on the existing stock. The programme will be updated and amended following the periodic principal bridge inspections if more advanced deterioration is identified.

£14.2m of works to Bridges to be completed to 2018/19 and the full backlog of works being addressed by 2027 with maintenance thereafter.

Carriageways are assessed from continual surveys year on year which are reported as performance indicators. These surveys enable prioritisation of schemes and also provide a costing analysis for each scheme. The survey results show that the borough's carriageways have deteriorated to a point where major maintenance is required on:-

- Principal Roads (Strategic A class roads) – for 3% of roads
- Other A and all B & C class roads – for 6% of roads
- Unclassified Roads – for 10% of roads

From this a works plan is produced for the corresponding year based on condition. As road condition deteriorates and the priorities change the programme is adjusted accordingly to ensure that resources are targeted at those roads in the worst condition. The types of interventions vary from surface dressing to extend the life of the road, through preventing the ingress of water into the road construction through to full reconstruction where the road may have failed due to the use of inadequate materials in its original construction.

£21.4m of works to carriageways to be completed by 2018/19 and a long term strategy addressing all backlog and on going structural maintenance issues.

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Footways & Redways are very similar to carriageways but normally of a lot 'lighter' construction. Surveys are carried out annually to determine condition and provide priorities and programme lists with costs. The recent survey showed that 22% of them needed major work with a high percentage of the high priority ones being in CMK. This was no doubt behind the Council Budget decision to bring forward £5m of investment in footways. A programme of works has been developed which takes into account deliverability for £7.4m of works to Footpaths and Redways to be completed to 2018/19 and a long term strategy addressing all backlog and on going structural maintenance issues.

Way Forward

In order to restore the network and other highway assets to a reasonable standard and then maintain the infrastructure to that standard the council will need to make a significant investment over a prolonged period.

To establish a base figure for road network funding a 'Whole Life' cost approach calculation based on CIPFA principles has been applied. This has been undertaken to establish an initial 15 year budget proposal for capital investment that can be extrapolated to 25 years. A significant capital investment and applying the 'whole life' principles will arrest the current decline and over a period have the effect of improving the network, enabling a sustainable approach to Highways Network Maintenance across all assets.

In anticipation of this budgetary pressure on the capital programme and in line with the financial principles adopted by the Council in 2009 to address future liabilities, the council has since 2011/12 been setting aside £1m of revenue funding each year to contribute towards financing the necessary investment through prudential borrowing.

By 2014/15, therefore, the Council will have financial resources of £4m to use for the repayment of borrowing to support the investment in the replacement of highway infrastructure to start addressing this backlog. By continuing to set aside additional resources of £250k per annum until 2022/23 the Council will have sufficient resources to fully finance the current backlog and move to a sustainable on going maintenance programme by 2038. If that investment is properly targeted, it will significantly extend the life of the current highway assets and reduce maintenance costs. Indeed, over the long term (25+ years), the investment should be repaid by savings on short term maintenance costs.

So as to target the needs of the various highway assets proposed spending has been broken down to a year by year requirement and the budget split in line with the yearly allocation.

The prudential borrowing cost has been worked out using the works programme identified and the estimated life of the assets. In accordance with the standard calculations for prudential borrowing, no principal is repaid in year 1 and interest is assumed at 4.5%.

The 25 year infrastructure investment programme can be fully financed through the use of prudential borrowing and current levels of Transport capital funding.

This programme of works will be regularly reviewed to ensure the long term strategy accurately reflects both asset need and resource availability. The impact on performance indicators will also be recorded and evaluated.

The costs of prudential borrowing can be met initially from resources allocated in the Medium Term Financial Plan, although these resources would need to be increased to £6m by 2022/23 to enable the programme to be fully financed.

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The investment will assist to deliver the highways asset management strategy (HAMS). One of the objectives of the HAMS is to consider sustainability in the context of minimising 'whole life' costs of the asset and also to maximise the value of the asset to the environment and the community.

When undertaking the improvement works we will ensure that sustainability is maximised through the use of a checklist, consisting of:-

- Scope and scale of scheme
- Cost benefit analysis (whole life cost)
- Design aspects
- Materials and products
- Re-use and recycling

We have explored various sustainable initiatives in recent years applying these principles and will continue to reinforce these when planning and delivering the future schemes outlined in the Transport Infrastructure Investment programme.

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Financial Management and Valuations:

CIPFA (Chartered Institute of Public Finance and Accountancy) published the Code of Practice Guidance to Support Asset Management, Financial Management and Reporting on highway infrastructure assets.

The purpose of this Code is to support an asset management plan based approach to the provision of financial information about local authority highways infrastructure assets. The intention is that each authority should develop a single set of financial management information about these assets that is robust and consistent between transport authorities and supports:

- good, evidence-based asset management, including the development of more cost effective maintenance and replacement programmes
- delivery of efficiency savings and service improvements
- long-term financial planning and budgeting
- corporate capital planning and the operation of the Prudential Code
- performance assessment and benchmarking
- resource allocation, locally, at regional level and nationally
- production of transparent information for stakeholders on the authority's management of its highway assets
- production of financial information that is compliant with International Financial Reporting Standards (IFRS) and meets the needs of Whole of Government Accounts (WGA) and National Accounts
- any future move to current value financial reporting of the assets in local authorities' own accounts

With the introduction of Whole of Government Accounting (WGA), it is vital that the Council is able to assess the value of its assets, to identify what level of resources are required to maintain the assets at that value and to put in place a maintenance regime to ensure that this is achieved. It is also essential that the Council is able to quantify accurately the efficiencies it is able to make in its maintenance activities.

The valuation should be undertaken on an annual basis. This will monitor changes to the overall value, hence providing factual data for assessing the performance and suitability of maintenance policies. Milton Keynes has taken on board these recommendations and follows the principles as introduced in the WGA to assess the value of our assets.

Depreciated replacement cost (DRC) is a method of valuation that provides the current cost of replacing an asset with its modern equivalent asset, less deductions for all physical deterioration and impairment. **Gross replacement cost** (GRC) is based on the cost of constructing an equivalent new asset, and the difference between the gross and depreciated cost is the cost of restoring the asset from its present condition to 'as new'.

Annual depreciation (AD) is calculated by identifying all the capital treatments needed to maintain assets or key components over their life cycles and then spreading the total cost

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evenly over the number of years in the life cycle. Calculated in this way, annual depreciation not only represents the annual consumption of service benefits but also provides a measure of what on average needs to be spent year on year to maintain the assets in a steady state.

Valuation will be considered in terms of **Gross Replacement Cost** and **Depreciated Replacement Cost, as well as the cost in terms of value to the borough.**

The key drivers for asset valuation are:

- To emphasise the need to preserve the highway infrastructure by placing a monetary value on highway infrastructure assets.
- To demonstrate asset stewardship by monitoring the asset value over time.
- To support Whole of Government Accounts and promote greater accountability, transparency and improved stewardship of public finances.

There are three key valuation figures:

Gross Replacement Cost (GRC)	Cost of replacing the asset.
Annual Depreciation (AD)	Cost of all capital treatments required to restore full service to the asset
Depreciated Replacement Cost (DRC)	Gross Replacement Cost less Annual Depreciation (Represents the net current value of the asset.) DRC=GRC-AD

Good asset management needs appropriate inventory plus up to date local cost data and condition information. It also needs an understanding of how assets or components deteriorate and, in particular, when they will have to be replaced or treated. Management and maintenance strategies together with the Highways Asset Management Handbook (HAMH) incorporates life cycle plans of our assets and is designed to optimise value of assets over their life cycle.

Life cycle plans and whole life costs

The life cycle plan identifies and costs all the capital works and their projected timing, and so provides the information needed to undertake long-term expenditure forecasting and to undertake a variety of financial modelling.

Developing life cycle plans and exploring options for street lighting, traffic management systems and street furniture is relatively straightforward. Carriageways, footways and

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structures are more complex and also account for the great majority of asset value and maintenance expenditure.

For this, each of the core assets has been assigned a unit rate; these are based on replacement costs using centrally provided information. These have been provided centrally to ensure that all Local Authorities are able to calculate a GRC, regardless of their progress towards a full asset management approach.

Funding Categories

Funding for highways will always be either in the form of capital or revenue.

- **Capital** is the funding that is used to create a new asset, or to replace or substantially renew an existing asset.
- **Revenue** can be considered as the funding that contributes towards the operation and maintenance of an asset.

Capital Investment is provided as a block sum from central government. The Local Transport Plan Allocation is automatically allocated to the Council.

Revenue funding is raised from local tax initiatives and is allocated within the council based on a resource allocation model. The total monies allocated to the Highways Section are based on contracts and reactive works on a borough wide basis.
Additional funding can be requested on an annual basis through the Capital Finance Strategy which addresses the capital investment needs identified in the Corporate Plan, Improvement Plans, Service Plans and Asset Management Plans.

Funding for highways comes from a variety of sources, although there are four main headings under which allocations are normally made. These are:

- LTP capital
- Government Grants
- Borough Council capital
- Borough Council revenue
- Section 106 Agreements (generally capital, but occasionally revenue)
- Prudential Borrowing

Current Level of Expenditure:

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The majority of the maintenance regime for highway network assets including roads, bridges and street lighting is safety related and of a re-active nature and funded through the highway network revenue budget. Planned and longer term maintenance is funded through Capital funding.

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Valuation of the highway assets:

Based on unit rates (CIPFA and local rates), the GRC for Council's highway and transport assets is calculated for the Whole Government Accounts (WGA). This includes all of the following groups:-

Carriageways
Footways and Cycle-Tracks (Redways)
Structures
Highway Lighting
Street Furniture
Traffic Management Systems
Drainage
Ancillary Assets
Land

Asset valuation is the calculation of the current monetary value of council's assets.

The current asset value is determined by undertaking a Depreciated Replacement Cost (DRC) valuation. A DRC valuation is a method of assessing asset value which provides the current cost of replacing an asset after deducting an allowance for the wear and ageing arising from the consumed service life of the asset.

The DRC is derived from:

DRC = Gross Replacement Cost (GRC) – Accumulated Consumption (AC), where GRC = the cost of replacing an existing asset with an equivalent new (modern equivalent) asset.

The GRC does not make any provision for improvements to the capacity of the asset.

AC = the consumption of an asset during its life due to ageing, usage, deterioration, damage, a fall in the Level of Service and obsolescence.

The numbers involved calculated are highly dependent upon the estimates of the service life of components of the asset. Good asset management practice provides all the information required for asset valuation.

Implementation of the Measurement Requirements for Transport Infrastructure Assets by 2016/17 – REVIEW AND INCLUDE RELEVANT

2. CIPFA/LASAAC has agreed that the 2016/17 edition of the Accounting Code will adopt the measurement requirements of the *CIPFA Code of Practice on Transport Infrastructure*

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Assets (the Transport Code), ie measurement on a Depreciated Replacement Cost basis. This was confirmed in a new Appendix D to the 2014/15 Code.

6. After the CIPFA review the Department for Transport made £32m available for English local authority asset management in 2009/10. Of this, £28m was invested with authorities to improve on their databases and associated tasks and £8 million was passed to a selection of authorities to carry out innovative work and advise others.

7. Following from the earlier discussion document and roadshows this year on local highways maintenance funding from 2015/16 to 2020/21, the Department for Transport will now be undertaking a formal consultation on how funding for highways maintenance is allocated to English local authorities over the next spending review period starting 2015-16. As part of this they will be consulting on how they can reward those authorities that have taken up good asset management practices and have achieved efficiencies.

8. From the financial reporting perspective, the difference between the current value accounting approach adopted by central government and the existing historical cost approach adopted for the local roads network has become a more visible issue since the publication of Whole of Government Accounts (WGA) in 2011. The inconsistent accounting policies and the size of the potential difference between the valuation bases (estimated to have an impact of at least £200bn) is one of the main WGA qualification issues.

ACCOUNTING IMPLICATIONS

9. The decision by CIPFA/LASAAC that the 2016/17 edition of the Accounting Code will adopt the measurement requirements of the Transport Code will represent a change in accounting policy from 1 April 2016. This will require full retrospective restatement in accordance with the requirements of IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors* and IAS 1 *Presentation of Financial Statements* as adopted by the Accounting Code.

10. CIPFA/LASAAC considers that this change in accounting policy is equivalent to a change in IFRS and therefore has indicated that the Accounting Code will require the disclosures necessary for a change required by a new standard that has been issued but not yet adopted in the 2015/16 financial statements.

IMPACT ASSESSMENT

16. A robust project plan should be built on authority specific information provided through an impact assessment which is designed to identify gaps in current data, systems and processes.

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17. The impact assessment should cover the following stages

I. Identification of transport infrastructure assets

II. Initial consideration of materiality

III. Review of asset data

IV. Complete systems audit

V. Gap Analysis

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