CROYDON

HIGHWAY ASSET MANAGEMENT STRATEGY

LONDON BOROUGH OF CROYDON

May 2024
Version 3.0

HAMP Module i – Executive Summary

Overview... Croydon manages and maintains the highway assets falling within its 727 km of highway network. With responsibility to ensure the highway assets are fit for purpose and able to fulfil their functions in an efficient and sustainable manner.

Croydon's vision aims to enhance its public space, improve residents' experience and quality of life, and develop a truly unique Croydon solution, which will reshape the way that people travel in the borough.

To achieve this, Croydon has identified a number of corporate aims relevant to the highway to which contribute to the objectives set down in the Croydon Mayor's Business Plan 2022 – 2026, Mayor's Transport Strategy and the Local Transport Plan 2019

Our strategy and policy for managing highway assets are outlined in this plan. reflecting the latest asset management guidance and practice.

Croydon – A Place to Live & Work

- Repair roads to a good standard to improve the condition of our network by adopting maintenance best practice.
- Repair the roads more quickly, to a higher standard and within budget.

Croydon – Safe & Secure

- Improve roads across Croydon and give disabled people, pedestrians and cyclists greater protection and make their journeys safer.

Croydon – Fair, Equal, Open & Accountable

- Make the maximum use of the council's assets to help deliver our priorities.
- Work closely with other public sector organisations to achieve better outcomes and value for money.

These are achieved through a policy supported by objectives to ensure focus is kept on what matters most to Croydon in managing the highway asset and the community's needs.

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

To this end, Croydon has teamed up with seven 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. The Consortium helps benchmark the individual Councils to enable Croydon to challenge the way it operates and delivers its services.

Overall performance... Croydon 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. Performance management demonstrates the effective use of the Council's budgets. Croydon's current performance is as shown in Table i1.

Investment... In 2023/24, Croydon has a total budget of £10.42 million, of which £8.96m was capital expenditure and £1.72m was revenue expenditure.

Through investment strategies, Croydon has determined that the current condition of the carriageway and footway highway assets create a backlog of around £306 million. To clear this backlog over 10 years, Croydon would need annual steady-state funding of £16.6 million per year to maintain the desired condition and reduce the backlog each year.

Engagement... Croydon 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... Croydon 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: Croydon's performance dashboard.

Asset Group	Performance Indicators		Trend from 2018	Performance		
	Description			Current (2024)	Target (2025)	Target (Long term)
Carriageways	% of Principal Classified roads where maintenance should be considered		↓	14%	5%	4%
	% of Non-Principal Classified roads where maintenance should be considered		↓	11%	6%	5%
	% of Unclassified roads where maintenance should be considered		↓	17%	10%	10%
	% of roads SCRIM surveyed in current year above investigatory level		↓	33%	15%	3%
	No. of potholes per km	Principal Classified roads	→	9/km	3/km	2/km
		Non-Principal Classified roads	↑	2/km	2/km	2/km
Footways	% Bituminous/concrete footways where maintenance should be considered		↑	7%	7%	7%
	% Flag/modular footways where maintenance should be considered		↑	2%	3%	2%
Drainage	% of gullies operating efficiently		No data	x%	x%	x%
Structures	% of bridges meeting the required carrying capacity		→	93%	96%	100%
Street Lighting	% of apparatus more than 25 years old		PFI			
	% of streets which conform to lighting design standards		PFI			
Highway Trees	No. of highway trees per km		→	48/km	50/km	65/km
Highway Claims#	% of highway claims repudiated		→	85%	85%	90%
	No. of highway claims		↑	79	-	-
	Amounts spend (£) on settled claims		↑	£2.16k	-	-

* These are the latest PIs available for each measure.
# Notification date used to calculate claims data

Trend Key	
Improvement	↑
Decline	↓
Steady	↔

Performance Key	
Good	
Poor	
Fair	

HAMS MODULE II - CONTENTS & REFERENCES

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

CIL	Community Infrastructure Levy
CIPFA	Chartered Institute of Public Finance and Accountancy
Croydon	London Borough of Croydon
DCLG	Department of Communities and Local Government
DfT	Department for Transport
DRC	Depreciated Replacement Cost
GLA	Greater London Authority
GRC	Gross Replacement Cost
HAMS	Highway Asset Management Strategy
HMEP	Highway Maintenance Efficiency Programme
IFRS	International Financial Reporting Standards
LoTAG	London Technical Advisors Group
NHT	National Highway and Transport Survey
PFI	Private Finance Initiative
Section 106	Section 106 of Town and Country Planning Act (1990)
Section 278	Section 278 of Highways Act (1980)
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 Strategy. 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 the Highways Network Asset	2016, update	CIPFA
Equalities Act 2010	2010	Public-Sector Equality Duty
Highway Infrastructure Asset Management Guidance	2013	UKRLG
ISO 55000 – Asset Management	2014	ISO
Maintaining a Vital Asset	2013, update	HMEP/UKRLG
The Community Infrastructure Levy	2011	DCLG
Well-managed highways Infrastructure	2016	Code of Practice - UKRLG
Whole of Government Accounts Guidance	2016	HM Treasury
The Mayor's Air Quality Strategy	2010	GLA
PAS 2080:2023	2023	BSI

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

HAMS MODULE A - CONTEXT

What... Asset management is a best practice approach endorsed by the Government and the Audit Commission. Maintaining valuable assets which are essential for the economic and social health of Croydon 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, the residential community and visitors. 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) and other legislation (Table A1), will serve to make Croydon a safe and accessible Borough open for business and a great place to live.

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

Carriageway assets: A typical 1m^2 pothole costs around £120 to repair (including management costs), while it costs around £37-£57/m^2 to resurface a road for 25 to 40 years.

Footway assets: A typical 1m^2 footway defect costs around £100-£137/m^2 to repair, while it costs around £40-£100/m^2 to resurface a footway for up to 75 years.

In addition, highway structures, street lighting, drainage, street furniture and highway trees assets are also essential within the highway and are maintained according to need. Street lighting assets have seen significant investment in recent years through its 25-year PFI which is generating energy savings and providing a robust long-term asset.

The move to capital investment is essential to reduce risk, reduce the cost of reactive maintenance, and minimise disruption to the road users.

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

Statutory duty	**Director of Streets and Environment**
Overall reporting	**Highway Operations Manager**
Updating & reporting module	**Operational Manager**

How... Croydon works with other LoHEG Boroughs through the SLHAM Consortium to develop a common understanding and approach to asset management, which Croydon adapts to meet its particular needs.

The Consortium reviews guidance and tools developed by the DfT, HMEP, UKRLG, IAM, as well as ISO55000, a global standard for asset management.

From the guidance and tools available, the group assesses how best to implement asset management, and then, Croydon 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, this modular HAMS 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 A2 shows the ownership and reporting across the HAMS 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 Croydon 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 capital investment and revenue expenditure.

To deliver success, the following activities will be essential for the efficacy and demonstrable 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 HAMS must be revised to reflect the new aims/targets for performance and outcomes.

Further Information:
HMEP/UKRLG – Maintaining a Vital Asset
ISO55000 – Asset Management
UKRLG – Highways Infrastructure Asset Management Guidance Document
UKRLG – Well-managed Highway Infrastructure

Table A1: Legal framework behind asset management.

Legislation	Main duties
Highways Act 1980	• To maintain highways maintainable at public expense. • To take such steps as they consider reasonable to prevent snow and ice endangering the safe passage of pedestrians and vehicles over public roads.
Traffic Management Act 2004	• To ensure the expeditious movement of traffic on the road network and those networks of surrounding authorities. • To manage the Highway Register. • To deal with encroachment on the highway. • To deal with obstruction on highways. • To deal with illegal and unauthorised signs. • To issue permits for utilities, skips, hoardings, temporary closures and other authorised occupation of the highway. • To the construction of vehicle crossings.

Legislation	Main duties
	• To deal with illegal parking on verges and footways. • To the adoption of new highways.
New Roads and Street Works Act 1991	• To enable new roads to be provided by new means. • To make new provision with respect to street works.
Flood and Water Management Act 2010	• To improve flood risk management and the way we manage our water resources. • To adopt a leading role for local authorities in managing local flood risk (from surface water, ground water and ordinary watercourses).
Wildlife and Countryside Act 1981	• To comply with environmental and countryside when undertaking highway maintenance operations.
The Local Government Act 2003	• To adopt best value practices. • To adhere to the defined statutory framework of BVPI.

Table A2: Ownership and reporting of modules.

Module		Responsible	Version	Next Review	Reporting	
					How	When
A	Context	Corporate Director of Sustainable Communities, Regeneration &Economic Recovery	V1.0	Dec 2024	'State of the Highway' report	Dec - Annually
B	Asset Management Framework	Director of Streets and Environment	V1.0	Dec 2024	'State of the Highway' report	Dec - Annually
C	Asset Knowledge	Highway Operations Manager	V1.0	Dec 2024	Module G – Valuation Module I – Performance Management Module J – Customer Engagement	N/A
D	Maintenance Strategy	Highway Operations Manager	V1.0	Dec 2024	Module H - Investment Strategies	Dec - Annually
E	Works Programming & Priorities	Operational Manager	V1.0	Dec 2024	Forward works programme	Dec - Annually
F	Funding & Expenditure	Director of Streets and Environment	V1.0	Dec 2024	'State of the Highway' report	Dec - Annually
G	Valuation	Director of Streets and Environment	V1.0	Dec 2024	WGA valuation report	Dec - Annually

H	Investment Strategies	Director of Streets and Environment	V1.0	Dec 2024	Investment modelling report	Dec - Annually
I	Performance Management	Director of Streets and Environment	V1.0	Dec 2024	Performance dashboard updates and 'State of the Highway' report	Dec - Annually
J	Customer Engagement	Director of Streets and Environment	V1.0	Dec 2024	'State of the Highway' report	Dec - Annually
K	Service Delivery	Director of Streets and Environment	V1.0	Dec 2024	Procurement Strategy	Ongoing
L	Designing for Maintenance	Highway Operations Manager	V1.0	Dec 2024	Croydon Public Realm Design Guide, 2012	Dec - Annually
M	Sustainable Highway Maintenance	Highway Operations Manager	V1.0	Dec 2024	'State of the Highway' report	Dec - Annually
N	Network Resilience, Weather & other Emergencies	Director of Streets and Environment	V1.0	Dec 2024	Civil Emergency Plan, Severe Weather Emergency Plan and Resilient Network	Dec - Annually
O	Implementation & Improvement Plan	Highway Operations Manager	V1.0	Dec 2024	Improvement Action Plan	Dec - Annually

HAMS Module B - Asset Management Framework

The asset management framework covers all aspects of asset maintenance, from 'the why' to 'the what' and 'how' asset management is undertaken in Croydon

What... The AM framework provides a common reference point for all Council staff and highway contractors engaged in highway maintenance matters. It collates the activities and processes that are necessary to develop, document, implement and continually improve asset management.

Why... The asset management framework covers all aspects of asset maintenance, from *'the why'* to *'the what'* and *'how'* AM is undertaken in Croydon. The framework provides a platform for establishing high level drivers for maintaining highway assets, linking corporate objectives to operations and delivery.

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

Statutory duty	**Director of Streets and Environment**
Overall reporting	**Highway Asset Manager**
Updating & reporting module	**Operational Manager**

How... The structure of the asset management framework outlined in Figure B1 shows how Croydon's highway policy, strategy, plans and procedures link together to achieve visibility and clarity of the key driving factors in maintaining a sustainable highway asset.

The framework's key components are:

- *Highway Policy* - A high level summary, with political buy-in that sets out the corporate objectives.
- *Asset Management Strategy* - This establishes the high-level drivers for maintaining the asset and links corporate objectives to delivery.
- *Asset Plan* - Building on the foundations of the strategy, this provides *'the what'* and *'how'* for each asset.
- *Operating Policy/Procedure* - The operating policy sets the asset specific goals, which link to the highway objectives and in turn the corporate goals. The operating procedure will then outline how this aim will be delivered.

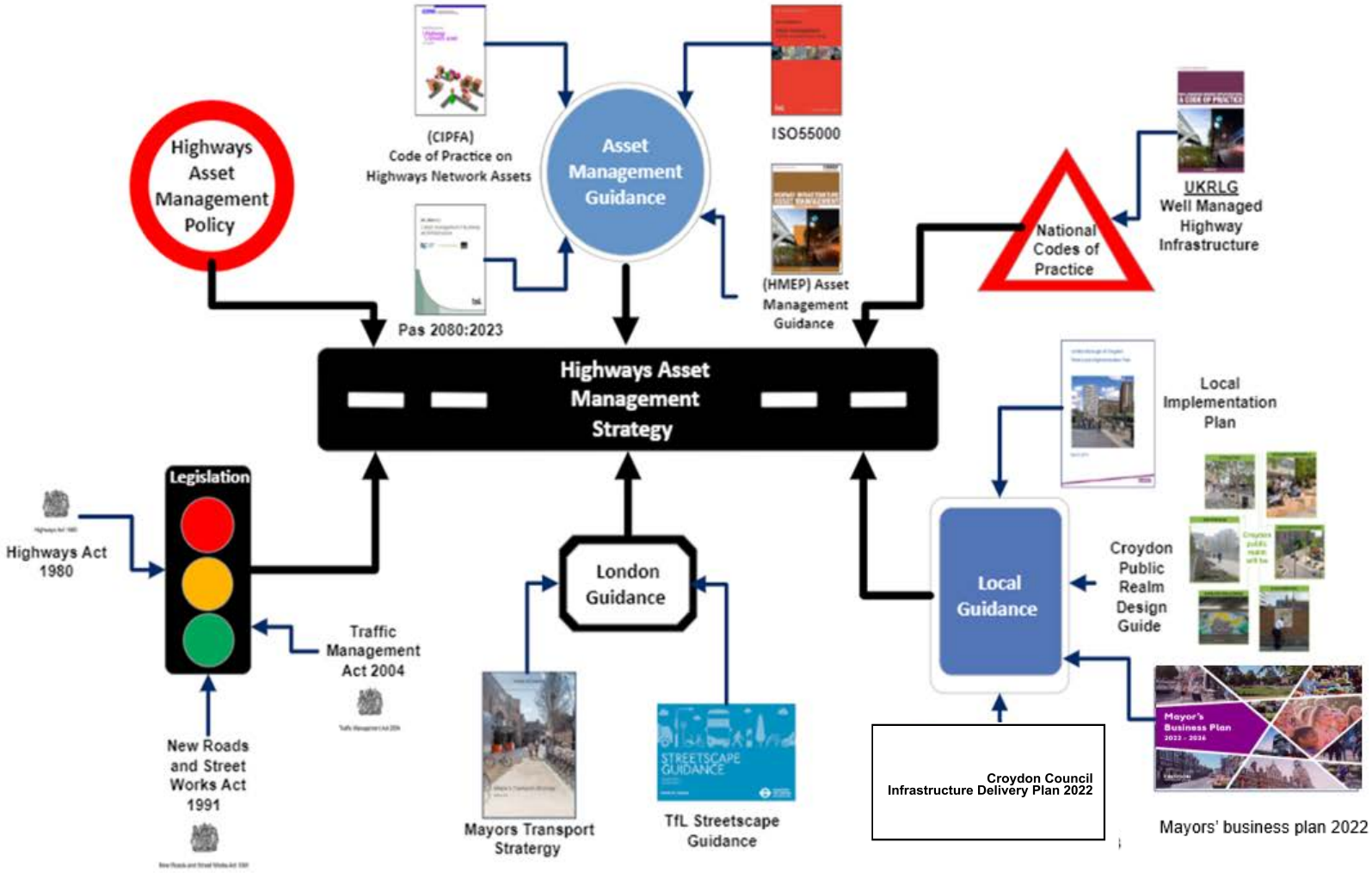
Management Framework

Reporting... This HAMS provides a concise and accessible reference for external parties interested in how Croydon maintains its highway assets.

This HAMS will be regularly reviewed and updated when triggered by a change in policy, procedure or an update to the Code of Practice.

Success Measures... The recognition and adoption of the stated approach through Council buy-in in other local documents will define success. Moreover, the regular use and updating of the documents by the respective Senior (Asset) Engineers shall also demonstrate success.

Further Information:
ISO55000 – Asset Management
UKRLG – Highways Infrastructure Asset Management Guidance Document
UKRLG – Well-managed Highway Infrastructure


Highways Asset Management Policy
(CIPFA) Code of Practice on Highways Network Assets
Asset Management Guidance
ISO55000
UKRLG Well Managed Highway Infrastructure
National Codes of Practice
(HMEP) Asset Management Guidance
Pas 2080:2023
Highways Asset Management Strategy
Local Implementation Plan
Legislation
Highways Act 1980
Traffic Management Act 2004
New Roads and Street Works Act 1991
London Guidance
Local Guidance
Croydon Public Realm Design Guide
Mayors Transport Stratergy
TfL Streetscape Guidance
Croydon Council Infrastructure Delivery Plan 2022
Mayor's Business Plan
Mayors' business plan 2022

HAMP MODULE C – ASSET KNOWLEDGE

What... Asset knowledge comprises inventory and condition data for the highway assets Croydon 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 Croydon to 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 Croydon to make informed and cost-effective decisions.

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

Data collection	**Highway Asset Manager**
Data management	**Operational Manager**
Updating & reporting module	

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.

Croydon 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 Croydon achieve this, and provides an opportunity for benchmarking rates and approaches to data collection.

Reporting... Croydon uses the asset inventory shown in Table C2 to quantify the extent of its highway assets. This data is then used to feed into other HAMS modules to report on asset performance, including module G – Valuation, module I – Performance Management, and module J – Customer Engagement.

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

Further Information:
Highway Infrastructure Asset Management Guidance document, HMEP – UKRLG, 2013
UK Pavement Management System (UKPMS)
UKRLG – Well-managed Highway Infrastructure

Table C1: Croydon's asset condition assessment.

Asset Group	Asset Type	Type of Survey	Network coverage	Frequency	Service Provider	Storage System
Carriageways	Principal Classified Roads (A roads)	SCANNER condition	100%	Annually	PTS	SharePoint
		SCRIM	100%	Annually		SharePoint
		AI condition surveys	100%	Biannually	Gaist	Confirm
		AI condition surveys	100%	Every 3 years	Vaisala AI	Confirm/ Gaist
	Non-Principal Classified Roads (B,C & U roads)	AI condition surveys	100%	Every 3 years	Gaist	Confirm
Footways	Bituminous/Concrete	AI condition surveys	100%	As per inspection frequency	Gaist	Confirm
	Flag/Modular	AI condition surveys	100%	As per inspection frequency	Gaist	Confirm
Highway Structures	All Structures	Principal Inspections	100%	Every 6 years	Network Rail Tram link FM Conway Others by tender	Bridge Station
	All Structures	General Inspection	100%	Every 2 years		
	All Structures	Superficial Inspections	100%	Annually		
	Borough Principal Road Network	Load Assessments	As required.			
Drainage	Gullies	Cyclical gully cleansing	100%	Annually	FM Conway	Confirm
	Pipes / Carrier drains	CCTV	As required.		FM Conway	Individual DVDs
Street Lighting	Lighting columns	Responsible by Skanska under PFI for 25 years from 2011.				
Street Furniture	All street furniture	Routine safety inspections	100%	Various	In house	GIS
Highway Trees	All Highway Trees	Routine safety inspections	100%	Every 3 Years (North) Every 4 Years (South)	In house City Suburban Tree Surgeons	Confirm

Table C2: Croydon's asset inventory.

Asset Group	Asset Type	Quantity		Asset Group	Asset Type	Quantity
Carriageways	Principal Classified Roads (A roads)	51.6 km	521,160 sq.m	***Street Lighting***	Columns	25,762 no.
	Non-Principal Classified Roads (B & C roads)	81.2 km	677,460 sq.m		Heritage Columns	898 no.
	Unclassified roads (U roads)	594.1 km	3,963,720 sq.m		Subway Units	559 no.
	TOTAL	**726.9 km**	**5,162,340 sq.m**		Feeder Pillars	323 no.
Footways	Prestige Walking Zones (Category 1A) & Primary Walking Routes (Category 1)	156.6 km	407,160 sq.m		Illuminated Bollards	0 no.
	Secondary Walking Routes (Category 2)	304.8 km	609,600 sq.m		Externally Illuminated Signs	4,086 no.
	Link Footways (Category 3) & Local Access Footways (Category 4)	773.7 km	1,392,660 sq.m		Internally Illuminated Signs	430 no.
	TOTAL	**1235.1 km**	**2,409,420 sq.m**		**TOTAL**	**32,058 no.**
Highway Structures* ** Structures responsible under the Highway Maintenance team.*	Highway Bridge	12 no.				
	Culvert	18 no.		***Drainage***	Gullies	33,616 no.
	Footbridge	3 no.			Carrier Drains	185.6 km
	Pedestrian subway / Underpass	12 no.			Channel Gullies	1.5 km
	Retaining Wall	15 no.			Manholes / Chambers / Catch-pits	1,291 no.
	Underpass: Vehicular	2 no.			Soakaways	3,500 no.
	TOTAL	***62 no.***			Beany Blocks	0.6 km
Street Furniture	Non-Illuminated Traffic Signs	36,479 no.			Trash Screens	5 no.
	PROW Signs	1,200 no.			Pumping Stations	6 no.
	Pedestrian Barriers	23.2 km			Balancing Ponds	2 no.
	Grit Bins	577 no.			Petrol Interceptors	3 no.
	Non-Illuminated Bollards	10,050 no.			***TOTAL***	**38,610.7 no.**
	Street Name Plates	5,012 no.		***Land***	Urban	8,032,639 sq.m
	Litter & Recycling Bins	1,620 no.			Rural	79,030 sq.m
					TOTAL	***8,111,669 sq.m***
				Highway Trees	***Trees***	***33,000***

Derived Data
To collect/improve

*These are the latest data available.

HAMS MODULE D – MAINTENANCE STRATEGY

What... A maintenance strategy is an approach to managing common asset groups with consistent treatments. The treatments are decided upon the most efficient means of meeting the required performance targets, based on whole-life-cost analysis.

Why... To create a suite of treatment options that can be drawn upon for the asset type and condition. Benefits include:

- Time saved in going through the treatment selection process for individual assets.
- A consistent aesthetic and performance across the Borough.
- Ease of comparing new treatment options on the market.
- A better understanding of how treatments behave over time.

Who... The responsibilities for the 'Maintenance Strategy' module lie with:

Defining strategy & hierarchy Whole-life-costing	**Highway Asset Manager**
Updating & reporting module	**Operational Manager**

How... Croydon uses decision trees to determine the most suitable treatments to be adopted for common asset groups, Figure D1. This decision tree sets the process to be undertaken and shows the various criteria that need to be considered when selecting the maintenance treatment. For carriageways and footways these are:

- Road hierarchy, which represents a specific traffic loading category.
- Construction type, which determines the likely defects to be present.
- Predominant defect visible, which establishes the depth of the required treatment.
- Profile adequacy, which determines whether vertical realignment is necessary.
- Cumulative defect size, which outlines whether the treatment should be carried out under the Council's reactive or planned maintenance procedures.

This process leads to specific treatment options. The various options are assessed for the best whole-life-cost solution, based on treatment performance and cost. This determines the best maintenance solution for a homogenous asset group. This approach lends itself to ensuring different strategies for different asset types provide a 'right for asset' approach to long-term maintenance.

Street lighting assets are maintained under a 25-year PFI, which runs till 2036. Their maintenance strategy is also based on whole-life-costing principles to meet the required energy efficiencies for the council.

For highway structures, drainage and street furniture assets, maintenance strategies are still being investigated to ensure the best outcomes and long-term results are achieved.

Reporting... Maintenance strategies are reviewed periodically, or when new treatment options come on the market. They are reported through investment modelling reports and business cases as an integral element of HAMS module H - Investment Strategies.

Success Measures... To be able to demonstrate an on-going reduction in the whole-life-cost of asset maintenance, through the use of the most efficient maintenance strategy for the particular asset group.

Further Information:
LoTAG London-wide Asphalt Specification
DMRB Volume 7 – Pavement Design and Maintenance

Figure D1: The decision tree of preferred maintenance strategies.

Asset	Safety Intervention	Temporary Repair	Permanent Repair
Carriageways	40mm pothole	Cold applied material Low cost, low life expectancy.	Saw cut and patch with hot applied material By hand –medium cost, medium life expectancy. By machine – high cost, high life expectancy.
Footways	20mm pothole	Cold applied material Low cost, low life expectancy.	Saw cut and patch with hot applied material By hand – medium cost, medium life expectancy. By machine – high cost, high life expectancy.
Asset	**Subgroup**	**Interim Intervention (Amber Road Treatment)**	**Major Intervention (Red Road Treatment)**
Carriageways	Principal Roads (A Roads)	Plane and Inlay - Deep Treatment – 80mm to 100mm	Plane and Inlay – Shallow Treatment – 50mm Plane and Inlay – Deep Treatment – 85mm
	Non-Principal Roads (B,C & U Roads)	Plane and Inlay – Shallow Treatment – 40mm	Plane and Inlay – Shallow Treatment – 50mm Plane and Inlay – Deep Treatment – 85mm
Footways	Bituminous / Concrete	Slurry Seal	Place and Inlay - Asphalt
	Flag / Modular	Reconstruction – Flag and Sand and 150mm Type1	Replacement - Paved
Street Lighting	Managed through PFI.		
Highway Structures	Managed in Bridgestation.		
Drainage	Managed in Confirm		

HAMS MODULE E – WORKS PROGRAMMING & PRIORITIES

Croydon 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 Croydon objective to create a forward plan of all schemes.

What... Croydon prioritises maintenance work and generates forward works programmes to gather the individual maintenance activities required for the highway assets and schedules them into a task programme.

Why... Developing a prioritised 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 Programming & Priorities' module lie with:

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

How... Croydon provides ongoing analysis and updates of the priority for investment of each asset based on the network hierarchy, 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, Croydon 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: CONFIRM.
- Footways: CONFIRM.
- Highway Structures: Bridge Station.
- Street Lighting (under PFI until 2036).
- Drainage: CONFIRM.
- Street Furniture: As part of the routine highway safety inspections.
- Highway Trees: As part of the routine highway safety inspections.

This supports HAMS module D - Maintenance Strategy & Hierarchy and module H - Investment Strategies. The processes for developing the programmes for the above-mentioned highway assets are shown in Figure E1 and E2.

Reporting... Croydon produces a carriageways and footways prioritised schedule of works through condition data and stakeholder identified service measures / selection criteria, Table E3. 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.

Highway structures are prioritised on condition and weight restrictions, where a worst first approach is undertaken. This ensures that structural elements are kept serviceable.

Street lighting assets are maintained under a 25-year long PFI, through to 2036. A core investment period of 5 years to upgrade all stock in Croydon has been undertaken.

Drainage assets are maintained on a cyclical or reactive basis. A cyclical programme for gully assets is currently in place. All other assets are maintained reactively.

Street furniture assets are maintained reactively as part of the routine highway safety inspections.

Highway Tree assets are maintained on a cyclical or reactive basis. A cyclical programme is currently in place with all other maintenance operated reactively.

Success Measures... The delivery of Croydon's works programme is the tangible outcome of the entire asset management planning process. The prioritisation, programming and delivery of works align with Croydon's Highway Policy and deliver the performance targets set in HAMS module I – Performance Management.

Further Information:
Highway Infrastructure Asset Management Guidance document, HMEP – UK RLG, 2013
ISO 55000 – Asset Management
UK Pavement Management System (UKPMS)
UKRLG – Well-managed Highway Infrastructure
LoBEG Maintenance Prioritisation for Highway Structures

Figure E1: The works programme development process for carriageways and footways.

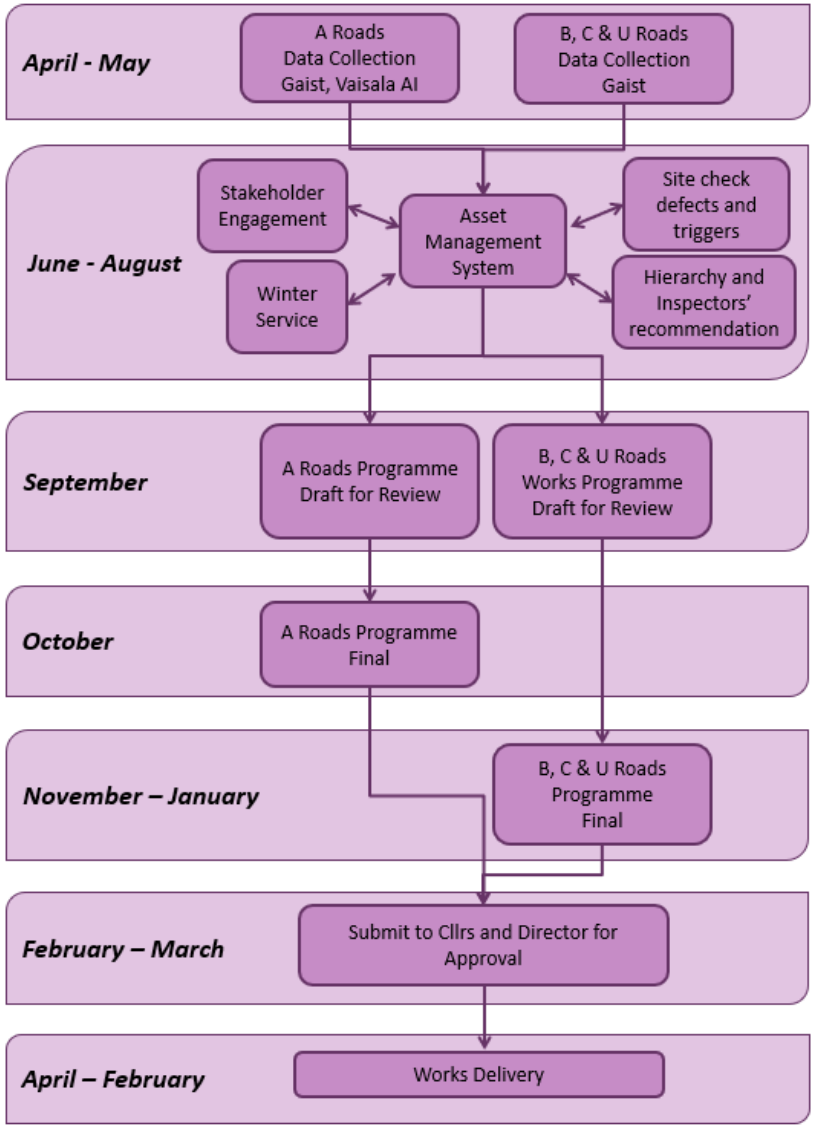


Figure E2: The works programme development process for highway structures.

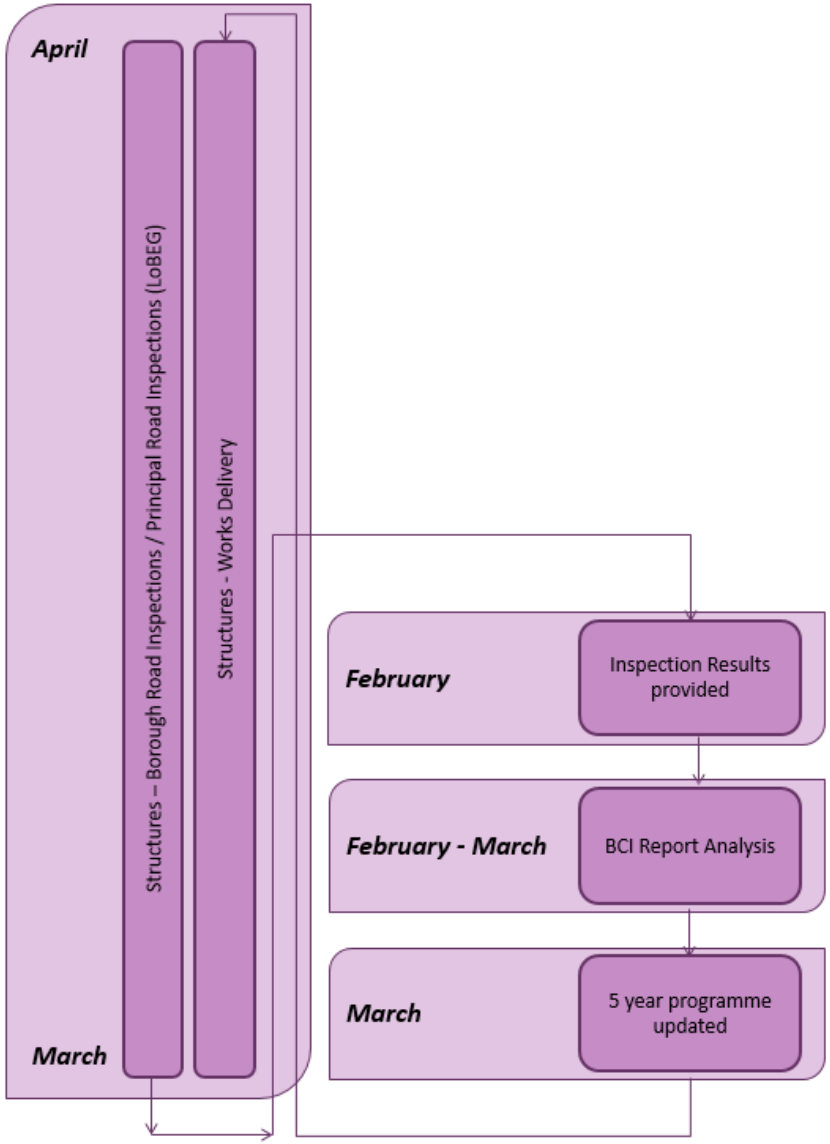


Table E3: The works programme development process for carriageways and footways.

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Dataset	***Importance***	***Source***
Bus routes	Identify roads with a high HGV volume and a high pedestrian usage of the area.	LB of Croydon
Cycle routes	Identify roads with high cyclist usage.	TfL cycling maps (2013)
Engineering defects condition rating	Identifies roads with high number of measured defects.	Gaist/Scanner/Visalia
Highway hierarchy	Distinguishes between high – medium – low vehicle usage patterns.	Highway safety inspection regime
Resilience	Identify locations where water is most likely to seep through the road formation layers and increase the rate of deterioration of the road during heavy rainfall. AND Identify roads with a strategic importance, which need to be kept safe even during the winter period.	https://www.croydon.gov.uk/ Croydon Council website
Trip generators - Primary shopping areas / Shopping parades / Schools / Council buildings	Identify locations of high volumes of road users and main economic drivers.	Croydon Council GIS database / https://www.croydon.gov.uk/

HAMS MODULE F – FUNDING & EXPENDITURE

What... Funding is the financial support Croydon 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... Croydon 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 Developing income opportunity	**Director of Streets and Environment**
Monitoring expenditure	**Highway Asset Manager**
Updating & reporting module	**Operational Manager**

How... Croydon 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 Croydon to be pursued:

- Government grants.
- Funding from the Local Implementation Plan.
- Funding from revenues and contributions.
- Funding from prudential borrowing.
- Funding from the retention of Business Rates.
- Funding from the Community Infrastructure Levy (in the pipeline).
- Funding from Transport for London

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 F1. 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 F1 is updated annually and the capital / revenue expenditure is reported through the annual 'State of the Highway' report.

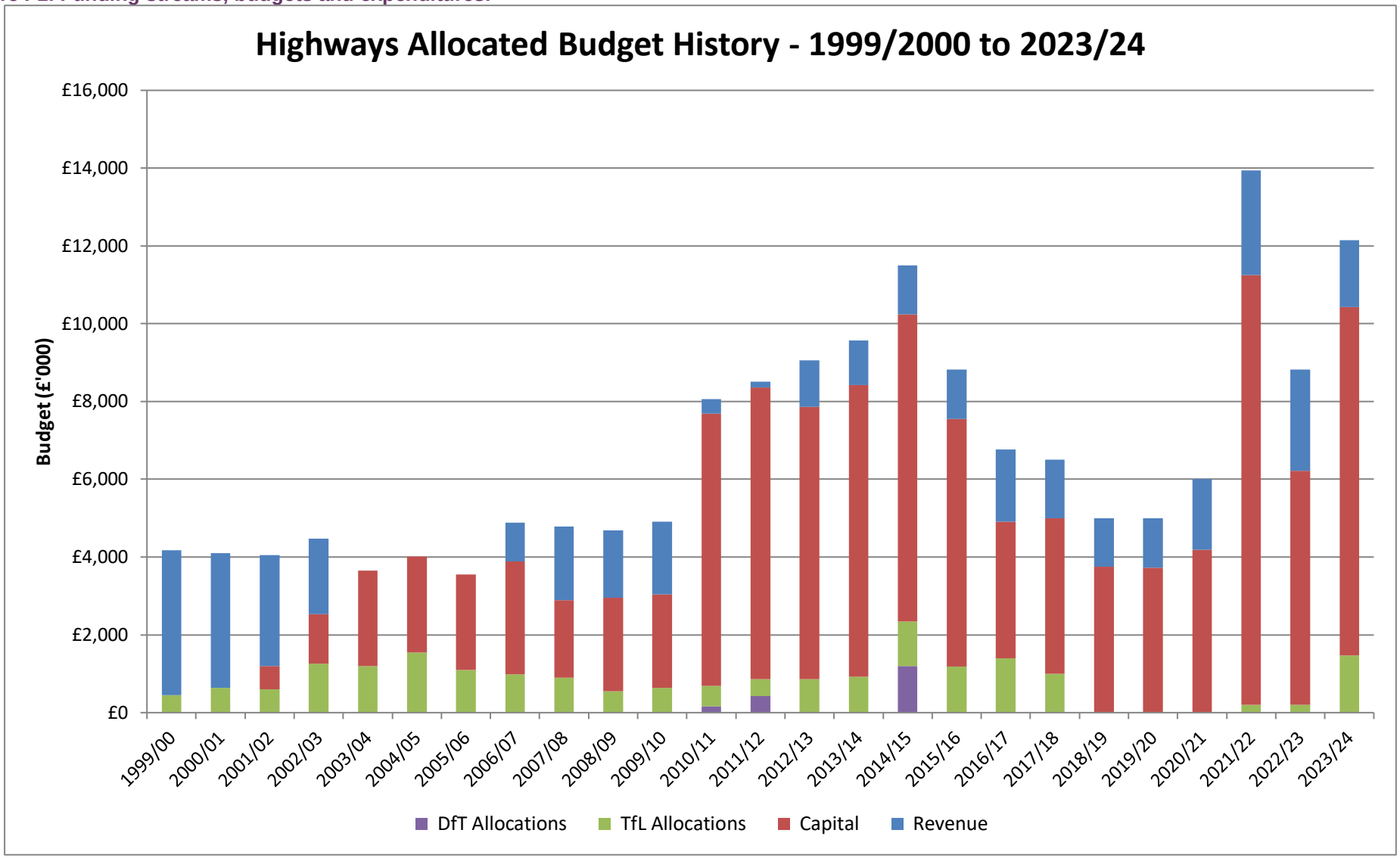
Success Measures... Maximising income from third parties will be essential for the long-term improvement and steady-state maintenance of the highway assets.

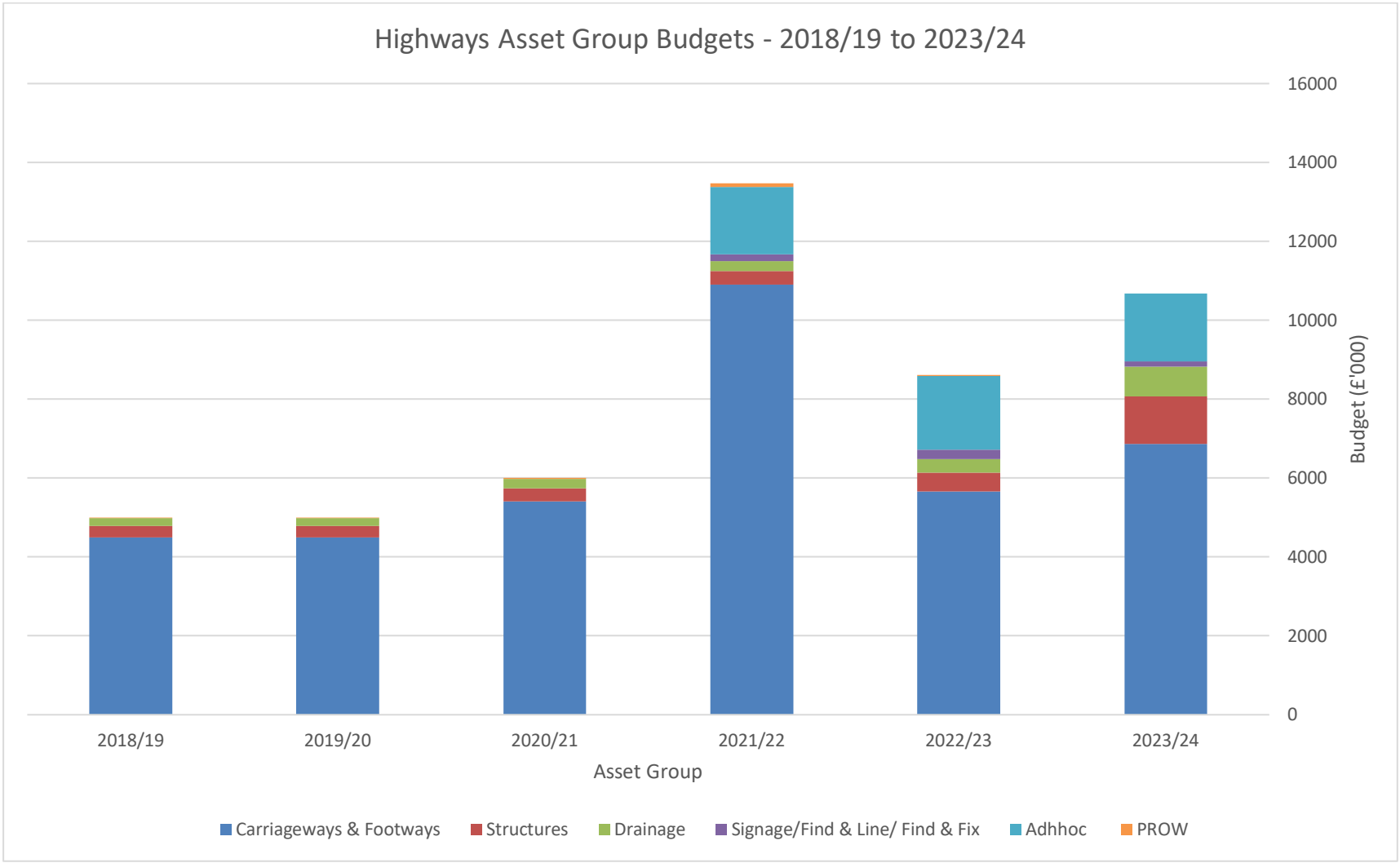
Hence, it is Croydon's aim to maximise external funding to complement its capital works by continuously increasing the income from third parties to fund its investments.

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

Further Information:
The Community Infrastructure Levy
Business Rates

Figure F1: Funding streams, budgets and expenditures.




Highways Asset Group Budgets - 2018/19 to 2023/24
16000
14000
12000
10000
8000
6000
4000
2000
0
Budget (£'000)
2018/19
2019/20
2020/21
2021/22
2022/23
2023/24
Asset Group
Carriageways & Footways
Structures
Drainage
Signage/Find & Line/ Find & Fix
Adhhoc
PROW

HAMS MODULE G – ASSET VALUATION

What... Asset valuation calculates the value of all the highway assets that Croydon owns. Croydon's highway assets have been estimated at £1,742 million, based on a combination of 2023/24 inventory data for carriageways and footways and all other assets from 2018/19 data, making this the most valuable asset in the Council's portfolio.

Why... Croydon 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.

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

Statutory Duty	**Director of Streets and Environment**
Overall reporting	**Highway Asset Manager**
Updating & reporting module	**Operational Manager**

How... Croydon 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 (2013),* 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 Croydon 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'. Croydon 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 G1 shows Croydon's highway asset valuation figures for 2018/19, whilst Figure G2 and Figure G3 present the GRC and DRC asset valuation charts since 2009/10. However, since the COVID-19 pandemic, asset valuation has not been carried out. Estimates for 2023/24 have been added for carriageway and footway only, these are based on rates from 2018/19.

Success Measures... Beyond the WGA requirements, Croydon 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 Croydon better understand how effective the planned maintenance regimes are at maintaining the condition and service potential of the assets. With this knowledge, Croydon 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 G1: Croydon's asset valuation report figures for 2023/24.

Asset Group	GRC (£'000)	DRC (£'000)	Depreciation	
			(£'000)	%
Carriageways‡	£1,295,495	£1,173,500	£121,995	9.4%
Footways‡	£252,916	£213,264	£839,652	15.7%
Highway Structures†	£132,129	£73,978	£58,151	44.0%*
Street Lighting†	£49,198	£45,900	£3,298	6.7%
Traffic Management†	Owned and managed by TfL.			
Street Furniture†	£6,901	£3,451	£3,451	50.0%
Gross Replacement Cost (GRC)	**£1,741,506**			
Depreciated Replacement Cost (DRC)	**£1,514,957**			
Depreciation	**£226,549**		**13.0%**	
Highway Land	*Area (m^2)*	*4,611,664*	*£ 4,864 million*	

**Two bridges are currently being renewal. The data was taken before the renewal programme.*
†Based on 2018/19 data
‡Based on 2023/24 inventory and 2018/19 rates

Further Information:
Code of Practice on the Highways Network Asset (2016 Edition)
Code of Practice on the Highways Network Asset: Guidance Notes (2016 Edition), May 2015
Whole of Government Accounts Guidance, HM Treasury

Figure G2: Gross replacement cost over the years.

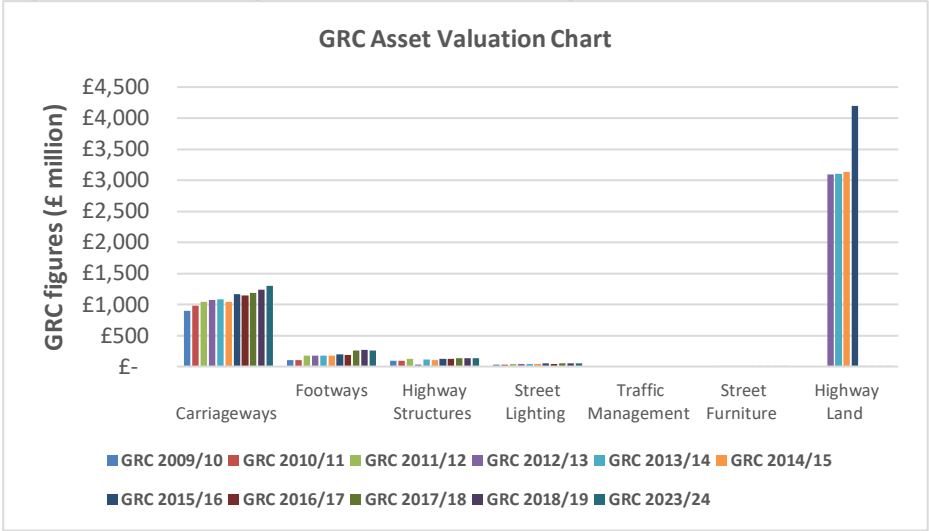
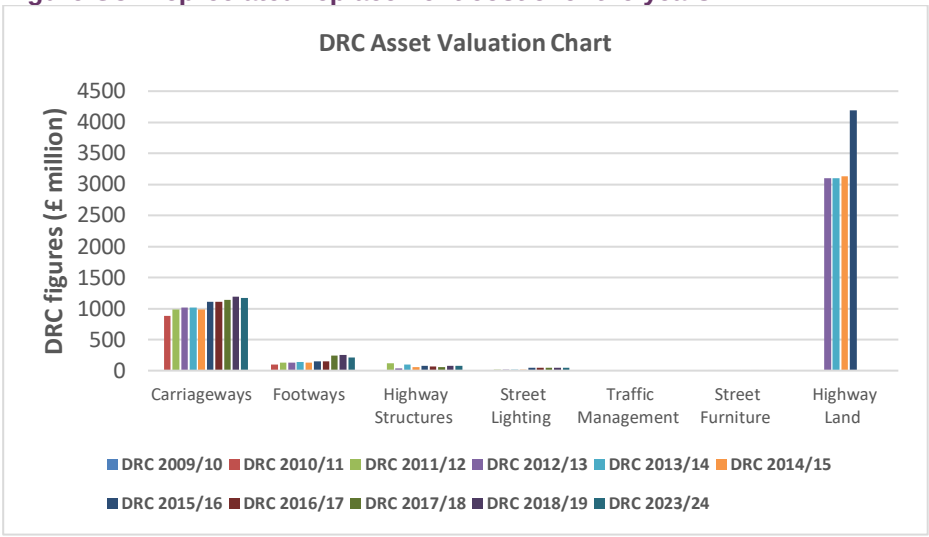


Figure G3: Depreciated replacement cost over the years.



HAMS MODULE H – 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 drive long-term capital savings and 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 (to bring the asset to its desired condition) and steady-state (funding required to sustain the asset in its desired condition) 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	**Director of Streets and Environment**
Evaluation strategies	**Highway Asset Manager**
Updating & reporting module	**Operational Manger**

How... Croydon continuously reviews the investment needs of the asset using condition data collected and performance measures (HAMS module I – Performance Management).

This information, then, feeds into the investment model to determine the current backlog and the impact of the determined investment scenarios, ensuring the investment is driving capital savings, striving towards the stated performance outcomes and is providing a network fit for purpose. Croydon aims to reduce the revenue expenditure and maximise the savings by implementing optimal treatment strategies.

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

For the purposes of the HAMS 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 HAMS module I- Performance Management.

Summary Information – Carriageway and Footway assets estimated through investment modelling work as of August 2023 and Structures + Drainage from 2019*.

	Backlog
Carriageways	£122m
Footways	£108m
Structures* *(2019)*	£51.76m
Street Lighting	PFI since 2011
Drainage**(2019)*	£24.67m
Total	**£306.43m**

	Steady-State Funding Need	**Current Funding**
Carriageways	£6.16m	£2.60m
Footways	£3.70m	£0.50m
Structures	£2.38m	£0.34m
Street Lighting	PFI since 2011	
Drainage	£4.38m	£0.24m
Total	**£16.62m**	**£3.68m**

Further Information:
Business Case 2021

Carriageways Information – calculated through investment modelling work.

Backlog (Red + Amber)	
Principal	**Non - principal**
£15.7m	£106m
Total - £122m	
49.0km	486km
Total 508km	

Steady-State Funding Need	
Principal	**Non - principal**
£1.24m	£4.92m
Total £6.16m	

Investment Scenarios		
Options	**Principal**	**Non - principal**
Current (£2.60m)	£1.00m	£1.60m
Adjusted (£6.16m)	£1.24m	£4.92m

Investment Scenarios - Outcomes				
Options	**Principal**		**Non - principal**	
	R	**A**	**R**	**A**
Current				
Adjusted				

Note – R: roads in Red condition. A: roads in Amber condition. Red cell: condition outcome not meeting steady state. Green cell: condition outcome meeting steady state.

Footways Information - calculated through investment modelling work.

Backlog (Red + Amber)	
Bituminous/ concrete	**Flag / Modular**
£103m	£4.65m
Total - £ 107.98m	
702km	14.8km
Total – 717km	

Steady-State Funding Need	
Bituminous / concrete	**Flag / Modular**
£4.10m	£0.30m
Total - £4.40m	

Investment Scenarios		
Options	**Bituminous/ concrete**	**Flag / Modular**
Current (£0.50m)	£0.40m	£0.10m
Adjusted (£4.40m)	£4.10m	£0.30m

Investment Scenarios - Outcomes				
Options	**Bituminous/ concrete**		**Flag / Modular**	
	R	**A**	**R**	**A**
Current				
Adjusted				

Note – R: roads in Red condition. A: roads in Amber condition. Red cell: condition outcome not meeting steady state. Green cell: condition outcome meeting steady state.

Highway Structures Information - calculated through investment modelling work.

Backlog	
BPRN*	**Non-BPRN**
£51.12	£0.64
Total- £51.76m	

Steady-State Funding Need	
BPRN	**Non-BPRN**
£2.00m	£0.39m
Total- £2.38m	

Current Investment	
Capital Funding	£0.48m

* Borough Principal Road Network.

Drainage Assets Information - calculated through investment modelling work.

Backlog	
Capital Renewals	**Cyclic Maintenance**
£24.67m	-
Total - £24.67 million	

Steady-State Funding Need	
Capital Renewals	**Cyclic Maintenance**
£4.03m	£0.35m
£4.38 million	

Current Investment	
Funding	£0.34m

HAMS MODULE I - PERFORMANCE MANAGEMENT

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

Why... Croydon 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	**Portfolio Holder**
Monitoring performance	**Director of Streets and Environment**
Updating & reporting module	**Highway Asset Manager**

How... Croydon has adopted performance management according to ISO 55000 and as outlined in the HMEP – UKRLG Highway Infrastructure Asset Management Guidance document (2013).

Relevant high level drivers were identified from Ambitious for Croydon and from the London Mayor's Transport Strategy. These have been translated into four highways performance target statements, which drive all of Croydon's highway maintenance activities, Figure I1.

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, Tables I2 and I3.

In addition, these performance indicators were further evaluated through the SLHAM Consortium and Croydon's own customer surveys and assessed against service levels criteria evaluated against industry practice and performance in order to group performance into three clear service levels, Good, Fair and Poor. This enables target setting and prioritisation based on sound analysis, Tables I2 and I3.

Reporting... Croydon uses the following performance dashboards to illustrate the performance management system adopted, Tables I2 and I3. They consider all the highway assets under the Council's remit, outlining for each, multiple performance indicators, their current condition, and their short- and long-term targets mapped to levels of service categories.

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

Success Measures... Apart from providing a direct link to the Council's corporate vision, performance management will help Croydon 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 risk.

Further Information:
Highway Infrastructure Asset Management Guidance document, HMEP – UK RLG, 2013
ISO 55000 – Asset Management
UKRLG – Well-managed Highway Infrastructure

Figure I1: Asset performance indicators setting.

Table I2: Croydon's performance dashboard - Customer.

NHT Reference	Performance Indicators		Levels of Service			Performance		
	Description – Public Satisfaction	Trends	Good	Fair	Poor	Current	Target	Levels of Risk
KBI 1	Overall Satisfaction		>55	25-55%	<25%			
KBI 3	Ease of Access (all users)		>79%	77-79%	<77%			
KBI 11	Walking / Cycling - Pavements and Footpaths		>94%	90-94%	<90%			
KBI 13	Walking / Cycling - Cycle route and facilities		>70%	50-70%	<50%			
KBI 23	Highway maintenance – Condition of Highways		>80%	70-80%	<70%			
KBI 24	Highway maintenance – Highway maintenance		>90%	80-90%	<80%			
KBI 25	Highway maintenance – Street Lighting		>50%	25-50%	<25%			

Table I3: Croydon's performance dashboard - Technical.

Asset Group	Performance Indicators		Service Levels			Trends	Performance			Levels of Risk of non-achievement	1% equivalent
	Description		Good	Fair	Poor		Current (2023)	Target (2024)	Target (Long-term)		
Carriageways	% of Principal Classified roads where maintenance should be considered		<8%	8-11%	>11%	↓	14%	5%	4%	*Medium*	0.79km
	% of Non-Principal Classified roads where maintenance should be considered		<10%	10-20%	>20%	↓	11%	6%	5%	*Low*	6.94km
	% of roads SCRIM surveyed in current year above investigatory level		>5%	15-5%	<15%	↓	33%	15%	3%	*Medium*	7.73km
	No. of potholes per km	Principal Classified roads	<2/km	2-8/km	>8/km	→	9/km	3/km	2/km	*High*	n/a
		Non-Principal Classified roads	<2/km	2-10/km	>10/km	↑	2/km	2/km	2/km	*High*	n/a
Footways	% Bituminous/concrete footways where maintenance should be considered		<10%	10-15%	>15%	↑	7%	7%	7%	*Medium*	11.9km
	% Flag/modular footways where maintenance should be considered		<15%	15-20%	>20%	↑	2%	3%	2%	*Medium*	0.37km
Drainage	% of gullies operating efficiently		>95%	85-95%	<85%	No data	TBD	TBD	TBD	*High*	336.16no.
Structures	% of bridges meeting the required carrying capacity		>98%	98-95%	<95%	→	93%	96%	100%	*High*	0.12 no.
Street Lighting	% of apparatus more than 25 years old		<10%	10-30%	>30%	**PFI**					321 no.
	% of streets which conform to lighting design standards		>98%	94-98%	<94%	**PFI**					321 no.
Highway Trees	No. of highway trees per km		>60/km	60-40/km	<40/km	→	48/km	50/km	65/km	*Low*	n/a
Highway Claims#	% of highway claims repudiated		>85%	70-85%	<70%	→	85%	85%	90%	*High*	n/a

	No. of highway claims	-	-	-	⇧	79	-	-		n/a
	Amount spend (£) on settled claims	-	-	-	⇧	£2.16k	-	-		n/a

* These are the latest PIs available for each measure.

Notification date used to calculate claims data

HAMS MODULE J – CUSTOMER ENGAGEMENT

What... Customer engagement is the process of engaging key asset users to inform the investment decision process.

Customers are groups or individuals with an interest in how the highway assets are managed. These may include protected groups requiring access to the network and businesses needing good infrastructure to support their economic activity. Most importantly it must be ensured that the asset is maintained in a manner which provides a safe network, to fulfil the authority's statutory duty.

Why... Engaging with end users ensures the social and economic benefit of the use of the road network is recognised. Such a consultation eliminates decisions being taken solely by engineers and a small cohort of advisors, which might have localised rather than network level interests.

Engagement with the wider community enables decision-makers to build on engineering need and focuses investment into areas which best benefit the community at large. This ensures maximised benefit of budget and focuses investment activity where it is most needed, considering the entire network.

Who... The responsibilities for the 'Customer Engagement' module lie with:

Leading Customer Engagement Updating & reporting module	**Director of Streets and Environment Operational Manager**

The key customers to be engaged with, for each road type, are identified in Table J1.

The community groups engaged are:

- Website. (To be implemented 2024)
- Mobility Forum.
- Disability Forum.
- Business communities.
- Resident groups.
- Cycle groups.
- Others as required.

How... Croydon engages community interest groups that can best inform the approach towards investing in the highway network through collecting and analysing customer surveys.

The analysis of surveys informs Works Programming & Priorities (Module E), to re-prioritise carriageway and footway schemes.

Street lighting assets are currently upgraded and maintained under a 25-year PFI, which runs till 2036. Customers have been engaged and will be consulted at the right time, before and during service delivery.

Customers are yet to be engaged to inform investment on highway structures, drainage and street furniture assets.

Reporting... An annual 'State of the Highway' report is produced to demonstrate the change in public opinion on investment needs. This report reflects public satisfaction and performance of the network.

Success Measures... An improved public sense of engagement will be reflected in the types of work that are delivered to maintain the asset.

Further Information:
Equalities Act 2010, Public-Sector Equality Duty

Table J1: Customers engaged for each road type.

Principal Roads (A Roads)	***Non – Principal Roads (B,C & U Roads)***	***Town Centres***
Emergency Services	Emergency Services	Emergency Services
Bus operators	Bus operators	Bus operators
Businesses on the route	Community groups	Businesses
Local assemblies	Local assemblies	Community groups
Neighbouring boroughs	Local businesses	Residents
Residents	Residents	
Schools	Schools	
Transport for London	Ward Councillors	
Ward Councillors		

HAMS Module K – Service Delivery

What... Croydon is committed to delivering value for money. Much of the service is delivered with external contractors and support from consultants to ensure we are adopting the most effective way of delivering the service at an affordable cost.

Croydon follows EU procurement legislation and ensures fair competition for works contracts and support services to ensure we meet our legal obligation of fair and open competition.

Why... In delivering value for money for Croydon we ensure the strategy for delivering our services uses our in-house capability and skills and work with our suppliers to maximise benefit for the travelling public.

Value is added through competitive tendering both in managing long-term costs and also ensuring Croydon has access to the most up-to-date practices.

Who... Management of the procurement strategy and delivery is essential:

Procurement Strategy	**Director of Streets and Environment**
Procurement Process	**Highway Asset Manager**
Contract Monitoring	**Operational Manager**

How... Croydon aims to:

- Improve service outcomes through robust contract management.
- Use contractors to deliver the corporate aims.
- Provide opportunity to local people for employment.
- Manage costs to provide value for money.

Croydon adopts a quality / price approach to contracted services. Price drives the award at a 60% weighting with 40% quality ensuring business excellence, experience and track record on social value are considered.

Reporting... All procurement follows EU procurement legislation to ensure fair, open and transparent processes to ensure Croydon's suppliers are well placed to deliver the service required.

All procurement is ratified by the Contract Committee Board through a Committee Report. The report presents the outcomes of the analysis and an overview of the decision parameters to provide sufficient background information for the report recommendations to be debated and approved as appropriate. Final approval on high value procurements is made by Cabinet members where the value of the procurement exceeds a £100k threshold.

This approval and review process provides a high level of auditability and transparency, with consideration of commercial confidentiality. In addition, there is the opportunity for Croydon's Scrutiny Committee to call in and review the report and process.

Success Measures... Croydon operates an incentive performance-based process for its contractors. This incentive approach focuses on maintaining the right level of performance to meet Croydon's desired outcomes. Ultimate sanction is termination of the contract. Activity monitored is safety, works programmes, quality of work and environment. KPIs are recorded and monitored to work with the contractor to improve outcomes.

Further Information:
Procurement Documents

Figure F1: Service Providers.

Area of Work	Contractor Name	Expiry		Procurement Review	Contract
		Core Term	Extension		
Client Services	**Croydon**	N/A		N/A	N/A
Traffic Signal Maintenance	**Croydon/TfL**	N/A		N/A	N/A
Design and Works Supervision	**Croydon**	N/A		N/A	N/A
Consultancy Support	**Metis Consultants / AECOM / Arcadis**	**Various**			
Civil Engineering and Highway Maintenance	**FM Conway**	**Oct 2023**	**+ 2 years**	**Oct 2022**	**Link**
	Highway maintenance – planned				
	Highway maintenance - reactive				
	Drainage/ Gully Cleansing				
Carriageway Treatment	**FM Conway**	**Sept 2025**	**+ 3 years**	**Sept 2024**	**Link**
	Carriageway resurfacing / reconstruction				
	Thin Surfacing				
	Road Markings				
Public Lighting & Testing	**Milestone Infrastructure Ltd**	**July 2036**	**No Extension**	**No Review**	**Link**
	Street Lighting – planned				
	Street lighting – reactive				
	Signs and Bollards maintenance				
Highway Tree Maintenance	**City Suburban Tree Surgeons LTD**	**TBA**	**TBA**	**TBA**	**N/A**
	Highway Tree Maintenance				

HAMS MODULE L – DESIGNING FOR MAINTENANCE

What... Designing for maintenance considers risks and costs associated with how highway schemes will be maintained over their lifespan and incorporating this into decision-making processes during the design of new highway schemes and existing scheme improvements.

Why... Designing for maintenance is central to Croydon's corporate aims, as its application helps identify design solutions that:

- Promote lower whole-life costs.
- Use sustainable materials / products.
- Limit network disruption for residents.
- Increase safety for maintenance contractors.

Who... The responsibilities for 'Deigning for Maintenance' lie with:

Overseeing the design process	**Senior Project Manager (Design Projects)**
Review designs & provide comments	**Highway Asset Manager**
Updating & reporting module	**Highway Asset Manager**

How... Croydon uses a standardised approach to design, that facilitates the integration of maintenance considerations during the design phase:

- Materials and street furniture are selected from a pallet of pre-approved materials and products (as set out in Croydon's Design Guides). The use of an approved pallet ensures items can be sourced, for maintenance need, on a cost-effective basis.
- Wherever possible, design engineers specify standard details for new designs. This approach reduces the risk of adopting bespoke features that have non-standard requirements for cleaning, repair or replacement.

In addition, Croydon has implemented procedures that support and embed designing for maintenance:

- 12 months after commissioning a new highway asset, as the warranty period is due, a sum of money is agreed and transferred from the project manager's budget to the maintenance team's budget, to cover maintenance need. If necessary, non-standard materials can also be stockpiled at this point.
- The project workflow followed during the design of new assets ensures all internal stakeholders are aware of ongoing design work and are given the opportunity to comment on design aspects that have maintenance and other implications.

Factors that Croydon considers when designing for maintenance are in-line with the Code of Practice, Well-Managed Highway Infrastructure, 2016.

Reporting... Designing for maintenance workflows are reviewed periodically and the public realm design guide is updated accordingly in-line with industry best practice and as new materials/products come on the market.

Success Measures... To be able to demonstrate an on-going reduction in the whole-life-cost of asset maintenance, through the consideration of maintenance requirements during the design phase.

Further Information:
Croydon Public Realm Design Guide, 2019
Suburban Design Guide 2019
Well-Managed Highway Infrastructure Code of Practice, 2016

HAMP MODULE M – SUSTAINABLE HIGHWAY MAINTENANCE

What... Sustainable highway maintenance looks at the three pillars of sustainability consisting of the social, economic and environmental aspects. This approach to maintenance will ensure Croydon maximises community value and minimises whole life costs, whilst maximising environmental contribution.

Why... Highway maintenance has a direct impact on the sustainability of the Council as:

- It impacts the generation of sustainable communities.
- It recognises social progress, to consider everyone's needs.
- It supports sustainable engineering solutions.
- It consumes large quantities of natural resources and generates large quantities of waste.
- The extraction, processing and transportation of these materials is a significant source of greenhouse gas emissions, particularly in the production of cement and asphalt.
- Incorrect use of materials can result in pollution of the environment.

Additionally, Croydon has declared a climate emergency in July 2019, initiating a carbon neutral action plan to be carbon neutral by 2030. Sustainable highway maintenance is essential in achieving this goal.

Who... The responsibilities for the 'Sustainable Highway Maintenance' module lie with:

Monitoring contractual KPIs	**Highway Asset Manager**
Updating & reporting module	**Operational Manager**

How... Croydon deals with the social and economic pillars of sustainability in other HAMS modules, including module D – Maintenance Strategy, module J – Customer Engagement and, module L – Designing for Maintenance. The carbon reduction hierarchy presented by PAS 2080:2023 can be implemented to complement the three pillars of sustainability. Avoid, switch and improve represents the carbon hierarchy of PAS 2080:2023 in order of priority and is described as follows:

- **Avoid:** Explore options to prevent maintenance works in the first place by carrying out preventative measures
- **Switch:** Consider alternative approaches to maintenance which have less carbon emissions while still achieving performance requirements
- **Improve:** Adopt techniques and practices which are resource efficient

Croydon addresses the environmental pillar of sustainability along with becoming carbon neutral by 2030 by looking for opportunities within maintenance activities to:

- Improve accessibility, especially for the elderly and disabled people.
- Improve community safety and reduce the fear of crime.
- Enhance the quality of public space.
- Incorporate sustainable drainage systems (SuDS). Enhance biodiversity and conserve wildlife.
- Promote active travel.
- Promote use of electric vehicles.

Create Low Traffic Neighbourhoods (LTNs).In addition, Croydon and its contractors are committed to the environmental mitigations outlined in Table M1.

With regards to waste products, Croydon adopts the waste hierarchy approach as illustrated in Figure M1, which encourages to:

- Reduce the levels of waste produced.
- Reuse products wherever possible.
- Recycle what cannot be reused.
- Recover energy from waste that cannot be reused or recycled.

- Dispose of materials only as a last resort.

Reporting... Croydon monitors its environmental sustainability through two performance indicators, Table M2. These are reported annually in the contractor's Annual Performance Report.

Success Measures... Taking full advantage of the environmental contribution through the adoption of sustainable highway practices is imperative for the long-term benefits that Croydon will reap in all three pillars of sustainability.

Hence, it is Croydon's aim to continue driving the sustainability agenda and retain environmental pollution to a minimum.

Further Information:
Contractor's Annual Performance Reports
PAS 2080:2023

Table M1: Environmental mitigations undertaken by Croydon and its contractors.

Factor	Comment
Pollution Control	Croydon will always seek to reduce the environmental impact of maintenance works either through avoiding work during sensitive periods or difficult weather conditions, and ensuring appropriate measures are in place to avoid potential contamination or damage to the surrounding landscape, watercourses or groundwater.
Noise Reduction	In addition to minimising the impact of noisy maintenance operations, the Council considers low noise alternatives to traditional carriageway surfaces, to reduce noise pollution from passing vehicles, where there is a favourable benefit/cost ratio.
Air quality	Croydon strives to improve air quality within the borough. Croydon endeavours to optimise inspection and maintenance routes as much as possible to mitigate the need of driving from one site to the next. Croydon also aims to increase tree populations to combat air pollution, specifically in the north of the borough

Figure M1: Croydon's waste hierarchy approach adopted.

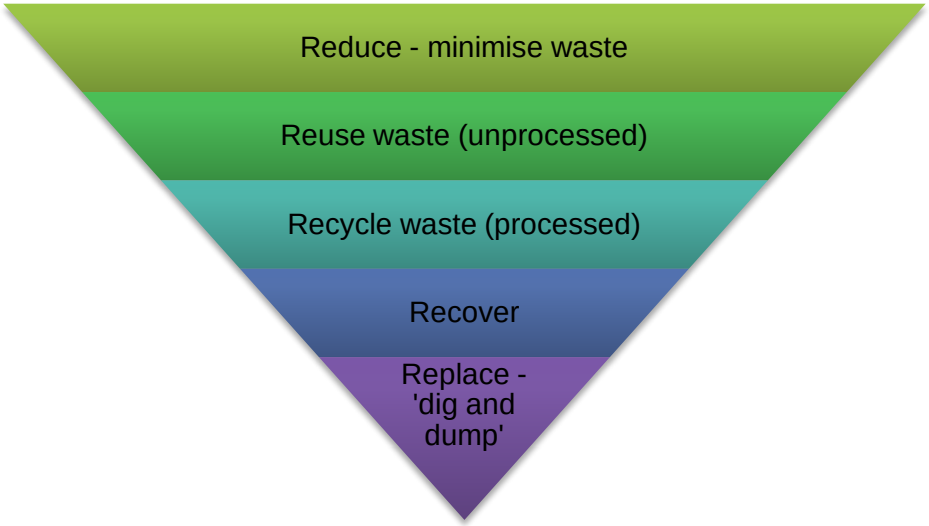


Table M2: Contractual environmental KPIs monitored.

KPI	*Description*
7.1	99% of C&D waste not going to landfill
7.2	28% of construction material used from recycled & secondary sources

Note: KPI 7.2 is not reported in the contractor's Annual Performance Reports.

HAMP Module N – Network Resilience, Weather & Other Emergencies

What... 'Network Resilience, Weather & Other Emergencies' looks at the processes in place to manage the highway network in times of extreme weather and other emergencies.

Extreme weather, relevant to Croydon, as defined by the DfT include: intense and prolonged rainfall, strong winds and heat waves. Croydon have also included their approach to coping with snow and ice.

Croydon have outlined the following political incidents or disasters which require an emergency response and could impact the highway network:

- Extreme weather - storms and flooding
- Building and structural collapse
- Railway incidents
- Pollution and chemical incidents
- Terrorist incidents
- Air accidents

Why... To develop a resilient network and strategy to manage Croydon's approach to dealing with extreme weather and other emergencies.

This management approach will ensure that Croydon maintains a functional network, and minimises social and economic disruption caused by weather and other emergencies.

Croydon is committed to ensure that the highway network is maintained to a high standard and disruption on the network is minimised, where possible. However, exceptional weather events and emergencies may cause unforeseen disruption.

Who... The responsibilities for the 'Network Resilience, Weather & Other Emergencies' module lie with:

Monitoring network resilience levels	**Director of Streets and Environment**
Monitoring emergency planning levels	**Emergency Planning Manager**
Updating & reporting module	**Highway Asset Manager**

How... Croydon aims to maintain its network resilience, by maintaining its defined resilient network to a good standard and, by adopting fast-acting responses to emergency situations on the network to recover to full functionality as soon as practicable.

Croydon defines its resilient network on the basis of its winter maintenance routes, as outlined in their winter maintenance plan. Croydon also consider the following factors:

- Key Strategic Routes
- Town Centres
- Key Flooding Areas
- Key Amenities

Croydon's Emergency Planning team deal with all weather or civil emergencies in a reactive manner. These are conducted within the guidance of individual strategic plans developed for individual highway emergency types.

All highway emergency events are responded to through a bespoke approach dependant on the scale and impact of the event. This approach builds upon the widespread and in-depth knowledge of the staff working within the emergency planning and highways teams.

Reporting... Croydon reviews the performance of its network resilience by conducting reviews of responses to emergency situations. These are audited internally and used to inform lessons learnt.

Success Measures... To reduce network disruption to the minimum possible within the constraints of the scale and magnitude of weather events and other emergencies.

Further Information:
Winter Maintenance Plan
Emergency Plans

HAMS Module O – Implementation & Improvement Plan

What... The implementation and improvement plan is designed to assist Croydon 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 Croydon, 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:

Maturity Assessment Implement asset management	**Director of Streets and Environment**
Identify & deliver improvement actions Updating & reporting module	**Highway Asset Manager** **Operational Manager**

How... Croydon undertakes continuous improvement according to ISO 55000 Asset Management Systems, and as outlined in the Well-managed Highway Infrastructure - A Code of Practice (2016).

A gap analysis is carried out annually, through an Asset Management Maturity Assessment, to highlight the disparity between the current and desired asset management practices at Croydon. This identifies strengths and areas where Croydon needs to focus its efforts and help determine improvement actions for both the short- and long-term periods.

Reporting... Croydon tabulates the issues identified and the improvement actions proposed in an improvement action plan, Table O1. This plan provides a summary of the actions that need to be implemented and proposes target dates for completion.

Success Measures... By undertaking the Asset Management Maturity Assessment periodically, Croydon will demonstrate its continuous improvement in asset management through closing the gaps identified in the assessment.

Further Information on the Implementation & Improvement Plan:
ISO 55000 Asset Management Systems
UKRLG – Well-managed Highway Infrastructure – A Code of Practice (2016)

Table O1: Improvement action plan.

Module	Action	Measure	Responsibility	Time		
				2024	2025	Onward
A – Context	Collate a state of the highway report.	Annual summary on the health of highway infrastructure.	Service Manager Asset Manager	✓	✓	✓
B – AM Framework	Develop asset plans and operating procedures.	A plan for managing and maintaining each asset group.	Service Manager Asset Manager		✓	
C – Asset Knowledge	Improve data management strategy.	Ensure data management meets goals and objectives for asset groups and statutory requirements.	Service Manager Asset Manager		✓	
	Improve drainage condition and inventory information.	Improve knowledge of all drainage assets.	Senior (Asset) Engineers	✓		
D – Maintenance Strategy	Implement maintenance decision trees for all asset groups.	Improve decision process for maintenance interventions.	Service Manager Asset Manager	✓		
E – Works Programming & Priorities	Improve annual programme development.	TfL bid for principal roads and Local roads as ansd when funding is alocated.	Senior (Asset) Engineers	✓	✓	✓
	Update stakeholder priorities every council cycle.	Ensue stakeholder priorities are in-line with the council's vision.	Director of Streets & Environment			✓
F – Funding & Expenditure	Differentiate highway expenditure by assets.	Improve knowledge of each asset group expenditure.	Service Manager Asset Manager			
G - Valuation	Update valuation for non-linear assets	Conduct valuation using investment modelling results for non-linear assets				
H – Investment Strategies	Undertake investment modelling.	Update investment modelling routinely for all assets	Service Manager Asset Manager		✓	✓
	Investigate investment strategy scenarios.	Ensure budgets are spent in the most optimal fashion.	Service Manager Asset Manager	✓	✓	✓
I – Performance Management	Develop suite of customer focused KPI's.	Improve knowledge of customer satisfaction.	Service Manager Asset Manager	✓		

Module	Action	Measure	Responsibility	Time		
				2024	2025	Onward
J – Customer Engagement	Introduce stakeholder engagement process to support decision-making.	Proactively engage stakeholders for works programme.	Service Manager Asset Manager	✓		
	Improve communications and customer satisfaction.	Improve satisfaction scores on surveys.	Service Manager Asset Manager	✓		
K – Service Delivery	No action required.					
L – Designing for Maintenance	Develop whole life costing tools for highway improvement schemes.	A tool informing decisions on materials.	Director of Streets & Environment	✓		
M – Sustainable Highways Maintenance	Improve understanding of carbon impact	Develop a carbon reduction strategy		✓		
N – Network resilience, Weather & Other Emergencies	No action required.					
O – Implementation Plan	Undertake asset maturity assessment.	Complete assessment annually.	Director of Streets & Environment	✓	✓	✓
Appendices						
App. A – Inspection, Assessment & Recording	Ensure appendix is updated to align with the new code of practice for “Well-Managed Highways Infrastructure”.	Ensure practices are aligned to the most recent code of practice.	Service Manager Asset Manager			
App. B - Winter Service	Update winter service policy annually.	Ensure winter service plan is relevant.	Service Manager Asset Manager			
App. C – Asset Operating Procedures	Establish a list of operating procedures.	Improve knowledge of all operating procedures.	Service Manager Asset Manager			

HAMS APPENDICES

Ref.	*Description*	*Link*	*Responsibility*	*Latest Version*	*Next Update*
Appendix A	***Winter Service*** Detailing the process carried out during cold weather to ensure a resilient network.	Click here	Highway Operations Manager	Sept 2023	-