HIGHWAY ASSET MANAGEMENT PLAN

2017/18

LONDON BOROUGH OF BEXLEY

VERSION 4.0

HAMP MODULE I – EXECUTIVE SUMMARY

Overview... Bexley is responsible for the managing and maintaining of the highway assets falling within its 603km of public road network. Bexley must ensure the highway assets are fit for purpose and deliver in an efficient and sustainable manner.

Bexley identified a number of corporate priorities, 2014-18 to adhere to, namely:

- Growing a thriving economy
- Living long, fulfilling independent lives
- Providing value for money

Bexley has adopted asset management practices to ensure the biggest benefit for the whole community is achieved. Asset management best practices look into long-term investments to make best use of resources and ensure right interventions are implemented at the most effective time to meet statutory requirement.

To this end, Bexley has teamed up with LoTAG's South London Boroughs to develop a common understanding and approach towards asset management. This Consortium reviews guidance and tools available and assesses how best asset management should be implemented to meet the community's needs. Moreover, the Consortium helps benchmark, enabling Bexley challenge continuous improvement.

Overall performance... Bexley manages its network performance through performance indicators, which are aligned to and contribute towards achieving the Council's corporate vision and objectives laid out in the Mayor's Transport Strategy. Moreover, performance management demonstrates the effective use of the Council's budgets. Bexley's 2016/17 performance is as shown in Table i1.

Investment... In 2016/17, Bexley had a total budget of £9.5 million, of which £6.2 million was capital expenditure and £3.3 million was maintenance expenditure.

Bexley has determined that the current condition of the highway assets creates a backlog of £222.2 million. There is currently no plan to reduce this backlog.

Bexley's highways asset valuation figures for 2016/17 provided a GRC of £1,500 million (excluding land) and a DRC of £1,278million, with a 14.8% depreciation of £222million.

Engagement... Bexley engages with a number of key stakeholders to inform its decision processes. This ensures the social and economic benefit of the use of the road network is recognised. Such consultations help establish and prioritise an annual works programme based on the community's needs, taking into account the stakeholder's most important considerations.

Progress... Bexley is determined to use an implementation and improvement plan to develop and implement a continuous improvement programme to enhance its asset management processes, systems and data, and support effective delivery of its desired asset management outcomes. These outcomes will be reported annually in the "State of the Highway" report to draw together progress, performance and investment impact.

Table i1: Bexley's performance dashboard.

Asset Group	Performance Indicators	Levels of Service				Performance			
	Description	Excellent	Good	Fair	Poor	3 Year Trend	Current (2016/17)	Target (2018)	Target (2021)
Carriageway	% of Principal roads where maintenance should be considered	<6%	6.1-9.0%	9.1-12.0%	>12%	+4%	2%	5%	5%
	% of Non-Principal Classified roads where maintenance should be considered	<7%	7.1-10.0%	10.1-15.0%	>15%	+5%	2%	5%	5%
	% of Unclassified roads where maintenance should be considered	<10%	10.1-20.0%	20.1-25.0%	>25%	-2&	11%	10%	10%
	% of roads SCRIM surveyed in current year above investigatory level (Priority 1)	>60%	59.9-40.0%	39.9-30.0%	<30%	0%	4.5%	4.5%	4.5%
Footways	% of 1A, 1 and 2 footways where maintenance should be considered	<13%	13.1-17.0%	17.1-22.0%	>22%	+6%	6%	10%	8%
	% of 3 and 4 footways where maintenance should be considered	<20%	20.1-30.0%	30.1-35.0%	>35%	+6%	6%	10%	8%
Street Lighting	% of lighting column stock that is beyond its design life	<10%	10.1-25.0%	25.1-30.0%	>30%	0%	61%	52%	45%

HAMP Module ii - Contents & References

Abbreviations... A list of abbreviations used in the Highway Asset Management Plan.

CIL	Community Infrastructure Levy
CIPFA	Chartered Institute of Public Finance and Accountancy
DCLG	Department of Communities and Local Government
DRC	Depreciated Replacement Cost
GRC	Gross Replacement Cost
HAMP	Highway Asset Management Plan
HMEP	Highway Maintenance Efficiency Programme
IAM	Institute of Asset Management
IFRS	International Financial Reporting Standards
LoTAG	London Technical Advisors Group
SLHAM Consortium	South London Highway Asset Management Consortium
TfL	Transport for London
UKPMS	United Kingdom Pavement Management System
UKRLG	United Kingdom Roads Liaison Group
WGA	Whole of Government Accounts

Reference Documents... A list of key reference documents and information used in the Highway Asset Management Plan. These are cited in the 'Further Information' section of each module, with web links where available.

Business Rates Retention Guide	2012	DCLG
Code of Practice on Transport Infrastructure Assets	2010	CIPFA
Equalities Act 2010		Public-Sector Equality Duty
Highway Infrastructure Asset Management Guidance	2013	UKRLG
Maintaining a Vital Asset	2013, update	HMEP/UKRLG
Management of Highway Structures	2013, update	Code of Practice – UKRLG
The Community Infrastructure Levy	2011	DCLG
Well Lit Highways	2013, update	Code of Practice - UKRLG
Well Maintained Highways	2014, update	Code of Practice - UKRLG
Whole of Government Accounts Guidance	2015	HM Treasury

Acknowledgements... This modular Highway Asset Management Plan has been developed by the members of the South London Highway Asset Management Consortium namely, London Boroughs of Bexley, Bromley, Croydon, Greenwich, Kingston, Merton and Sutton in collaboration with Metis Consultants Ltd.

HAMP Module A – Policy & Objectives

What... Bexley is committed to manage and maintain its highway assets to ensure they are fit for purpose and able to fulfil their functions in an efficient and sustainable manner.

Bexley reviews these policies regularly to ensure they are appropriate and reflect its statutory duties, best practice and stakeholder requirements.

Why... Bexley's corporate aims state:

- *Environment* – Improving the environment.
- *Sustainability* – Promoting economic development and population growth.
- *Economic* – Value for money.
- *Social* – Developing healthier communities.
- *Collaboration* – Working in partnership to drive efficiency.

Bexley aims to provide a highway asset that delivers these aims through a policy supported by objectives to ensure focus is kept on what matters to the Council in managing its highway assets with long-term prudency.

Who... The responsibilities for the 'Policy & Objectives' module lie with:

Sign off policy	**Portfolio Holder**
Establish objectives	**Head of Engineering**
Updating & reporting module	**Highways Manager**

How... Bexley aims to:

- Maintain its assets in a state of good repair, meeting performance targets (HAMP module D).
- Ensure its assets are safe for the public.
- Plan for the effects of climate change and changing demands.

In managing its assets, Bexley aims to:

- Recognise that resources are limited, and therefore, prioritise the maintenance of assets based on their associated risk.
- Utilise the asset management principles of life cycle planning and whole life costing to minimise the cost of asset ownership.
- Take a proactive approach to maintenance, favouring cost effective preventative treatments over reactive repairs.
- Utilise quality and up-to-date asset inventory and condition information to inform decisions and take a prioritised approach towards asset data collection.
- Seek access to external funding sources with robust business cases to pay for, or contribute to asset investment.
- Support its statutory duties as a highway authority under the Highways Act 1980, the New Roads and Street Works Act 1991, the Transport Act 2000, and the Flood and Water Management Act 2010 with sound asset management practices.
- Protect its assets from accidental damage by monitoring property development and statutory utility works.

Reporting... Reporting of the delivery of the Policy and Objectives is done through an annual 'State of the Highway' report and also reflected in updates to the HAMP over time to ensure the right outcomes are delivered.

Success Measures... The recognition and adoption of the stated aims, objectives and performance measures through Council buy-in in other local documents will define success. Moreover, improvement in performance outcomes shall also demonstrate success.

Further Information:
Corporate Plan, 2014-2018
Legislation

HAMP Module B - Context

What... Asset management is a best practice approach endorsed by the Government and the Audit Commission. Maintaining valuable assets essential for the economic and social health of Bexley requires pragmatic and focused investment to ensure the biggest benefit for the whole community is achieved.

Long-term investment is required to make best use of resources and ensure the right interventions are implemented at the most effective time, whether capital investment or reactive maintenance to ensure a safe highway, a statutory requirement.

Why... Spending public money must demonstrate value and be aligned to the needs of the businesses and the residential community. Ensuring the right facilities have the right level of accessibility, and are maintained to safe standards to meet the duties of the Highways Act (1980), will serve to make Bexley a safe and accessible Borough open for business and a great place to live.

With a long-term investment programme, Bexley can plan maintenance works better and seek economies of scale, as well as, maximising the life of treatment through reducing the whole life cost.

Carriageways: A typical 1m^2 pothole costs around £60-£100 to repair, while it costs around £10-£40/m^2 to resurface a road for up to 25 years on Principal roads and 30 years on unclassified roads.

Footways: A typical 1 m^2 pothole costs around £52 to repair, while it costs around £60/m^2 to reconstruct a footway for up to 40 years.

In addition street lighting and structures are also essential assets within the highway and are maintained according to need. Street lighting has seen investment in recent years which is generating energy savings and providing a robust long term asset.

Who... The responsibilities for the 'Context' module lie with:

Statutory duty	**Head of Engineering**
Overall reporting	**Highway Manager**
Updating & reporting module	**Highway Manager**

How... Bexley works with other LoTAG South sector Boroughs through the SLHAM Consortium. Through this Consortium Bexley works to develop a common understanding and approach to asset management, which Bexley bespokes to meet its particular needs.

The Consortium reviews guidance and tools developed by the Department for Transport's HMEP, UKRLG.

From the guidance and tools available, the group assesses how best to implement asset management, and then, Bexley decides how it will develop and implement the best aspects of asset management to meet its needs.

Reporting... To ensure investment and outcomes remain effective, the modular HAMP provides a suite of measures to explore and demonstrate success or otherwise. From this, improvement actions can be developed, and discussed with peers at the SLHAM Consortium.

An annual 'State of the Highway' report is produced to draw together progress, performance and investment impact. The report is produced in July each year to reflect the latest asset value, and over time will move as near to the financial year end in early April as practical.

Table B2 shows the ownership and reporting across the HAMP modules to support long-term implementation, improvement and realisation of the benefits asset management brings.

Success Measures... An evolving asset management approach to managing the highway assets of Bexley will show an improvement, and hence, success in maintaining the Councils highway network efficiently. This approach will be aligned with prudent investment strategies delivering demonstrable benefits to the community, through achieving performance improvement targets and maximising the benefit of expenditure.

To deliver success, the following activities will be essential to show benefit of asset management:

- An Annual Asset Management Maturity Assessment and the associated reporting to ensure progress towards the stated objectives.
- Asset Valuation for WGA to ensure the asset retains the desired value.
- Updating expenditure figures to assess the expenditure against investment strategies.
- Updating the performance measures and assessing progress against targets.

This review process needs to ensure the stated aims remain current and in-line with corporate aims. Should the aims change, this HAMP must be revised to reflect the new aims/targets for performance and outcomes.

Further Information:
HMEP/UKRLG – Maintaining a Vital Asset
UKRLG – Highways Infrastructure Asset Management Guidance Document

Table B2: Ownership and reporting of modules.

Module		Responsible	Version	Next Review	Reporting	
					How	When
A	Policy & Objectives	Cabinet Member / Head of Engineering	V4.0	July 2018	'State of the Highway' report	June 2018
B	Context	Highways Manager	V4.0	July 2018	'State of the Highway' report	June 2018
C	Asset Knowledge	Highways Manager	V4.0	July 2018	Module D – Performance Management Module I – Stakeholder Engagement Module K – Valuation	June 2018
D	Performance Management	Highways Manager	V4.0	July 2018	Performance dashboard updates and 'State of the Highway' report	June 2018
E	Funding & Expenditure	Highways Manager	V4.0	July 2018	'State of the Highway' report	June 2018
F	Maintenance Strategies	Highways Manager	V4.0	July 2018	Module G - Investment Strategies	June 2018
G	Investment Strategies	Highways Manager	V4.0	July 2018	Investment modelling report	June 2018
H	Works Programme	Highways Manager	V4.0	July 2018	Forward works programme	June 2018
I	Stakeholder Engagement	Highways Manager	V4.0	July 2018	'State of the Highway' report	June 2018
J	Benchmarking	Highways Manager	V4.0	July 2018	HAMP modules updates and 'State of the Highway' report	June 2018
K	Valuation	Highways Manager	V4.0	July 2018	WGA valuation report	June 2018
L	Implementation & Improvement Plan	Highways Manager	V4.0	July 2018	Improvement action plan	June 2018

HAMP Module C – Asset Knowledge

What... Asset knowledge comprises inventory and condition data for the highway assets Bexley is responsible for.

Collection and maintenance of asset data is required to assist managers in assessment, analysis and reporting of performance, progress and future need.

Why... Asset data is required to enable Bexley undertake the following processes:

- Monitor and report on the condition of the highway network.
- Assess the expected lives of individual assets or asset components.
- Evaluate performance indicators.
- Model future maintenance options.
- Identify future investment strategies.
- Investigate and manage risk.
- Develop short- and long-term forward works programmes.
- Analyse and report financial values for WGA.

These processes enable Bexley to make informed and cost-effective decisions.

Who... The responsibilities for the 'Asset Knowledge' module lie with:

Data collection	**Highways Manager**
Data management	**Highways Manager**
Updating & reporting module	**Highways Manager**

How... Data is an expensive commodity to collect, store and keep up to date. It is essential to ensure data collected and held can be trusted and remains current to support performance reporting and decision making.

Bexley adopts a pragmatic approach to the collection of data to ensure the same data can be used for multiple tasks and that the level of sophistication meets the needs of the authority. Table C1 and Table C2 provide an overview of the data collected and the resources used.

Within the field of data collection it is important to keep abreast of innovation and new techniques in the market and the SLHAM Consortium helps Bexley achieve this, and provides an opportunity for benchmarking rates and approaches to data collection.

Figure C3 provides an overview of the systems adopted within Bexley to collect, store and utilise asset data.

Reporting... Bexley uses the asset inventory shown in Table C2 to quantify the extent of its highway assets. This data is then used to feed in to other HAMP Modules to report on asset performance, including module D – Performance Management, module I – Stakeholder Engagement, and module K – Valuation.

Success Measures... Apart from feeding in to other HAMP modules, asset knowledge will help Bexley to support statutory requirements. Moreover, this will greatly help in making effective and informed decisions.

Further Information:
Highway Infrastructure Asset Management Guidance document, HMEP – UK RLG, 2013
UK Pavement Management System (UKPMS)
UK Roads Liaison Group - Codes of Practice

Table C3: Bexley's asset condition assessment.

Asset Group	Asset Type	Type of Survey	Network coverage	Frequency	Service Provider	System
Carriageways	Principal Classified Roads (A roads)	SCANNER condition surveys	100%	Annually	London Borough of Hammersmith and Fulham	LBHF UKPMS
		Detailed Visual Inspection (DVI)	100%	Annually		LBHF UKPMS
		SCRIM	100%	Annually		LBHF UKPMS
	Non-Principal Classified Roads (B & C roads)	Coarse Visual Inspection (CVI) surveys	100%	Annually	Highway Surveyors Ltd.	ReGen
	Unclassified roads (U roads)	Coarse Visual Inspection (CVI) surveys	25%	Annually		ReGen
Footways	Category 1	Coarse Visual Inspection (CVI) surveys	50%	Annually	Highway Surveyors Ltd.	ReGen
	Category 2	Coarse Visual Inspection (CVI) surveys	50%	Annually		ReGen
	Category 3 & 4	Coarse Visual Inspection (CVI) surveys	25%	Annually		ReGen
Highway Structures	All Structures	Principal Inspections	100%	Every 6 years	Waterman Ltd.	BridgeStation
	All Structures	General Inspection	100%	Every 2 years		
	All Structures	Superficial Inspections	100%	Annually	In-house	
	Borough Principal Road Network	Load Assessments	As required.			
Street Lighting	Lighting columns	Visual	100%	Prior to scheme work	Kier - Cartledge	Symology
		Ultrasonic	100%	Prior to scheme work	Electrical Testing Ltd.	Symology
Street Furniture	All street furniture	Routine safety inspections	50%	Various	In house	Symology

Table C4: Bexley's asset inventory.

Asset Group	Asset Type	Quantity		Asset Group	Asset Type	Quantity
Carriageways	Principal Classified Roads (A roads)	58.0 km	595,290 sq.m	***Street Lighting***	Columns	19,062 no.
	Non-Principal Classified Roads (B & C roads)	43.0 km	363,226 sq.m		Heritage Columns	710 no.
	Unclassified roads (U roads)	546.6 km	3,630,864 sq.m		Subway units	573 no.
	TOTAL	*647.6 km*	*4,589,743 sq.m*		Feeder Pillars	206 no.
Footways	Category 1	89.1 km	213,018 sq.m		Illuminated Bollards	1,290 no.
	Category 2	89.9 km	164,084 sq.m		Internally Illuminated Signs	
	Category 3 & 4	736.4 km	1,767,398 sq.m		Externally Illuminated Signs	2,285 no.
	TOTAL	*915.4 km*	*1,844,300 sq.m*	***Street Furniture***	Non-Illuminated Traffic Signs	7,418 no.
Highway Structures	Bridge	54			PROW Signs	
	Culvert	10			Pedestrian Barriers	12,050 no.
	Footbridge	34			Safety Fencing	
	Pedestrian Subway (or Underpass)	16			Grit Bins	314 no.
	Retaining Wall	58			Non-Illuminated Bollards	8,491 no.
	TOTAL	*172 no.*			Street Name Plates	4,192
				Land	Urban	*6,959,443 sq.m*
					Rural	*238,984 sq.m*
					TOTAL	*7,494,592sq.m*

Good Data
Derived Data
To collect/improve

HAMP Module D - Performance Management

What... Performance management is the process by which Bexley communicates its objectives for the highway assets and monitors performance.

Why... Bexley has adopted this approach to ensure highway asset maintenance functions on the ground are aligned to and contribute to achieving the Council's corporate vision and objectives laid out in the London Mayor's Transport Strategy.

Who... The responsibilities for the 'Performance Management' module lie with:

Approving targets	**Cabinet Member**
Monitoring performance	**Head of Engineering**
Updating & reporting module	**Highways Manager**

How... Bexley has adopted performance management as outlined in the HMEP – UK RLG Highway Infrastructure Asset Management Guidance document (2013).

Relevant high level drivers were identified from Bexley's Corporate Plan and from the London Mayor's Transport Strategy. These have been translated into four highways performance target statements, which drive all of Bexley's highway maintenance activities, Figure D1.

Asset specific performance target statements have also been developed to identify the key objectives for each of the main highway asset groups.

The performance target statements are supported by a suite of performance indicators, which have been selected to enable performance monitoring and target setting against the objectives, Table D2.

In addition, through the SLHAM Consortium, these performance indicators are further evaluated through LoTAG and NHT Surveys and assessed against level of service criteria assessed against industry practice and performance in order to group performance into four clear service level categories; Excellent, Good, and Poor. This enables target setting and prioritisation based on sound analysis, Tables D2 and D3.

Reporting... Bexley uses the following performance dashboard to illustrate the performance management system adopted, Table D2. It considers all the assets under the Council's remit, outlining for each, multiple performance indicators, their current condition, and their short and long-term targets mapped to service levels.

This process ensures Bexley focuses its effort and investment into the areas that positively impact the high-level drivers and represent the highest level of service to the Council. The cost of attaining target PIs is discussed in HAMP module G – Investment Strategies.

Success Measures... Apart from providing a direct link to the Council's corporate vision, performance management will help Bexley demonstrate the effective use of its budgets. This will also demonstrate any shortfalls in funding and where this needs to be targeted to ensure the transport network is fit for purpose and with an acceptable level of service.

Further Information:
Highway Infrastructure Asset Management Guidance document, HMEP – UK RLG, 2013

Figure D1: Asset performance indicators setting.

High-Level Drivers

- Better streets and environment - *Mayor's Transport Strategy*
- Improving journey experience - *Mayor's Transport Strategy*
- The need to promote more sustainable transport choices and improve accessibility - *Bexley's Local Plan*
- Medium term financial planning
- The need to manage growth to promote sustainable methods of transport - *Bexley's Local Plan*

Highways Performance Target Statements

- Maintain all assets in a state of good repair
- Minimise network disruption
- Safe highway assets
- Minimise the whole life cost of asset ownership

Asset Performance Target Statements

- **Carriageways** - A carriageway surface with minimal potholes and other defects
- **Carriageways** - Minimise disruption caused by road works
- **Carriageways** - An adhesive non-skid surface
- **Footways** - A footway surface with minimal defects
- **Drainage** - Streets that are free from standing water
- **Structures** - Safe highway structures
- **Street Lighting** - Street lighting operating as intended
- **Street Lighting** - Safe street lighting columns

Asset Performance Indicators

- Measurable metrics
- Current and target
- Consistent and meaningful
- *As per the performance dashboard (Table D2)*

Table D2: Bexley's performance dashboard.

Asset Group	Performance Indicators	Levels of Service				Performance			
	Description	Excellent	Good	Fair	Poor	3 Year Trend	Current (2016/17)	Target (2018)	Target (2021)
Carriageway	% of Principal roads where maintenance should be considered	<6%	6.1-9.0%	9.1-12.0%	>12%	-2%	4%	5%	5%
	% of Non-Principal Classified roads where maintenance should be considered	<7%	7.1-10.0%	10.1-15.0%	>15%	-1%	2%	5%	5%
	% of Unclassified roads where maintenance should be considered	<10%	10.1-20.0%	20.1-25.0%	>25%	0	10%	10%	10%
	% of roads SCRIM surveyed in current year above investigatory level (Priority 1)	>60%	59.9-40.0%	39.9-30.0%	<30%	0%	4.5%	4.5%	4.5%
Footways	% of 1A, 1 and 2 footways where maintenance should be considered	<13%	13.1-17.0%	17.1-22.0%	>22%	+5%	11%	10%	8%
	% of 3 and 4 footways where maintenance should be considered	<20%	20.1-30.0%	30.1-35.0%	>35%	+5%	11%	10%	8%
Street Lighting	% of lighting column stock that is beyond its design life	<10%	10.1-25.0%	25.1-30.0%	>30%	0%	61%	52%	45%

HAMP Module E – Funding & Expenditure

What... Funding is the financial support Bexley uses to maintain its highway assets. This is generally obtained from various streams, primarily the central government and locally generated revenue, including TfL. This module looks at current and future funding sources, as well as, expenditure received historically to help understand impact on performance.

Why... Bexley needs to stay abreast of developments in funding and revenue opportunities, and with changes in government funding to be able to raise revenue locally.

The highways team needs to, therefore, ensure the best case is put forward for funding from funds available through CIL, Section 278, Section 106 and business rates as these provide income to the authority.

Who... The responsibilities for the 'Funding & Expenditure' module lie with:

Defining budget need	**Head of Highways**
Developing income opportunity	**Head of Highways**
Monitoring expenditure	**Highway Manager**
Updating & reporting module	**Asset Manager**

How... Bexley investigates alternative funding opportunities to invest in the highway infrastructure with the aim of reaching and maintaining a steady-state condition in its network.

Subsequently, the following alternative funding routes were earmarked by Bexley to be pursued:

- Funding through the use of Capital Reserves.
- Funding from the Community Infrastructure Levy.
- Funding from the retention of Business Rates.
- Funding from revenues and contributions.
- Re-distribution of funding within the Local Authority.

Expenditure is monitored to express the overall funding, income splits and capital / revenue split for the authority and is documented since 1999.

Reporting... Expenditure is monitored on an annual basis,

Figure E2. This provides an overview of the diversity of the income streams from internal and external sources and how this is spent through capital and revenue budgets.

Figure E2 is updated annually and the capital / revenue expenditure is reported through the annual 'State of the Highway' report.

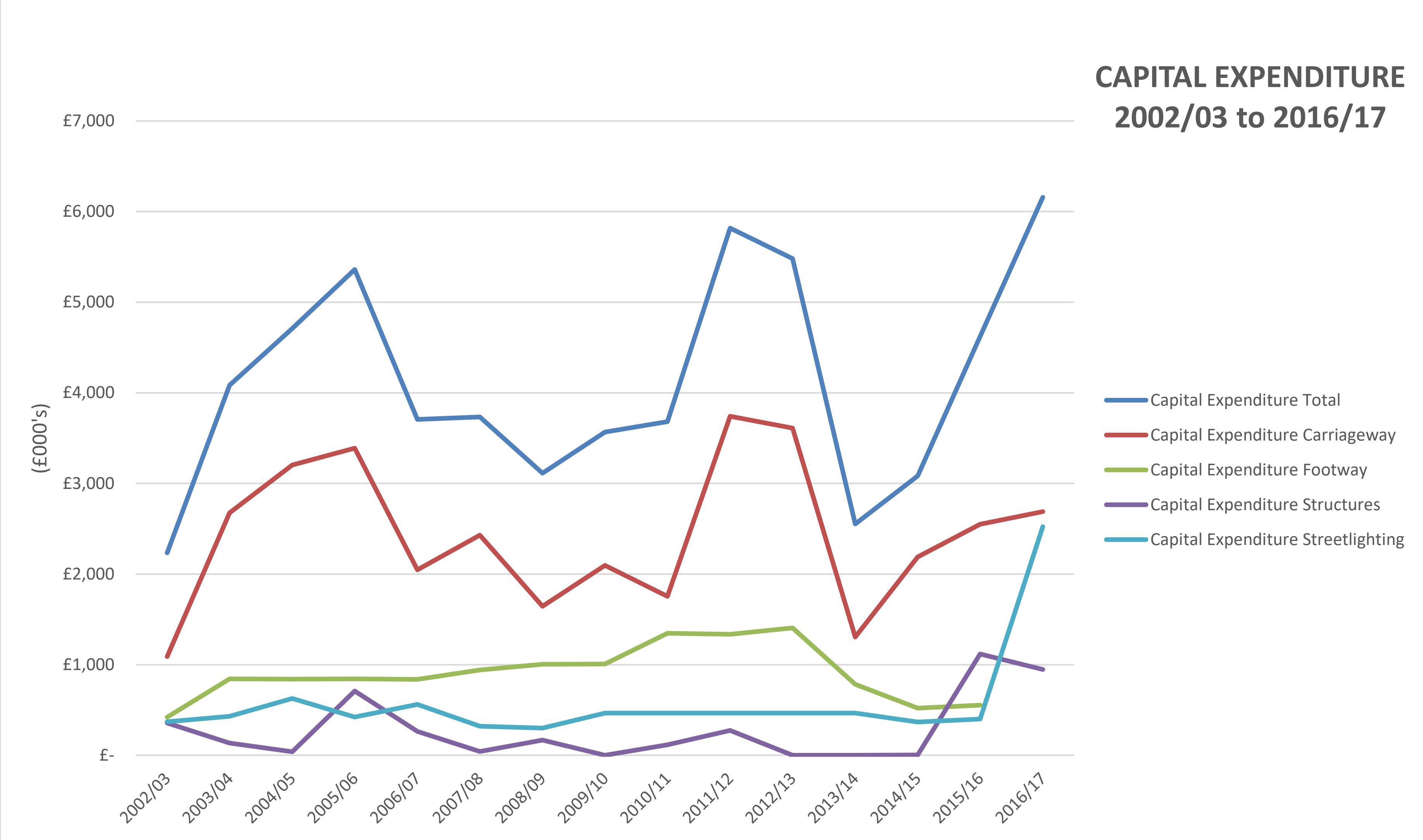
Success Measures... Maximising income from third parties will be essential for the long-term improvement and steady-state maintenance of the highway assets.

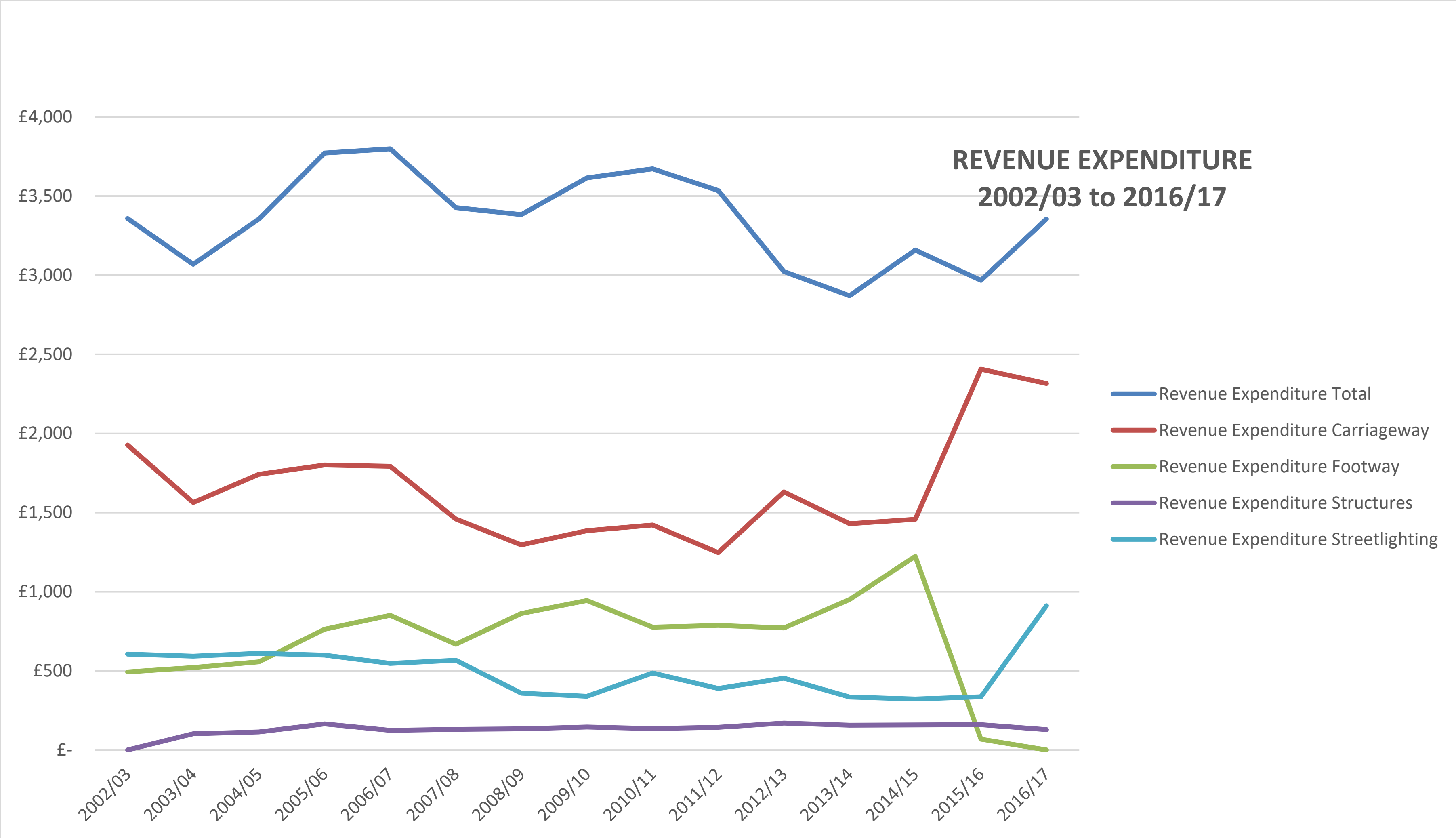
It is Bexley's aim to provide 80% of its expenditure as capital works and to continuously increase the income from third parties to fund its investments.

The need to inform future budgets through investment modelling, outlined in HAMP module G – Investment Strategies, will be imperative to build a good business case for alternative funding.

Further Information:
The Community Infrastructure Levy
Business Rates

Figure E2: Funding streams and expenditure.




REVENUE EXPENDITURE
2002/03 to 2016/17
£4,000
£3,500
£3,000
£2,500
£2,000
£1,500
£1,000
£500
£-
2002/03
2003/04
2004/05
2005/06
2006/07
2007/08
2008/09
2009/10
2010/11
2011/12
2012/13
2013/14
2014/15
2015/16
2016/17
Revenue Expenditure Total
Revenue Expenditure Carriageway
Revenue Expenditure Footway
Revenue Expenditure Structures
Revenue Expenditure Streetlighting

HAMP Module G – Investment Strategies

What... Investment in the highway assets is essential to improve the condition, maintain steady-state or even just to control the rate of deterioration.

To determine the best level of investment to meet the desired outcomes, a series of strategies can be explored to understand the impact of different budget scenarios, including the impact of investing in different parts of the network.

Investment modelling is the process used to determine backlog, steady-state funding requirements, and provides analysis of differing possible budget scenarios to suggest what the short- and long-term impacts may be.

Why... Understanding how the asset will behave in differing budget scenarios helps inform the level of investment required to meet desired levels of performance. This, in turn, can advise appropriate budget levels and support decision making with a robust understanding of the impact of different investment scenarios.

Who... The responsibilities for the 'Investment Strategies' module lie with:

Determining strategies	**Head of Engineering**
Evaluation strategies	**Highway Manager**
Updating & reporting module	**Highway Manager**

How... Bexley continuously reviews the investment needs of the asset using condition data collected and performance measures (Module D – Performance Management).

Figures derived through Whole of Government Accounts infrastructure valuation inform the steady state funding and backlog.

Reporting... Investment modelling reporting is done through update reports as and when investment scenarios are undertaken.

For the purposes of the HAMP the investment strategy will be updated in line with the determined budgets, and amended accordingly with budget alterations.

Success Measures... To deliver the performance targets as stated in Module D- Performance Management.

Backlog (£ millions)		
Carriageways	**Footways**	**Other Assets**
£ 72.6 million	£ 31.6million	£118.0 million
Total - £ 222.2 million		
647.6km	915.4km	

Further Information:
WGA Returns – Data Collection Tool

HAMP Module H – Works Programme

What... Bexley generates forward works programmes to gather the individual maintenance activities required for the highway assets and schedule them into a task programme.

Why... Developing a longer term programme of works gives greater transparency of the work to be delivered. For the residents and businesses, there is an understanding of the volume and location of work that will be delivered, and when their street will be invested in. For works delivery teams, it provides greater certainty of future orders to better resource and deliver work efficiently.

Furthermore, looking at a longer term investment in highway assets ensures the focus is kept on long-term benefits derived from the investment, as well as, an ability to see what can be done with the investment provided.

Who... The responsibilities for the 'Works Programme' module lie with:

Preparing works programmes	**Highway Manager**
Updating & reporting module	**Highway Manager**

How... Bexley provides ongoing analysis and updates of the priority for investment of each asset based on engineering need, condition and social benefit. To achieve this, data is collected and analysed to provide a priority list of all assets within an asset group.

From this, Bexley is able to assess the quantity of work that needs to be done, and the type of work that needs to be undertaken. The tools used for assessment are:

- Carriageways: Scheme Informer and value engineering
- Footways: Scheme Informer and value engineering
- Street Lighting: Symology.
- Highway Structures: Bridgestation.

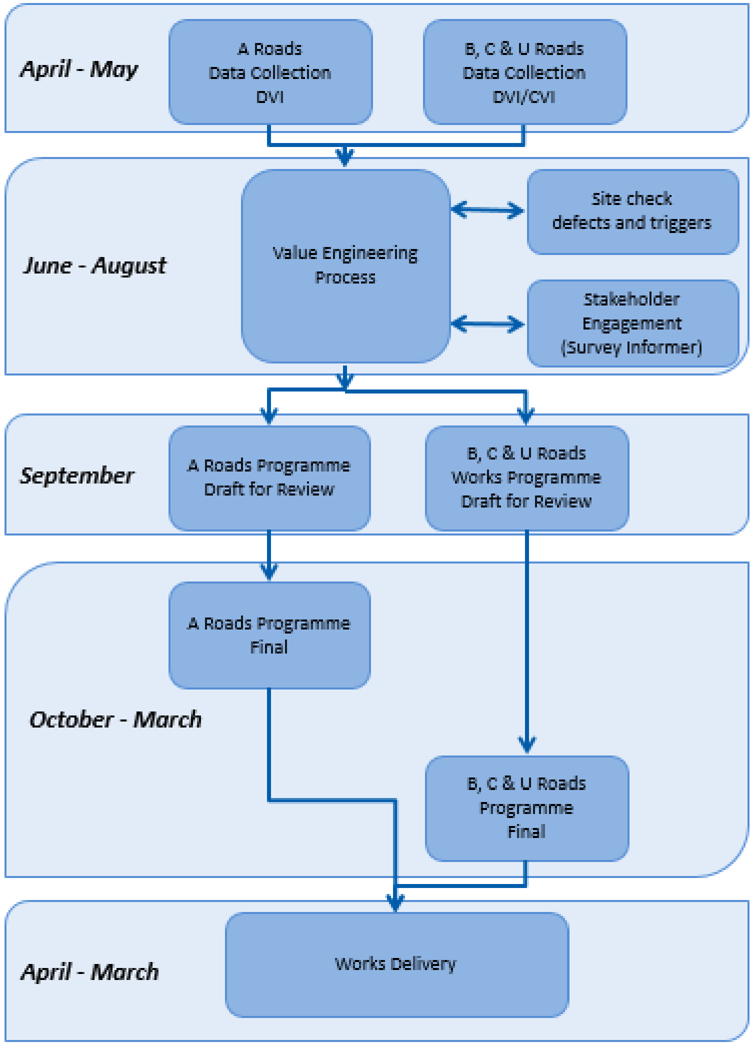
This supports HAMP module F - Maintenance Strategies and module G - Investment Strategies. The process for developing the carriageway programme is shown in **Figure H3**

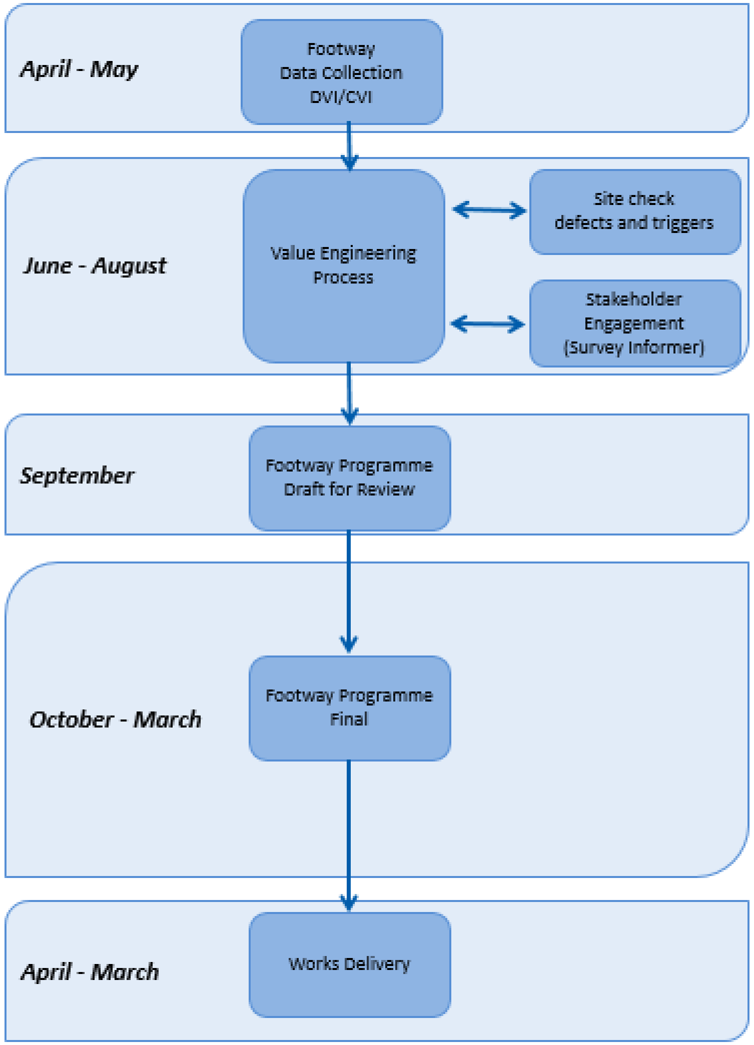
Reporting... Bexley produces a prioritised schedule of works through stakeholder identified service measures / selection criteria. Every road section is, then, assigned a score which determines its priority ranking. This ranking determines the schedule of works up to the available budget. The draft works programme is, then, presented to the Highway Committee for their final approval and endorsement.

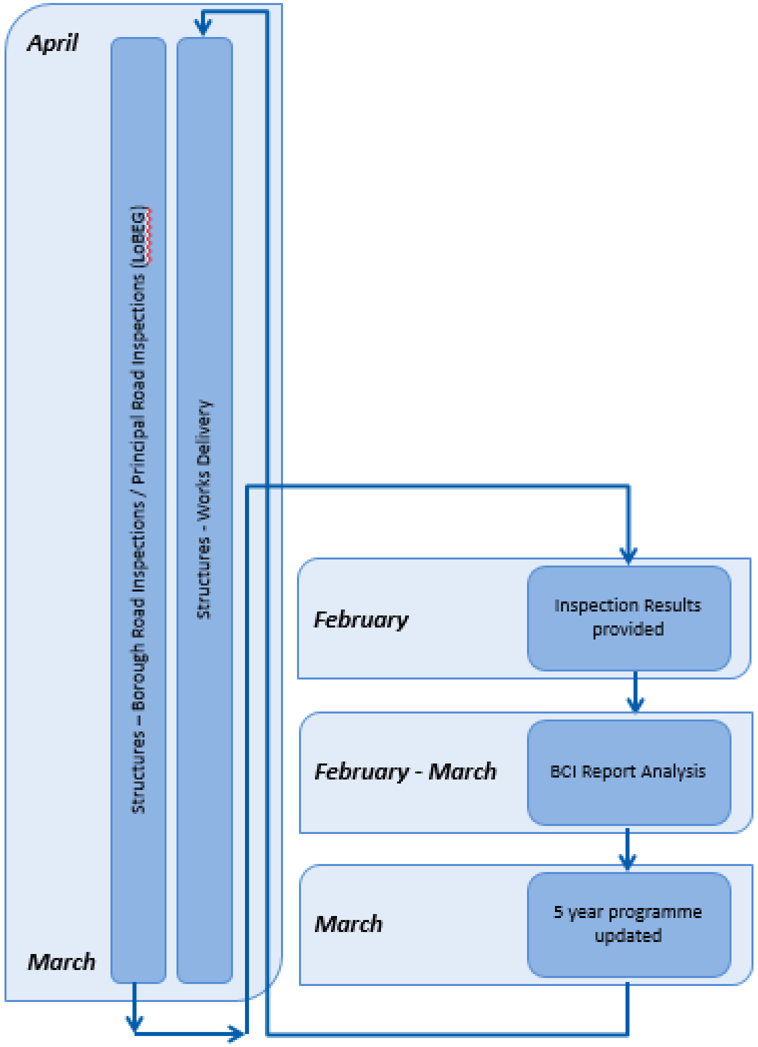
Success Measures... The delivery of the Bexley's works programme is the tangible outcome of the entire asset management planning process. The programming and delivery of works align with the asset management objectives discussed in HAMP module A – Policy & Objectives, and deliver the performance targets set in module D – Performance Management.

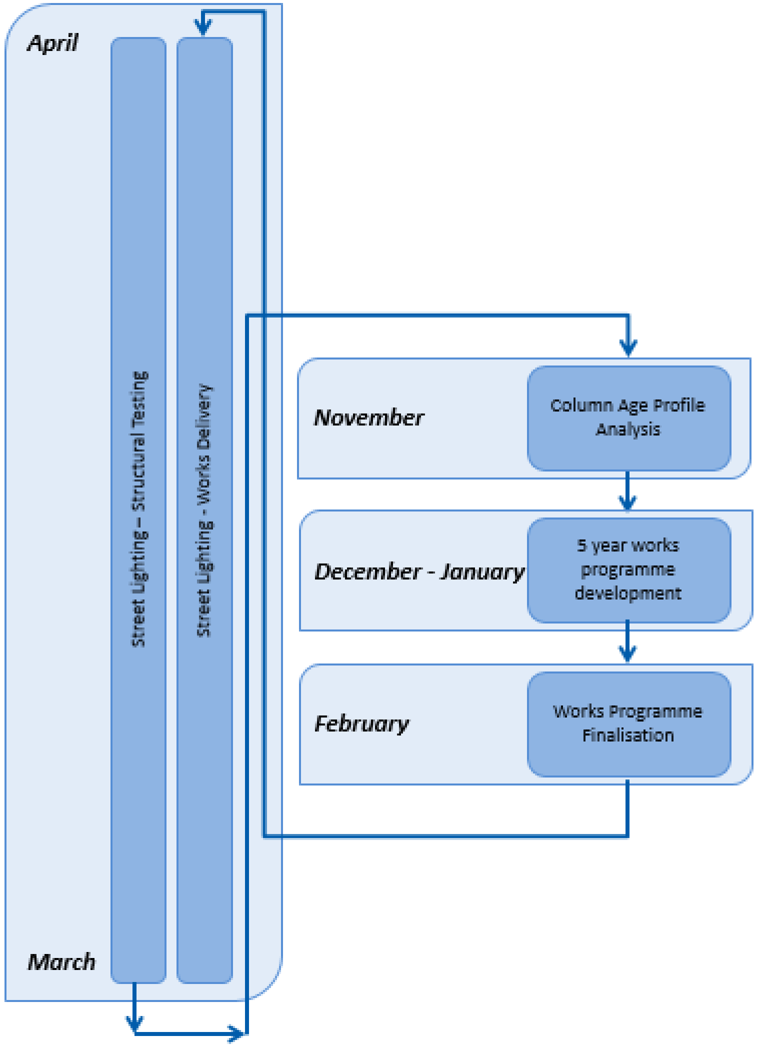
Further Information:
Carriageway and Footway Programme
Highway Infrastructure Asset Management Guidance document, HMEP – UK RLG, 2013
UK Pavement Management System (UKPMS)

Figure H3: The works programme development process, carriageways.






April
Structures – Borough Road Inspections / Principal Road Inspections (LoBEG)
Structures - Works Delivery
March
February
Inspection Results provided
February - March
BCI Report Analysis
March
5 year programme updated


April
Street Lighting – Structural Testing
Street Lighting - Works Delivery
March
November
Column Age Profile Analysis
December - January
5 year works programme development
February
Works Programme Finalisation

HAMP MODULE J - BENCHMARKING

What... Benchmarking is the process adopted to look at how Bexley is delivering its highway service compared to other highway authorities.

Benchmarking is used to ensure Bexley is delivering the most effective service in the most efficient way using data to inform and allow challenges to its current processes.

For the purposes of this HAMP, Bexley determines its own performance targets, and establishes strategies and investment needs to achieve the appropriate asset performance. Bexley's approach ensures it delivers what is best for its community.

Why... Benchmarking informs good practice and enables Bexley to challenge the way it operates and delivers services. The benchmarking process ensures Bexley asks the right questions to those adopting best practices, perceived to be better performers, or delivering better outcomes to their service.

Bexley uses benchmarking to test its approach to managing the highway assets. It looks at high performing authorities and engages with them to see how they operate differently. Bexley assesses how it is performing relative to others, and strives to deliver best practice. All elements benchmarked such as practices and outcomes provide a check and balance to the levels of investment that deliver the desired and expected outcomes.

Who... The responsibilities for the 'Benchmarking' module lie with:

Updating & reporting module	**Highway Manager**

How... Bexley uses a variety of benchmarking documents, surveys and fora as follows:

- UKRLG Codes of Practice.
- SLHAM Consortium.
- HMEP Benchmarking Forum (to be launched).
- National Best Value Benchmarking Scheme.
- National Performance Indicators, Single List.
- ROADS 2000, London Borough of Hammersmith and Fulham.
- National Highways & Transport Survey, for public satisfaction.

These documents, surveys and fora provide an insight into Bexley's performance compared to others and allow it to track progress against its stated aims.

Reporting... The delivery of the various elements of benchmarking are ongoing throughout the year. As such it is not intended to provide detailed reporting, other than to ensure better ways of working are reflected in HAMP module updates.

To this end, such observations or major changes in performance compared to others will be noted in the annual 'State of the Highway' report.

Success Measures... Success will be measured by ensuring Bexley remains at the forefront of delivering highway assets that meet the needs of the community in the most cost-effective and efficient manner.

Further Information:
HMEP Benchmarking Forum (to be launched)
National Best Value Benchmarking Scheme
National Performance Indicators, Single List
National Highways & Transport Survey
UKRLG Codes of Practice

Table J5: Benchmarking questionnaires and surveys.

Questionnaires / Surveys	Date Reported	Date Published	Related Modules	Performance Trend (Improving / Stable / Declining)
National Best Value Benchmarking Scheme	April - June	September	A, D, I, J, L	
NHT Survey	N/A	April	A, D, I, J, L	Not used
National Performance Indicators, Single List	March	April	A, D, G, H, I, J, L, K	
ROADS 2000, London Borough of Hammersmith and Fulham	Sept-Mar	May	A, D, G, H, I, J, K, L	
AIA – ALARM survey	January	April	A, I, J, L	

HAMP Module K – Asset Valuation

What... Asset valuation calculates the value of all the highway assets that Bexley owns. The value of Bexley highway assets in 2016/17 was at £1.5 billion, making this the most valuable asset in the Council's portfolio.

Why... Bexley calculates asset valuation primarily for WGA annual reporting purposes. However, the valuation process is also used internally for the following purposes to:

- Provide an indication of the annual change in condition of the assets in monetary terms – this illustrates improving or deteriorating condition in layman's terms.
- Calculate the annual depreciation of the assets, which represent the annual consumption of service benefits and provide a measure of what on average needs to be spent year-on-year to maintain the assets in a steady-state.
- Produce transparent information for stakeholders, on the authority's management of its highway assets.

It is likely that the WGA asset valuation will replace historic valuation on the Councils balance sheet in the near future.

Who... The responsibilities for the 'Asset Valuation' module lie with:

Statutory Duty	**Head of Engineering**
Overall reporting	**Highways Manager**
Updating & reporting module	**Highways Manager**

How... Bexley has adopted asset valuation in line with the HM Treasury's Data Collection Tool (2016) and the CIPFA Transport Infrastructure Code, as required for WGA through the IFRS. This code entitled, *Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting (2010),* provides the methodology for asset valuation, whilst further supporting documentation issued by CIPFA provide tools to complete the valuation process.

Reporting... The valuation process used by Bexley is calculated using the DRC method in line with the Code. This provides the current cost of replacing an asset with its modern equivalent, less deductions for all physical deterioration and impairment. The DRC calculation requires the GRC, which is based on the cost of constructing an equivalent new asset. The difference between the GRC and DRC represents the cost of restoring the asset from its present condition to 'as new'. Bexley presents this valuation process, the calculations, and assumptions annually in a valuation report. This is important for the Council as it forms the basis of audit.

Table K1 shows Bexley's highway asset valuation figures for 2016/17, whilst Figure K2 and Figure K3 present the GRC and DRC asset valuation charts.

Success Measures... Beyond the WGA requirements, Bexley will utilise valuation as one of a basket of measures, to track the condition of the highway assets. Knowing the change in value year-on-year will help Bexley better understand how effective the planned maintenance regimes are at maintaining the condition and service potential of the assets. With this knowledge, Bexley will be placed in a better position to present cost estimates for different levels of service, and to better understand the impact on the end user for those service levels. This will, in turn, build a robust business case to access funding to ensure the highway network is fit for purpose and maintained as efficiently as possible.

Table K1: Asset valuation report figures for 2016/17.

Asset Group	GRC (£'000)	DRC (£'000)	Depreciation (£'000)	Depreciation %
Carriageways	£1,012,433	£939,838	£72,595	7.2%
Footways	£211,388	£179,829	£31,559	14.9%
Highway Structures	£234,865	£141,886	£92.979	39.6%
Street Lighting	£38,012	£14,729	£23,283	61.3%
Traffic Management	Owned & Managed by TfL.			
Street Furniture	£3,496	£1,748	£1,748	50.0%
Gross Replacement Cost (GRC)	**£1,500 million**			
Depreciated Replacement Cost (DRC)	**£1,278 million**			
Depreciation	**14.8%**	**£222 million**		
Land	Area (m²)	7,494,592m²	**£5,268 million**	

Further Information:
Code of Practice on Transport Infrastructure Assets, March 2010.
Whole of Government Accounts Guidance, HM Treasury.

Figure K2: Gross replacement cost.

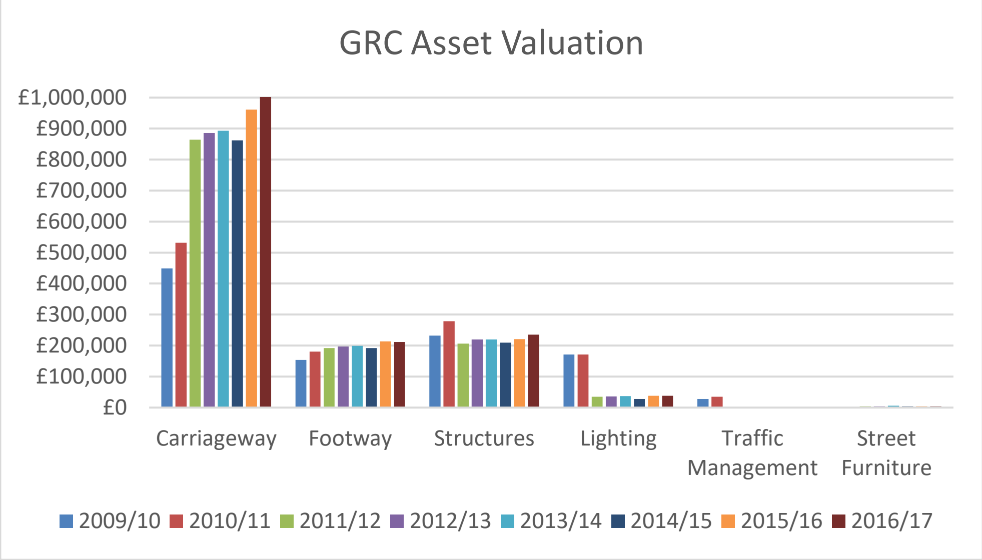
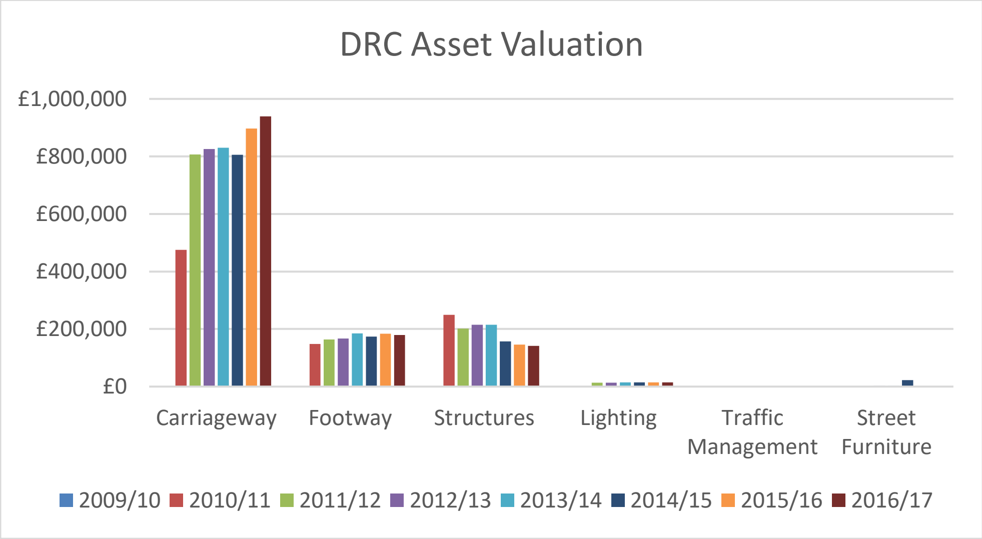


Figure K3: Depreciated replacement cost.



HAMP MODULE L – IMPLEMENTATION & IMPROVEMENT PLAN

What... The implementation and improvement plan is designed to assist Bexley to develop and implement a continuous improvement programme to enhance its asset management processes, systems and data, and support effective delivery of its desired asset management outcomes.

Why... Continuous improvement is an essential element of asset management for Bexley, enabling financial savings and better decisions to be made with better information. Moreover, it is the intention of the asset management plan to deliver key improvement actions.

Who... The responsibilities for the 'Implementation & Improvement Plan' module lie with:

Implement asset management	**Highway Manager**
Identify & deliver improvement actions	**Highway Manager**
Updating & reporting module	**Highway Manager**

How... Bexley undertakes continuous improvement according as outlined in the HMEP – UK RLG Highway Infrastructure Asset Management Guidance document (2013).

Reporting... Bexley tabulates the issues identified and the improvement actions proposed in an improvement action plan, Table L4. This plan provides a summary of the actions that need to be implemented and proposes target dates for completion.

Success Measures... Through ongoing delivery of the improvement.

Further Information:
Highway Infrastructure Asset Management Guidance document, HMEP – UK RLG, 2013

Table L6 Improvement action plan.

Module	Action	Measure	Time		
			2017	2018	Onward
C	Consider developing a hierarchy for the road network based on use and maintenance strategy	A completed road hierarchy	X		
	Develop asset information strategy	Clarity on asset data required	X		
G	Develop investment strategy to be aware of backlog, steady state	To undertake investment modelling	X		
	Demonstrate how asset hierarchy links to maintenance strategy	Undertake Asset Information Strategy	X		
J	Demonstrate consistency with other authorities	Add section in module to demonstrate collaboration and liaison	X		
N/A	Develop a Stakeholder Engagement Module	Stakeholder Engagement Module	X		
N/A	Show how risk based approach links to asset management	Risk Management Module	X		
N/A	Identify high risk assets	Risk Management Module	X		
N/A	Develop training and competency module for highways	Competency Module	X		