

HAMS MODULE A - CONTEXT

What... Asset management is a best practice approach widely employed by central and local government to deliver a more efficient and effective approach to managing highway infrastructure assets. Adopting longer-term approaches to maintaining valuable assets which are essential for the economic and social health of Harrow enables pragmatic and focused investment to ensure that the biggest benefit for the whole community is achieved.

Long-term investment is required to make best use of limited resources and ensure the right interventions are implemented at the most effective time, whether this is capital investment to improve the highway network condition 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 local business, the residential community, and visitors to the Borough. Ensuring 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 Harrow a safe and accessible Borough. By ensuring vibrant public realm we will make Harrow a place people want to visit and promote a thriving local economy.

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

Carriageway assets: A typical 1m² pothole costs around £100 to reactively repair (including management costs), while it costs around £35/m² to resurface a road for 25 to 40 years.

Footway assets: A typical 1m² footway defect costs around £20-£75/m² to reactively repair, while it costs around £30-£70/m² to proactively repave a footway for up to 75 years.

In addition, highway structures, street lighting, drainage, street furniture and highway trees are also essential ancillary assets within the highway and are maintained according to need.

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

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

Statutory duty	Head of Highways, Transport and Asset Management
Overall reporting	Asset Manager

Updating module

Senior / Engineer

How... Harrow works with LoHEG to develop a common understanding and approach to asset management, which the Borough adapts to meet its needs.

Harrow are also exploring establishing a local Consortium of neighbouring highway authorities to benchmark its activities and challenge the way it operates. The Consortium will review guidance and tools developed by the DfT, HMEP, UKRLG, IAM, as well as ISO 55000, a global standard for asset management.

From the guidance and tools available, the group will assess how best to implement asset management, enabling Harrow to decide how it will meet the community's needs.

Reporting... To ensure investment and outcomes remain effective, this 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 LoHEG or the Consortium.

An annual 'State of the Highway' report is produced to draw together progress, performance, and investment impact. This report is produced in March each year to reflect

the latest asset value near to the financial year end.

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 Harrow will show an improvement, and hence, success in maintaining the Borough’s 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 to ensure efficacy and demonstrable benefit of asset management principles:

- An annual Asset Management assessments and the associated reporting to ensure progress towards stated objectives.
- An annual 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 that the stated aims remain current and in-line with corporate aims and the strategy for Harrow’s highways. Should these aim change, this HAMS must be revised to reflect the subsequent new objectives and 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	<ul style="list-style-type: none"> • To maintain public 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	<ul style="list-style-type: none"> • To ensure the expeditious movement of traffic on the road network and 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, hoarding, temporary closure, and other authorised occupation of highways. • To the construction of vehicle crossings. • To deal with illegal parking on verges and footways. • To the adoption of new highways.
New Roads and Street Works Act 1991	<ul style="list-style-type: none"> • To enable new roads to be provided by new means.

Legislation	Main duties
	<ul style="list-style-type: none"> To make new provision with respect to street works.
Flood and Water Management Act 2010	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> To comply with environmental and countryside legislation when undertaking highway maintenance operations.
The Local Government Act 2003	<ul style="list-style-type: none"> To adopt best value practices. To adhere to the defined statutory framework of BVPI.

Table A2: Ownership and reporting of modules.

Module	Responsible	Version	Review Due	Reporting	
				How	When
A Context	Head of Highways, Transport and Asset Management	V1.1	September 2024	'State of the Highway' Report	Annually (Apr)
B Asset Management Framework	Head of Highways, Transport and Asset Management	V1.1	September 2024	'State of the Highway' Report	Annually (Apr)
C Asset Knowledge	Asset Manager	V1.1	September 2024	Module G – Valuation <u>AND</u> Module I – Performance Management	Every 3 to 6 months
D Maintenance Strategy	Asset Manager	V1.1	September 2024	Module H - Investment Strategies	Annually (Aug)
E Works Programming & Priorities	Senior / Engineer	V1.1	September 2024	Forward Works Programme	Annually (Nov)
F Funding & Expenditure	Head of Highways, Transport and Asset Management	V1.1	September 2024	'State of the Highway' Report	Annually (Apr)
G Valuation	Head of Highways, Transport and Asset Management	V1.1	September 2024	WGA Valuation Report	Annually (Aug)
H Investment Strategies	Head of Highways, Transport and Asset Management	V1.1	September 2024	Investment Modelling Report	Periodically
I Performance Management	Head of Highways, Transport and Asset Management	V1.1	September 2024	Performance Dashboard Updates <u>AND</u> 'State of the Highway' Report	Annually (Apr)
J Customer Engagement	Head of Highways, Transport and Asset Management	V1.1	September 2024	'State of the Highway' Report	Annually (Apr)

K	Service Delivery	Head of Highways, Transport and Asset Management	V1.1	September 2024	Harrow Procurement Strategy	Ongoing
L	Designing for Maintenance	Asset Manager	V1.1	September 2024	Harrow Street Design Guide (<i>TBD</i>)	Periodically
M	Sustainable Highway Maintenance	Asset Manager	V1.1	September 2024	Carbon Management Plan (<i>TBD</i>)	Periodically
N	Network Resilience, Weather & Other Emergencies	Director of Place	V1.1	September 2024	Emergency Plan <i>AND</i> Winter Service Operational Plan	Annually (Sep)
O	Implementation & Improvement Plan	Asset Manager	V1.1	September 2024	Improvement Action Plan	Annually (Apr)

HAMS MODULE B - ASSET MANAGEMENT FRAMEWORK

What... The Asset Management 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 in Harrow.

Why... The Asset Management Framework covers all aspects of asset maintenance, from ‘the why’ to ‘the what’ and ‘how’ AM is undertaken in Harrow. This 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	Head of Highways, Transport and Asset Management
Overall reporting	Asset Manager
Updating module	Senior / Engineer

How... The structure of the asset management framework outlined in Figure **B1** shows how Harrow’s highway policy, strategy, plans and procedures all link together to provide visibility and clarity of the key driving factors in

maintaining a safe, serviceable, and sustainable highway asset in Harrow.

The framework’s key components are:

- **Highway Policy:** A high-level summary with political buy-in that sets out Harrow’s corporate aims and 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 further detail around 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.

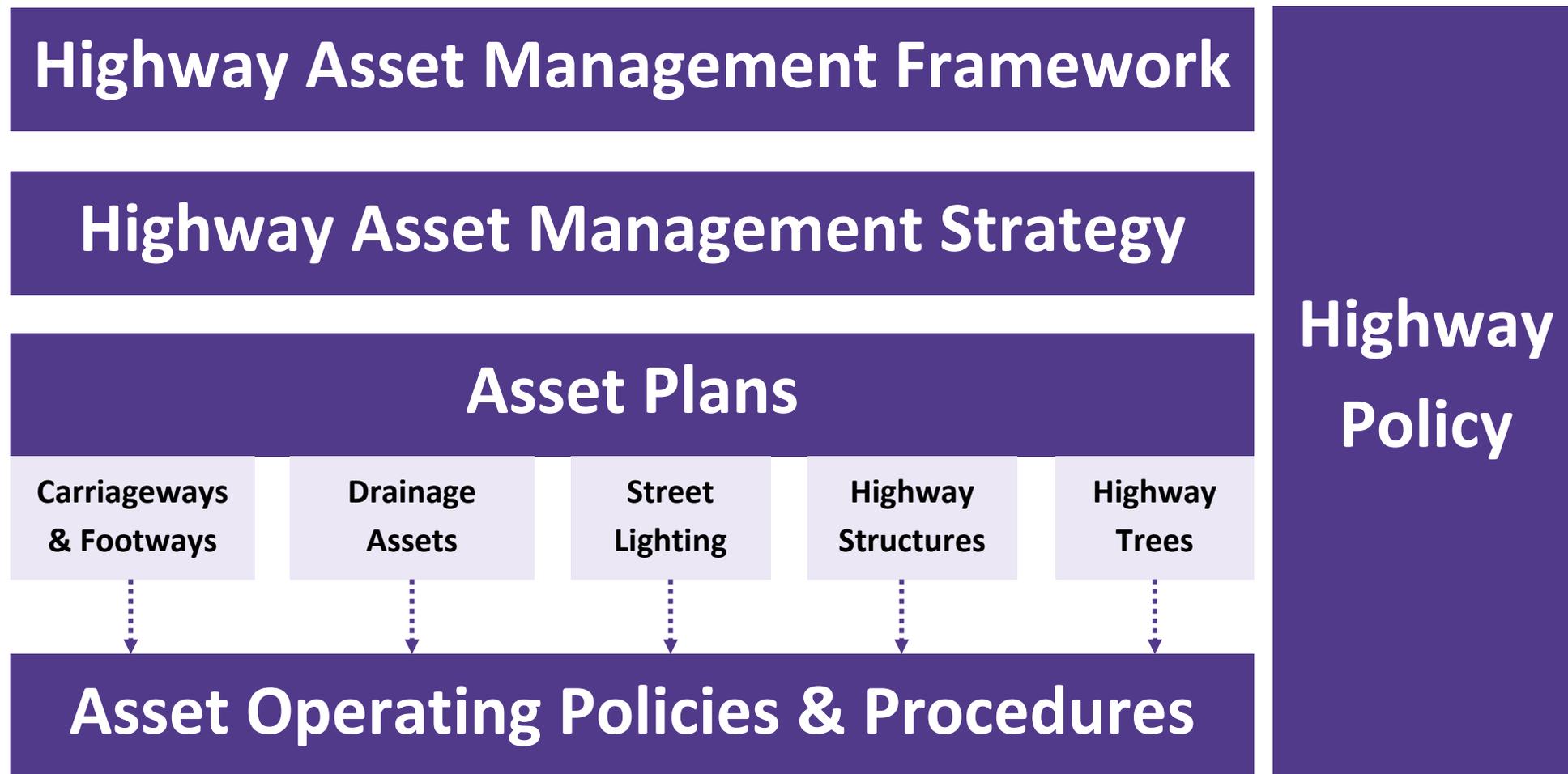
Reporting... This modular HAMS provides a concise and accessible reference for external parties interested in how Harrow manages and maintains its highway assets.

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 Asset Managers and Engineers shall also demonstrate success.

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

Figure B1: Highway asset management framework.



HAMP MODULE C – ASSET KNOWLEDGE

What... Asset knowledge comprises inventory and condition data for the highway assets Harrow is responsible for. Harrow has a duty to manage the borough's carriageways, footways, structures, street lighting, drainage and flood defences, highway trees, street furniture, and other ancillary highway assets, ensuring the highway network is maintained in a safe and serviceable condition.

Collection and maintenance of asset data is required to assist asset managers to assess, analyse and report performance, progress and future need. Asset managers require up-to-date and accurate asset data to inform the decision-making process.

Why... Asset data is required to enable Harrow 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 and identify future investment strategies.
- Investigate and manage risk.
- Develop short- and long-term forward works programmes.

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

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

Data collection	Highway Asset Manager
Data management	Senior / Engineer
Updating 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.

Harrow 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 C3 and Table C4 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. Harrow are currently trialling and introducing emerging technologies to achieve efficiencies, such as LiDAR inventory surveys and Vaisala artificial intelligence condition surveys. The significant savings

offered by LiDAR surveys will enable Harrow to undertake regular updates and audits of its highway asset inventory every 3 to 6 months. Harrow will develop a data maintenance manual to ensure that this data is kept up to date as new schemes are built in between inventory surveys.

Harrow are also investigating the introduction of automatic number plate recognition (ANPR) solutions. As well as parking enforcement, these will enable collection of valuable data on how the highway network is used, informing decisions.

Reporting... Harrow uses the asset condition assessment shown in Table C1 and the asset inventory shown in Table C4 to quantify the level of service and extent of its highway assets. This data feeds into other HAMS modules to report on asset performance, e.g. Module G – Valuation, Module I – Performance Management, and Module J – Customer Engagement.

Success Measures... Asset knowledge will support Harrow's statutory requirements and help in making effective and informed decisions.

Further Information:

[Highway Infrastructure Asset Management Guidance document, HMEP – UKRLG, 2013](#)

[UK Pavement Management System \(UKPMS\)](#)

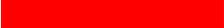
UK Roads Liaison Group - Codes of Practice

Table C3: Harrow’s asset condition assessment.

Asset Group	Asset Type	Type of Survey	Network Coverage	Frequency
Carriageways	Principal Classified Roads (A roads)	Vaisala condition surveys	100%	Annually
		SCANNER condition surveys	100%	Annually
		SCRIM condition surveys	100%	Annually
	Non-Principal Classified Roads (B/C roads)	DVI surveys	100%	Annually
	Unclassified roads (U roads)	DVI surveys		
Principal Footways (A roads)	DVI surveys			
Footways	Non-Principal Footways (B/C/U roads)	DVI surveys		
	Highway Structures	Principal Inspections	100%	Every 6 years
General Inspections		100%	Every 2 years	
Superficial Inspections		100%	Annually	
Load Assessments		As required.		
Drainage	Gullies	Cyclical gully cleansing (high-risk)	100%	Every 6 months
		Cyclical gully cleansing (medium risk)	100%	Annually
		Cyclical gully cleansing (low risk)	100%	Every 3 years
	Pipes / Carrier drains	CCTV	As required	
Street Lighting	Lighting columns	Electrical testing	100%	Every 6 years
		Structural testing	100%	Every 6 years
Street Furniture	All street furniture	Routine safety inspections	100%	Annually
Highway Trees	All highway trees	Routine safety inspections	100%	Annually

Table C4: Harrow’s asset inventory.

Asset Group	Asset Type	Quantity			Asset Group	Asset Type	Quantity	
Carriageways	Principal (A) Classified Roads	43.1	km	431,000	Street Lighting	Lamp Columns	15,600	no.
	Non-Principal (B/C) Classified Roads	24	km	192,000		Heritage Columns	289	no.
	Unclassified (U) roads	390.3	km	2,732,100		Subway Units	66	no.
	Central Reservations	4,800	no.			Feeder Pillars		no.
	TOTAL	457.4	km	3,355,100		sqm	Illuminated Signs	1,902
Footways	Principal Footways	86.2	km	189,640		Illuminated Bollards	130	no.
	Non-Principal Footways	828.5	km	1,822,700		Centre Island Columns	224	no.
	Segregated Footpaths	16.8	km	36,960		Belisha Beacons	244	no.
	Cycleways	3.6	km	7,920		TOTAL	19,000	no.
	TOTAL	935.1	km	2,057,200		sqm	Drainage	Gullies
Highway Structures*	Highway Bridge	14	no.		Carrier Drains / Beany Blocks	10		km
	Footbridge	4	no.		Open and Piped Watercourse	82		km
	Culvert	89	no.		Highway Ditches	5		no.
	Subway / Underpass	5	no.		Manholes / Chambers / Catch-pits			no.
	Retaining Wall	9	no.		Soakaways	5		no.
	Embankments	1	no.		Trash Screens	62		no.
	TOTAL	4,952	no.		Pumping Stations	0		no.
Street Furniture	Non-Illuminated Traffic Signs	21,848	no.		Flood Storage Areas	10		no.
	Non-Illuminated Bollards	1,085	no.		Petrol Interceptors	0		no.
	Pedestrian Barriers		km		TOTAL	20,029	no.	
	Grit Bins		no.		Land	Urban		sqm
	Non-Illuminated Bollards		no.			Rural		sqm
	Street Name Plates		no.			TOTAL		sqm
	Litter & Recycling Bins		no.		Trees	Highway Trees	39,955	no.
	TOTAL	24,300	no.			TOTAL	39,955	no.

Available 
 Derived data 
 To collect or improve 

*This is the latest data available.

HAMS MODULE D – MAINTENANCE STRATEGY

What... Harrow must decide how funds available for highway asset maintenance are best spent. This involves allocating budget across many different asset types and selecting the most appropriate maintenance activities and treatments for those asset types. These vary depending on the type of asset, the material it is made of, its current condition and other factors.

A maintenance strategy is an approach to managing common asset groups with consistent treatments. The treatments are decided upon by identifying the most efficient means of meeting the required performance targets in the long-term, based on a whole-life-cost analysis, as described in Module H – Investment Strategies.

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

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

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

Defining strategy	Asset Manager
Whole-life-costing	
Updating module	Senior / Engineer

How... Harrow uses lifecycle planning to inform decision that determine the most suitable treatments to be adopted for common asset groups, Figure **D2**. This decision tree sets the process when selecting treatments and shows the various criteria that need to be considered. For carriageways and footways, these are:

- Road hierarchy, which considers the functionality and usage of a road.
- Construction type, which determines the likely defects to be present.
- Predominant defect(s), 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 Harrow's reactive or planned regimes.

Having assessed whole-life costs based on performance and cost, Harrow have identified a mix of deep structural treatments on its heavily trafficked routes and shallow surface treatments

everywhere else is the optimum strategy for its carriageways. Surface overlays / microsurfacing are not used based on previous unsuccessful trials of the treatment in the Borough.

Harrow also seek to innovate by introducing more sustainable and cost-effective treatment selections where possible. For example, the Council is currently investigating the feasibility of introducing innovative plastic roads.

For street lighting, highway structures and drainage, 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 lifecycle planning as an integral element of Module H - Investment Strategies.

Success Measures... To demonstrate an ongoing reduction in the whole-life-cost of asset maintenance, through use of the most efficient maintenance strategy for each asset group.

Further Information:

[London Asphalt Guidance](#)

[DMRB Volume 7 – Pavement Design and Maintenance](#)

Figure D2: The decision tree of preferred maintenance strategies.

Asset	Safety Intervention	Temporary Repair	Permanent Repair
Carriageways	50mm 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	A Roads	Plane and Inlay - Deep Treatment – 80mm to 100mm	Partial reconstruction – 120mm to 150mm Plane and Inlay – Deep Treatment – 80mm to 100mm
	BCU Roads	Plane and Inlay – Shallow Treatment – 45mm	Plane and Inlay – Deep Treatment – 80mm to 100mm Plane and Inlay – Shallow Treatment – 45mm
Footways	Bituminous	Plane and Inlay – 25mm – Thermal Treatment	Reconstruction – 70mm and 150mm Type1 or 80mm and Sand and 150mm Type 1
	Blocked, Flagged & Mixed	Reconstruction – Flag and Sand and 150mm Type 1	Reconstruction – Block/Flag and Sand and 150mm Type1
Street Lighting	Testing – Structural and Electrical Column Replacement Lantern Cleaning		
Highway Structures	As required based on structural inspections. Managed in Bridge station.		
Drainage	Gully Cleansing Gully Repairs / Replacements Pipe Lining		

HAMS MODULE E – WORKS PROGRAMMING & PRIORITIES

What... Harrow prioritises maintenance work and generates forward works programmes to plan the individual maintenance activities required for its highway assets.

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

Furthermore, looking at a forward’s investment in highway assets ensures the focus is kept on long-term performance 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 module	Senior / Engineer
---	------------------------------

How... Harrow continually reviews and updates investment priorities for each asset based on condition data, corporate objectives, and additional risk-based factors, such as network hierarchy, road usage and classification, reactive

maintenance and third-party claims expenditure, and stakeholder-identified criteria (Table E3).

To achieve this, a priority list of all assets in an asset group is generated based on these factors, determining the planned works schedule up to the available budget. This programme is then presented to the Portfolio Holder for Environment and Community Safety for final approval and endorsement. From this, Harrow can assess the quantity of work that needs to be done, and programme the type of works needed. The tools used are:

- Carriageways & Footways: Symology
- Highway Structures: BridgeStation
- Street Lighting & Drainage: Symology
- Highway Trees: Easy Tree

Cross-asset prioritisation happens both formally and informally. Senior decision makers allocate funding across asset groups according to expected performance impacts. Harrow also look for joint works, renewing multiple assets in one scheme (e.g. fence-to-fence) to enable savings.

This is supported by Module D - Maintenance Strategy and Module H - Investment Strategies. The processes for developing programmes for these assets are shown in Figure E3 and E2. Routine programmes are also used in Harrow for

cyclic maintenance of assets, such as drainage (gully cleansing) and street lighting (testing). Programmes are optimised for efficiencies – Harrow redefined its gully cleansing programme with a risk-based approach considering flood risk and asset criticality, enabling efficiency.

Reactive maintenance is undertaken to ensure a safe and serviceable network, using routine safety inspections and public reporting to flag issues. Highway structures are also maintained on a reactive basis to ensure structural elements are kept serviceable. Works are prioritised based on inspections data, using a worst-first approach.

Reporting... Harrow produces a prioritised schedule of works for all asset groups based on condition data and additional risk-based factors.

Success Measures... Delivery of Harrow’s works programme is the tangible outcome of the entire asset management process. Works prioritisation, programming and delivery should align with Harrow’s Policy and deliver targets set in Module I – Performance Management.

Further Information:

[Well-Managed Highways Code of Practice, 2016](#)

[ISO 55000 – Asset Management](#)

[LoBEG Maintenance Prioritisation for Structures](#)

Figure E3: Works programme development process for carriageways and footways ahead of the next financial year.

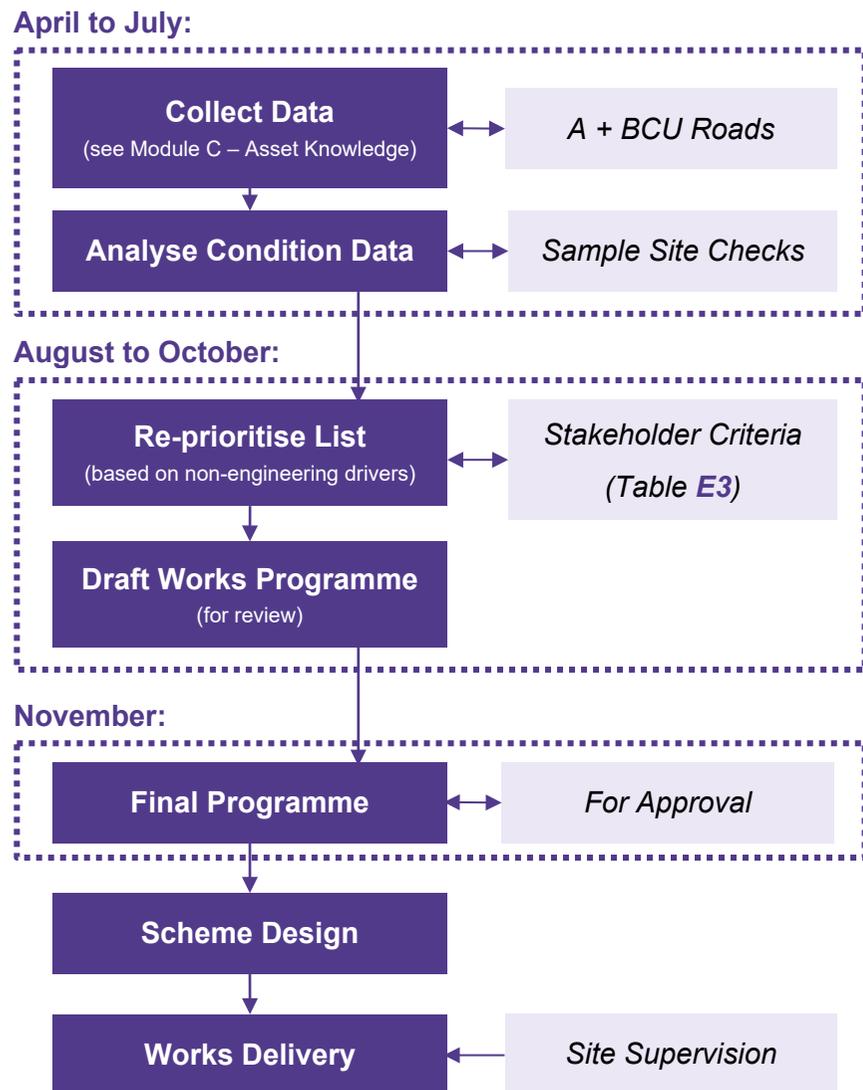


Figure E4: Works programme development process for highway structures ahead of the next financial year.

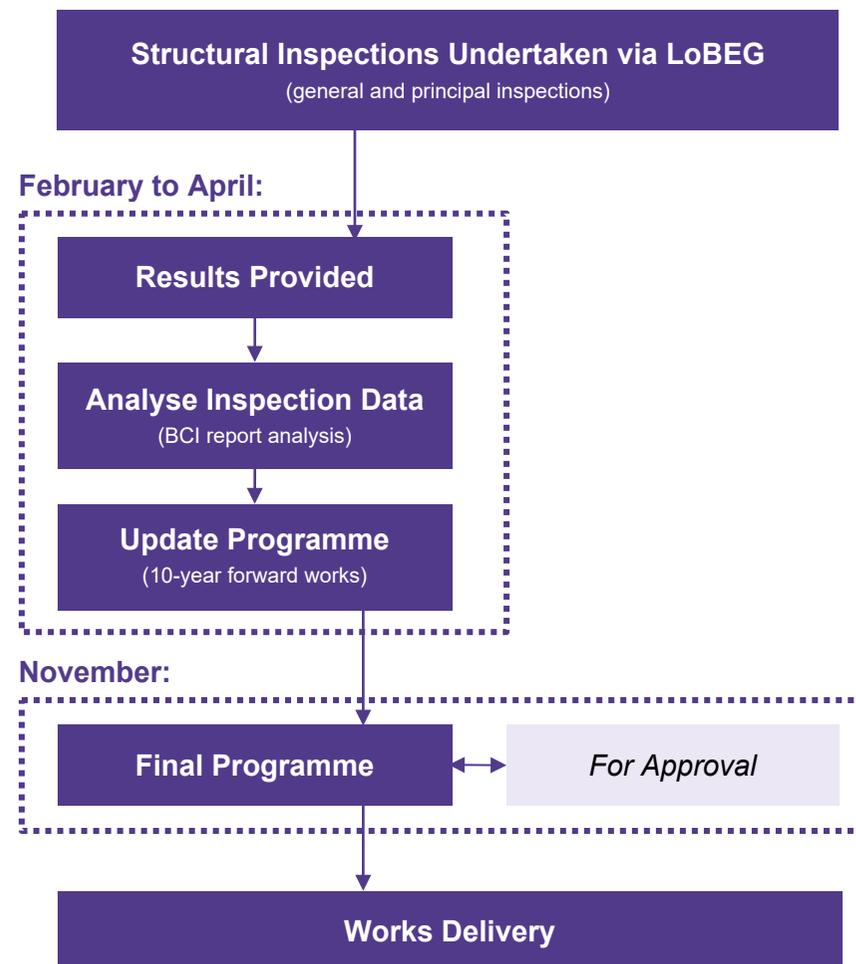


Table E3: Stakeholder identified selection criteria.

Dataset	Importance	Source
Bus Routes	Identify roads with a high heavy vehicle traffic volume and pedestrian usage.	Harrow
Cycle Routes	Identify roads with high cyclist usage.	TfL Cycling Maps (2013)
Condition Rating	Identifies roads with high number of measured defects.	Harrow Highway Routine Safety Inspections
Network Hierarchy	Identifies functionality and usage of the network in line with CoP (2016).	Harrow Highway Routine Safety Inspections
Network 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. <i>AND</i> Identify roads with a strategic importance, which need to be kept safe and running even during the winter period.	Local knowledge Harrow Winter Service Operational Plan
Trip Generators <i>e.g. shopping areas and schools</i>	Identify locations of high volumes of road users and main economic drivers.	Harrow GIS Database / Open Source

HAMS MODULE F – FUNDING & EXPENDITURE

What... Funding is the financial support Harrow uses to maintain its highway assets. This is generally obtained from various streams, primarily Council-funded capital and revenue, with some additional funding from TfL and central government sources.

This module looks at Harrow’s current and future funding sources, as well as historic expenditure in the Borough to help understand the impact.

Why... Harrow needs to stay abreast of developments in funding opportunities and changes in government funding, informing needs to raise revenue locally.

Harrow’s highways team use this to ensure the best case can be put forward for funding from Council funds available through the Community Infrastructure Levy, Section 106 & 278, and business rates providing income to the Borough.

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

Defining budget need	Head of Highways, Transport and Asset Management
Developing income opportunity	
Monitoring expenditure	Asset Manager
Updating module	Senior / Engineer

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

Subsequently, the alternative funding routes will be considered by Harrow including :

- Government grants.
- Funding via Local Implementation Plan.
- Funding from prudential borrowing.
- .
- Funding from the Community Infrastructure Levy, S106 & S278 Developer Agreements.

Expenditure is recorded and monitored on an annual basis to reflect overall funding, income splits and capital / revenue split for Harrow.

Future budgets are informed through investment modelling, as outlined in Module H – Investment Strategies. This exercise is key to build a robust business case for more funding, showing the performance impacts that can be expected with additional internal (or external) funding.

Harrow aims to maximise funding from third parties to supplement its highway budget. However, many of these funding streams were lost during the COVID-19 pandemic (e.g., TfL BPRN funding); Harrow will pursue these streams as they become available.

Reporting... Expenditure is monitored on an annual basis, Figure **F5**. 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 **F5** is updated annually and the capital / revenue expenditure is reported through the annual ‘State of the Highway report. This allocated funding is assessed against investment needs, as in Module H – Investment Strategies.

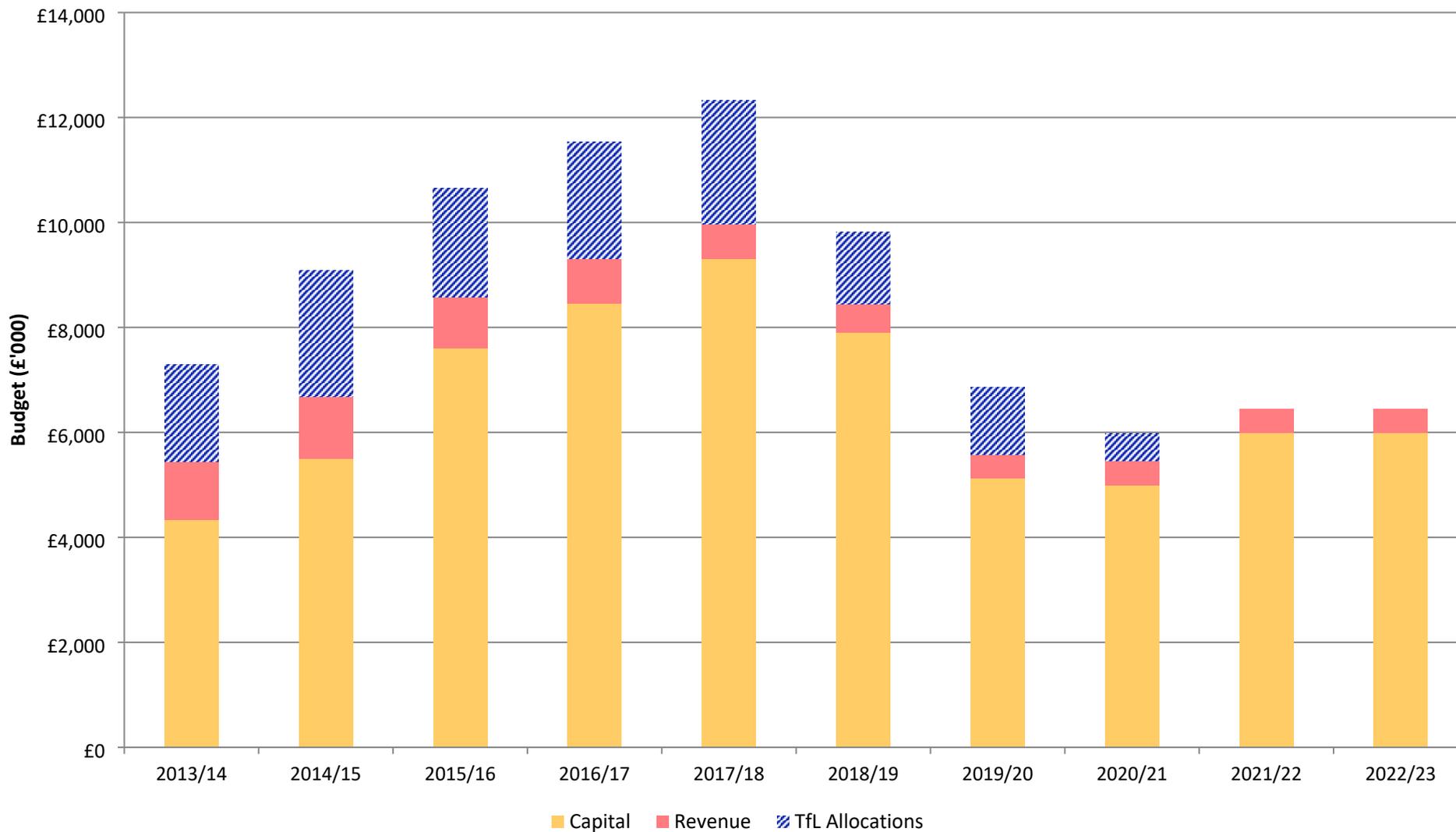
Success Measures... Harrow aim to ensure that sufficient funding is available to meet its targets (Module I – Performance Management).

Maximising income from third parties will also be essential for long-term improvement and steady-state maintenance of Harrow’s highway assets. Hence, it is Harrow’s aim to maximise external funding to complement its capital works.

Further Information:
The Community Infrastructure Levy
Business Rates
State of the Highway Report

Figure F5: Funding streams and budgets between 2013/14 and 2022/23.

Highways Allocated Budget History - 2013/14 to 2022/23



HAMS MODULE G – ASSET VALUATION

What... Asset valuation calculates the value of all the highway assets that Harrow owns. The value of Harrow’s highway assets in 2014/15 was £875 million, making this the most valuable asset in the Council’s portfolio.

Why... Harrow 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, illustrating an 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 annually to maintain 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	Head of Highways, Transport and Asset Management
Overall reporting	Asset Manager
Updating module	Senior / Engineer

How... Harrow 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 Harrow is calculated using the Depreciated Replacement Cost (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 Gross Replacement Cost (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’.

Harrow 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 **G5** shows Harrow’s highway asset valuation figures for 2014/15.

Success Measures... Beyond the WGA requirements, Harrow 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 Harrow better understand how effective the planned maintenance regimes are at maintaining the condition and service potential of the assets. With this knowledge, Harrow 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.

Further Information:

[Code of Practice on Transport Infrastructure Assets, December 2013](#)

[Code of Practice on Transport Infrastructure Assets: Guidance Notes, May 2015](#)

[Whole of Government Accounts Guidance, HM Treasury](#)

Table G5: Harrow’s asset valuation report figures for 2014/15.

Asset Group	GRC	DRC	Depreciation	
	(£'000)	(£'000)	(£'000)	%
Carriageways	641,799	596,512	45,287	7.1
Footways	160,335	110,962	49,373	30.8
Highway Structures	68,477	53,762	14,715	21.5
Street Lighting	33,003	31,887	1,116	3.4
Traffic Management	1,840	1,779	61	3.3
Street Furniture	38,102	37,279	823	2.2
Gross Replacement Cost (GRC)	£875 million			
Depreciated Replacement Cost (DRC)	£778 million			
Depreciation	11.0%		- £97 million	
<i>Highway Land</i>	<i>Area (m²)</i>	<i>5,918,328</i>	<i>£ 2,427 million</i>	

HAMS MODULE H – INVESTMENT STRATEGIES

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

To determine the best level of investment to drive long-term revenue spend savings and meet desired performance outcomes, a series of strategies are explored to understand the impact of different budget and maintenance scenarios.

Investment modelling is the process used to determine funding needs and provide analysis of the various possible budget and maintenance strategies to suggest what the short- and long-term impacts on the network might be.

Why... Understanding how the asset will behave under different budget scenarios helps inform the level of investment required to meet desired performance levels. This, in turn, can advise appropriate budget levels and treatment selection (Module D – Maintenance Strategy).

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

Determining strategies	Head of Highways, Transport and Asset Management
Evaluation strategies	Asset Manager
Updating module	Senior / Engineer

How... Harrow continuously reviews the investment needs of the highway asset using up-to-date condition data and performance measures (as in Module I – Performance Management). Harrow have considered various investment strategies, including:

- Do-minimum maintenance to manage the decline (i.e. reactive maintenance only).
- Steady state (i.e. maintain current condition via planned and preventative maintenance).
- Clear backlog (i.e. enhance performance to meet performance targets in Module I).

This information feeds into the investment model to determine the current backlog and the impact of the assessed investment scenarios, ensuring the investment is driving revenue savings, striving towards the stated performance outcomes and providing a fit for purpose network by using optimal treatment strategies.

Contemporary issues such as sustainability (Module M – Sustainable Maintenance) are also considered when determining these strategies. Harrow have developed an investment strategy to complete its LED replacement programme and replace its concrete carriageways (which the Borough has identified as expensive and carbon-intensive to maintain) with asphalt.

Reporting... Investment modelling reporting is done as and when investment scenarios are modelled. The investment strategy will be updated in line with the determined budgets and amended accordingly with budget alterations.

Success Measures... To deliver the highway performance targets, which are outlined in Module I – Performance Management.

**figures estimated via 2022 investment planning work*

Asset	Backlog
Carriageways	£33.50m
Footways	£27.80m
Structures	£14.70m
Street Lighting	£2.20m
Drainage	£5.00m
Total	£83.20m

Asset	Steady-State Requirement	Current Funding
Carriageways	£2.70m	£1.80m
Footways	£2.40m	£1.80m
Structures	£0.60m	£0.06m
Street Lighting	£1.60m	£1.30m
Drainage	£1.00m	£0.50m
Total	£8.20m	£5.46m

Further Information:

[Highway Investment Plan 2022](#)

Carriageways Information - figures estimated via 2022 investment planning work.

Backlog (Red)		
Hierarchy 3A	Hierarchy 3B	Hierarchy 4B/C
£3.9m	£1.4m	£18.5m
Total - £23.8m		
12km	7km	111km
Total 130km		

Steady-State Funding Need		
Hierarchy 3A	Hierarchy 3B	Hierarchy 4B/C
£0.7m	£0.1m	£1.9m
Total £2.7m		

10-Year Investment Scenarios			
Options	3A	3B	4B/C
Existing Budget	£0.5m	£0.1m	£1.2m
Steady State	£0.7m	£0.1m	£1.9m
Clear Backlog	£1.1m	£0.3m	£4.0m

Investment Scenarios – 10-Year Outcomes			
Options	3A	3B	4B/C
	R%	R%	R%
Existing Budget	37	39	37
Steady State	23	29	26
Clear Backlog	5	5	5

Note – R: Red condition after 10 years. A: Amber condition after 10 years. Red cell: does not meet steady state. Green cell: does meet steady state.

Footways Information - figures estimated via 2022 investment planning work.

Backlog (Red)		
Bituminous	Modular (Flagged / Block)	Concrete
£17.8m	£5.9m	£4.1m
Total - £27.8m		
203km	61km	31km
Total – 295km		

Steady-State Funding Need		
Bituminous	Modular	Concrete
£1.6m	£1.1m	£0.1m
Total - £2.8m		

10-Year Investment Scenarios		
Options	Bit. & Conc.	Modular
SS: Like-for-Like	£1.7m	£1.1m
SS: Flag-to-Asphalt	£1.7m	£0.7m
CB: Like-for-Like	£4.6m	£1.8m
CB: Flag-to-Asphalt	£4.6m	£1.4m

Note – SS: Steady State. CB: Clear Backlog.

Investment Scenarios – 10-Year Outcomes		
Options	Bit. & Conc.	Modular
	R%	R%
SS: Like-for-Like	35	19
SS: Flag-to-Asphalt	35	19
CB: Like-for-Like	5	5
CB: Flag-to-Asphalt	5	5

Note – R: Red condition after 10 years. A: Amber condition after 10 years. Red cell: does not meet steady state. Green cell: does meet steady state.

Highway Structures Information - figures estimated via 2022 investment planning work.

Backlog	
BPRN*	Non-BPRN
£0.62m	
Total - £ million	

Steady-State Funding Need	
BPRN	Non-BPRN
£0.25m	
£ million	

Current Investment		
Activity	BPRN	Non-BPRN
Capital Funding	As needed.	
Inspections	£0.13m	

* Borough Principal Road Network.

Drainage Assets Information - figures estimated via 2022 investment planning work.

Backlog	
Capital Renewals	Cyclic Maintenance
£0.50m	£0.30m
Total - £ million	

Steady-State Funding Need	
Capital Renewals	Cyclic Maintenance
£0.50m	£0.53m
£ million	

Current Investment	
Capital Renewals	Cyclic Maintenance
£0.50m	£0.30m
£ million	

HAMS MODULE I - PERFORMANCE MANAGEMENT

What... Performance management is the process by which Harrow communicates its objectives for its highway assets and monitors performance against these targets.

Why... Harrow 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 the 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	Head of Highways, Transport and Asset Management
Updating module	Highways Manager

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

Relevant high-level drivers were identified from Harrow's Borough Plan and from the London Mayor's Transport Strategy. These have been translated into four highways performance target statements, which drive all of Harrow's highway

maintenance activities, *This is the latest data available..

Asset-specific performance target statements have also been developed to identify the key objectives to monitor progress against 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 *12* and *13*.

In addition, these performance indicators were further evaluated through benchmarking against State of the Highway reports and Harrow's own resident surveys and assessed against service levels criteria evaluated against industry practice and performance to group performance into three clear service levels: Good, Fair and Poor. This enables performance target setting and prioritisation based on repeatable analysis, Tables *12* and *13*.

Reporting... Harrow uses the following performance dashboards to illustrate the performance management system adopted, Tables *12* and *13*. 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 Harrow focuses its effort and investment into areas that positively impact the high-level drivers and represent the highest level of risk to the Council. The cost of achieving target performance indicators is discussed in Module H – Investment Strategies.

Success Measures... Apart from providing a direct link to the Council's corporate vision, performance management will help Harrow demonstrate effective use of its budgets. This will also demonstrate any shortfalls in funding and whether any budget reassignments are required to fulfil the desired performance outcomes. Furthermore, budget shortfalls need to be targeted to ensure the transport network is fit for purpose and within an acceptable level of risk.

Further Information:

[Harrow Borough Plan](#)

[Highway Infrastructure Asset Management Guidance document, HMEP – UK RLG, 2013](#)

[ISO 55000 – Asset Management](#)

[UKRLG – Well-managed Highway Infrastructure](#)

Figure I6: Asset performance indicators setting.



Table I2: Harrow’s performance dashboard - Customer.

Performance Indicators	Levels of Service			Performance		
	Good	Fair	Poor	Current (2022)	Target (2025)	Target (Long-term)
Description – Public Satisfaction						
Overall Satisfaction with Harrow’s Highways	TBC	TBC	TBC	TBC	TBC	TBC
Ease of Access (all users)	TBC	TBC	TBC	TBC	TBC	TBC
Walking / Cycling - Pavements and Footpaths	TBC	TBC	TBC	TBC	TBC	TBC
Walking / Cycling - Cycle Route and Facilities	TBC	TBC	TBC	TBC	TBC	TBC
Highway Maintenance – Condition of Highways	TBC	TBC	TBC	TBC	TBC	TBC
Highway Maintenance – Highway Maintenance	TBC	TBC	TBC	TBC	TBC	TBC
Highway Maintenance – Street Lighting	TBC	TBC	TBC	TBC	TBC	TBC
Highway Maintenance – Flooding and Drainage	TBC	TBC	TBC	TBC	TBC	TBC

This will be populated via a 2022/23 customer survey.

Table I3: Harrow’s performance dashboard - Technical.

Asset Group	Performance Indicators	Service Levels			Performance		
		Good	Fair	Poor	Current (2022)	Target (2025)	Target (Long-term)
Carriageways	% of Principal Classified Roads where maintenance should be considered	<6%	6-12%	>12%	23%	18%	5%
	% of Non-Principal Classified Roads where maintenance should be considered	<8%	8-15%	>15%	29%	22%	5%
	% of Unclassified Roads where maintenance should be considered	<10%	10-20%	>20%	26%	20%	5%
	% of Principal Classified Roads SCRIM surveyed in current year above investigatory level	<10%	10-25%	>25%	69%	50%	25%
	No. of potholes per km annually	<1/km	1-2/km	>2/km	1.2/km	1/km	1/km

Footways	% of flagged and other modular footways where maintenance should be considered	<10%	10-15%	>15%	19%	15%	5%
	% of bituminous and concrete footways where maintenance should be considered	<15%	15-20%	>20%	35%	26%	5%
Drainage	% of gullies operating efficiently	>95%	85-95%	<85%	95%	95%	95%
Structures	% of bridges meeting the required carrying capacity	>95%	90-95%	<90%	80%	90%	100%
Street Lighting	% of apparatus more than 25 years old	<10%	10-30%	>30%	5%	5%	5%
	% of streetlights using LED luminaires	100%	80-99%	<80%	71%	100%	100%
Highway Trees	No. of highway trees per km	>60/km	60-40/km	<40/km	50/km	52/km	60/km
Highway Claims[#]	% of highway claims repudiated	>85%	70-85%	<70%	93%	93%	93%

**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 / stakeholders to inform how highway assets are maintained in management decision-making processes.

Stakeholders include both those who have an ability to influence management decisions and those who are affected by the decisions taken. Harrow’s stakeholders include highway users (pedestrians, cyclists, and drivers) and those dependent upon highway users (for example, local businesses who are reliant upon the highway to receive deliveries or ensure staff and customers can reach their premises, and vulnerable users who are reliant on support services reaching them via the highway).

While stakeholders can and should influence asset management decision-making processes, Harrow’s priority remains ensuring the asset is maintained in a manner which provides a safe network, fulfilling the authority’s statutory duties.

Why... Engaging with customers is essential to ensure that end-user needs are well understood, and a wide range of stakeholders have the opportunity to inform asset management decision-making processes. This ensures the social and economic benefit of the use of the road network is recognised, the costs and benefits of highway asset management are

shared equitably, and investment activity can be focused where it is needed most.

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 wider communities enables decision-makers to build on engineering need and focus investment into areas which best benefit the community at large.

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

Leading customer engagement	Director of Place
Updating module	Senior / Engineer

The key customers to be engaged with, for each road type, are identified in [Table J6: Highway asset management stakeholders and communication modes](#).

Harrow engage the local community via:

- Website.
- Community groups.
- Public consultations.
- Local media and newsletters.
- Information leaflets in affected areas

How... Harrow employs a customer-led approach, engaging with community interest groups that can best inform the approach towards investing in the highway network.

Information and reports assimilated during public consultations informs Module E – Works Programming & Priorities, to re-prioritise carriageway and footway schemes. 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... Customer satisfaction is recorded and reported periodically to reflect public satisfaction and performance of the network. Trends are monitored to demonstrate any change in public opinion on investment needs and service delivery.

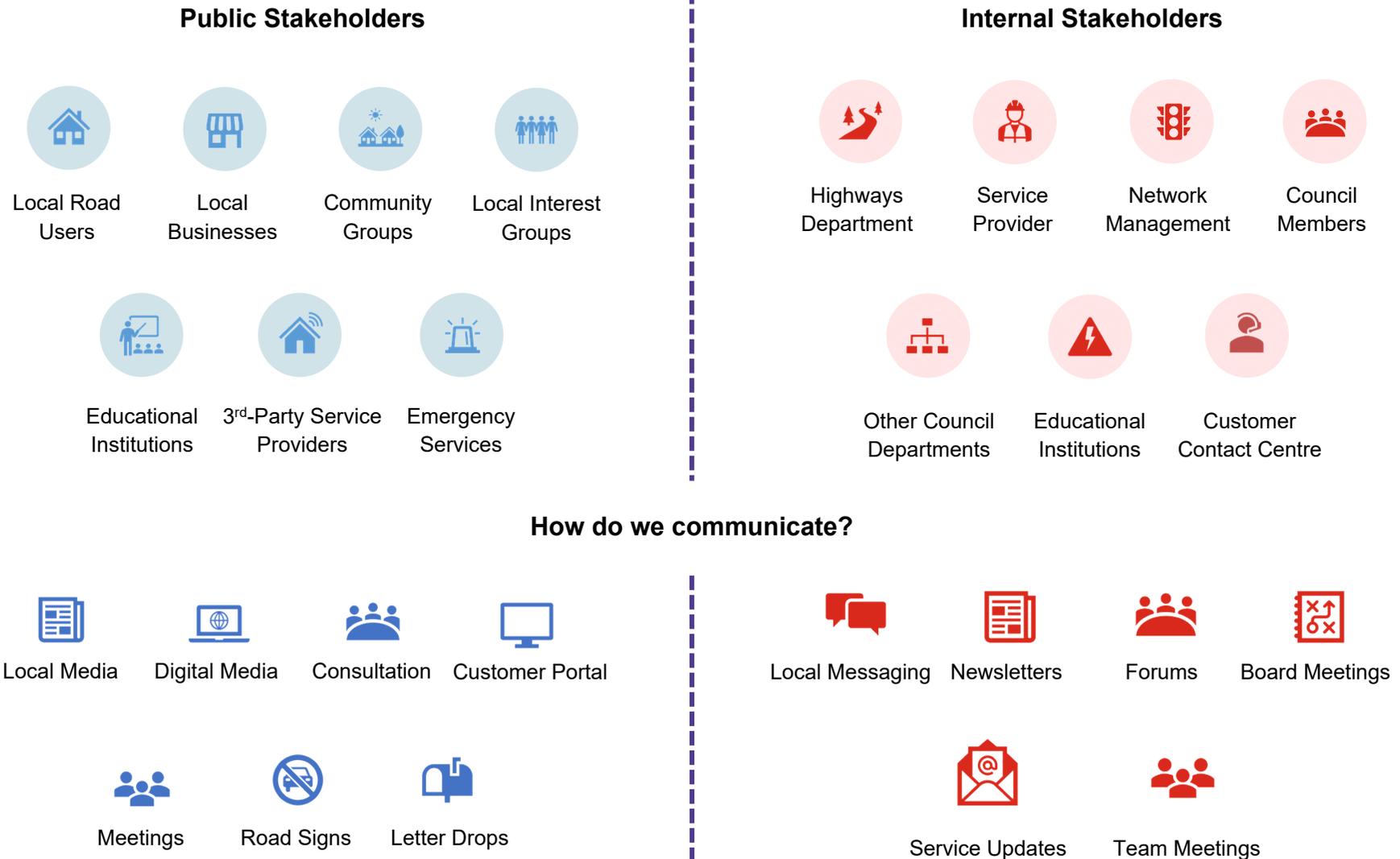
Success Measures... Fewer claims on the highway network and more diversity in the types of improvement works delivered in Harrow.

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 J6: Highway asset management stakeholders and communication modes.



HAMS MODULE K – SERVICE DELIVERY

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

Harrow follows UK procurement legislation and internal procedures to ensure fair competition for works contracts and support services, enabling us to meet our legal obligation of fair, and open competition.

Why... In delivering value for money for Harrow we ensure the strategy for service delivery uses our in-house capability and skills, while working with our suppliers to complement our activities and maximise benefit for the travelling public.

Value is added through competitive tendering both in managing long-term costs and ensuring Harrow employs the most up-to-date practices.

Who... Management of procurement strategy and delivery is essential. Responsibilities lie with:

Procurement Strategy	Head of Highways, Transport and Asset Management
Procurement Process Contract Monitoring	Asset Manager

How... Harrow aims to:

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

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

Harrow also ensures that tendered contracts consider social value, ensuring these are factored into the quality score. This is assessed against a list of social value considerations, directly linking to Harrow’s Borough Plan.

Reporting... All procurement follows UK procurement legislation to ensure fair, open and transparent processes, and ensure Harrow’s suppliers and contractors are well placed to deliver the service required.

All procurement is ratified by the Procurement 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 £0.10m 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 Harrow’s Scrutiny Committee to call in and review the report and process.

Success Measures... Harrow monitors performance to ensure contractors deliver the intended value for residents and taxpayers.

KPIs are recorded and monitored, with a collaborative approach employed to improve outcomes. The key themes of the KPIs are quality of work, value for money, timeliness, sustainability, and health & safety.

Further Information:

[Harrow Procurement Guidance](#)

[Harrow Borough Plan](#)

Figure F1: Service Providers.

Area of Work	Service Provider	Expiry		Procurement Review	Contract Type
		Core Term	Extension		
Client Services	Harrow	N/A		N/A	N/A
Traffic Signal Maintenance	Transport for London	N/A		N/A	N/A
Design and Works Supervision	Harrow	N/A		N/A	N/A
Consultancy Support	Various Consultants	Various			
Civil Engineering and Highway Maintenance	Riney	April 2024	+ 5 years	TBC	TBC
	Highway Maintenance – Planned				
	Highway Maintenance – Reactive				
	Drainage / Gully Cleansing				
	Street Lighting – Planned				
	Street Lighting – Reactive				
	Illuminated Signs and Bollards Maintenance				
Electrical Maintenance	(In Procurement)	TBC	TBC	TBC	TBC
	EV Charging Point – Installation				
	EV Charging Point – Maintenance				
Highway Tree Maintenance	Gristwood & Toms Ltd	April 2023	+1 year	TBC	TBC
	Highway & Public Realm Trees				
London Highway Maintenance and Projects Framework (HMPF)* <i>*Access but not draw down</i>	Tarmac-Kier JV – North Area	April 2029	+ 4 years	(TfL Contract)	N/A
	All aspects of highway services				

HAMS MODULE L – DESIGNING FOR MAINTENANCE

What... Designing for maintenance considers the risks and costs associated with how highway schemes will be maintained over their lifespan, incorporating these factors at an early stage in the decision-making processes during both the design of new highway or public realm schemes and existing scheme improvements.

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

- Promote value for money and lower asset whole-life costs.
- Use sustainable materials and products.
- Limit network disruption for residents, ensuring network reliability and availability.
- Increase safety for road users and maintenance contractors.

Who... The responsibilities for ‘Designing for Maintenance’ lie with:

Overseeing design process	Head of Highways, Transport and Asset Management
Reviewing designs	Asset Manager
Updating module	Senior / Engineer

How... Harrow uses a standardised approach to highway design, that facilitates the integration of

future maintenance considerations during the design process:

- Materials and street furniture are selected from a pallet of pre-approved materials and products. The use of an approved pallet ensures items can be reliably sourced for maintenance needs 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.

During the design of new assets, relevant internal stakeholders are involved at key stages and are given an opportunity to comment on aspects that have implications on maintenance and other future factors.

When designing for maintenance, Harrow considers factors that are aligned to the Code of Practice, Well-Managed Highway Infrastructure (2016) and Harrow’s transport objectives.

Harrow prioritises options that encourage walking, cycling, and other sustainable travel modes, ensuring manageable maintenance plans over the lifetime of each scheme when improving street environments.

To achieve efficiencies in highway maintenance activities, Harrow will also seek opportunities to minimise clutter where possible. This is a consideration during both the design process and by identifying assets to decommission, such as unnecessary or excessive signage.

To ensure this approach is clearly documented for contractors, consultants and developers designing schemes in the Borough, Harrow will develop a Street Design Guide setting out its design principles and the contextual approach.

Reporting... Designing for maintenance workflows are reviewed periodically and the Street Design Guide is updated accordingly in-line with industry best practice and as new materials, or 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 consideration of maintenance requirements during the design phase.

Further Information:
Harrow Local Implementation Plan
Residential Design Guide (SPD), 2010
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 Harrow 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 and needs to enhance social value to the local community.
- It supports the development of sustainable engineering solutions.
- It consumes large quantities of resources and generates large quantities of waste.
- The extraction, processing and transportation of highway materials is a significant source of embodied carbon, particularly in the production of cement and asphalt.

As a Council, Harrow has declared a state of climate emergency and is committed to becoming carbon neutral by 2030. As such, the Borough is committed to ensuring that highway maintenance is conducted in as sustainable a manner as possible.

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

Monitoring contractual KPIs	Asset Manager
Updating module	Senior / Engineer

How... Harrow 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.

Harrow addresses the environmental pillar of sustainability by looking for opportunities within maintenance activities to:

- Encourage uptake of active travel and more sustainable travel modes.
- Decarbonise Council and maintenance contractor transport and machinery.
- Improve accessibility across all social groups, especially for the elderly and disabled people.
- Improve community safety and reduce the fear of crime.
- Enhance the quality of public space through biodiversity and wildlife conservation.
- Incorporate sustainable drainage systems (SuDS), protecting local ecology.

Harrow and its contractors are also committed to the environmental mitigations in Table **M7**.

With regards to waste products, Harrow 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... Harrow monitors its environmental sustainability through two performance indicators, Table **M8**. 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 Harrow will reap in all three pillars of sustainability.

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

Further Information:

[Harrow Waste Strategy \(2016 – 2026\)](#)

Table M7: Environmental mitigations undertaken by Harrow and its contractors.

Factor	Comment
Pollution Control	Harrow 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	Harrow strives to improve air quality within the borough. Harrow endeavours to optimise inspection and maintenance routes as much as possible to mitigate the need of driving from one site to the next. Harrow also aims to increase tree populations to combat air pollution, specifically in the north of the borough

Figure M7: Harrow’s waste hierarchy approach adopted.

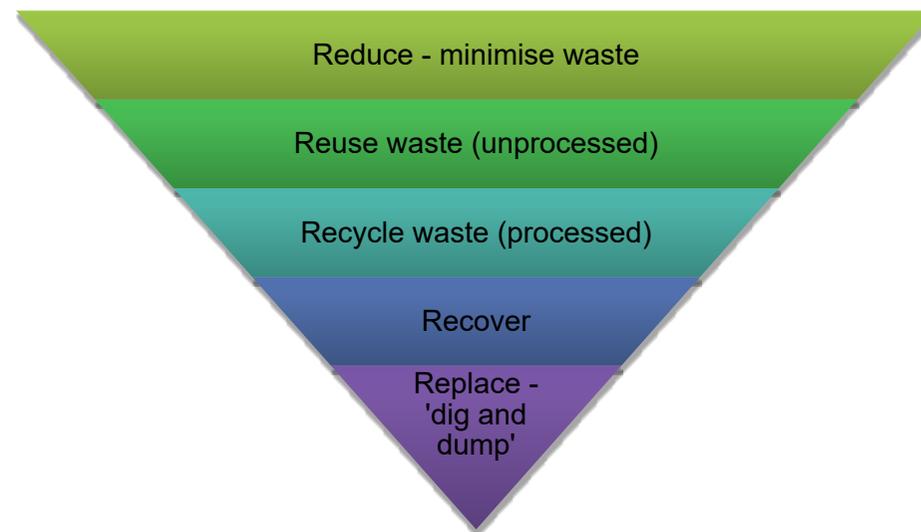


Table M8: Contractual environmental KPIs monitored.

Description
% of construction & demolition waste not going to landfill
% of construction material from recycled & secondary sources

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, as defined by the DfT and relevant to Harrow, includes intense and prolonged rainfall, strong winds and heat waves. Harrow have also included their approach to coping with snow and ice in this module.

Harrow have outlined the following political incidents and natural 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 a robust strategy to manage Harrow's approach when dealing with extreme weather and other emergencies.

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

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

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

Monitoring network resilience levels	Director of Place
Monitoring emergency planning	Emergency Planning Manager
Updating module	Senior / Engineer

How... Harrow aims to ensure resilience by maintaining its defined resilient network to a high standard and adopting fast-acting responses to emergency situations on the network, enabling a recovery to full functionality as soon as possible.

A resilient network is a prioritised group of roads which should be kept open to maintain economic activity and access to key services. Harrow defines its resilient network on the basis of its winter maintenance routes, as outlined in the Winter Service Plan, considering:

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

Harrow has also redefined its gully network to identify critical assets at higher risk of flooding. These are cleansed on an elevated frequency to ensure that they are kept functional in case of extreme rainfall events.

Harrow's Emergency Planning team deal with all weather or civil emergencies reactively. These are conducted in line with strategic plans developed for various highway emergency types. All highway emergency events are responded to through a bespoke approach dependant on the scale and impact of the event, building on the in-depth knowledge of staff working within emergency planning and highways teams.

Reporting... Harrow reviews the performance of its network resilience by conducting audits of responses to emergency situations. These are reviewed internally and used to inform lessons learnt and make improvements, as appropriate.

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:
Harrow Emergency Planning
Winter Service Operational Plan

HAMS MODULE O – IMPLEMENTATION & IMPROVEMENT PLAN

What... The implementation and improvement plan is designed to assist Harrow 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.

Regular maturity assessments of asset management practices in Harrow and reviews of performance against its objectives may identify a number of improvements to be made. These will be formally documented in this plan along the specific actions, timescales, and owners.

Why... Continuous improvement is an essential element of asset management for Harrow, 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... Responsibilities for the ‘Implementation & Improvement Plan’ module lie with:

Maturity assessment	Director of Place
Implement asset management	
Identify & deliver improvement actions	Asset Manager
Updating module	Senior / Engineer

How... Harrow 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 in Harrow. This identifies strengths and areas where Harrow needs to focus its efforts and help determine improvement actions for both the short- and long-term periods.

Reporting... Harrow documents the issues identified, and the improvement actions proposed in an improvement action plan, Table **01**. 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 on a regular basis, Harrow will demonstrate its continuous improvement in asset management practices by closing the gaps identified during the assessment. This enables a robust service to be implemented by the Borough.

Further Information:
<u>ISO 55000 Asset Management Systems</u>
<u>UKRLG – Well-managed Highway Infrastructure – A Code of Practice (2016)</u>

Table O1: Improvement action plan.

Module	Action	Measure	Responsibility	Time			
				2023	2025	Onward	
A	Context	Update the State of the Highway report.	Annual summary on the health of highway infrastructure.	Highway Asset Manager	✓		✓
B	AM Framework	Develop asset plans and operating procedures.	A plan for managing and maintaining each asset group.	Highway Asset Manager	✓		
C	Asset Knowledge	Update highway asset inventory.	Undertake regular LiDAR surveys of highway asset groups every 3 to 6 months.	Highway Asset Manager	✓		✓
		Develop highway asset data management plan.	Ensure data management meets objectives for asset groups and is kept up to date.	Highway Asset Manager		✓	
		Improve drainage condition and inventory information.	Improve knowledge of all drainage assets.	Senior / Engineer			✓
D	Maintenance Strategy	Develop highway maintenance plan.	Define plan for maintenance activities (across all assets incl. resurfacing strategy).	Highway Asset Manager	✓		
		Establish a list of asset operating procedures.	Improve knowledge of all operating procedures.	Highway Asset Manager	✓		
		Implement robust maintenance decision trees for all asset groups.	Review and improve decision-making process for highway treatments regularly.	Highway Asset Manager	✓		
E	Works Programming & Priorities	Update stakeholder priorities every Council cycle.	Ensure stakeholder priorities are in-line with the council's vision.	Director of Place			✓
F	Funding & Expenditure	Differentiate highway expenditure by assets.	Improve knowledge of each asset group expenditure.	Senior / Engineer			✓
G	Valuation	No action required.					
H	Investment Strategies	Undertake investment modelling.	Update investment modelling every two years.	Highway Asset Manager		✓	✓

Module	Action	Measure	Responsibility	Time			
				2023	2025	Onward	
		Investigate investment strategy scenarios.	Ensure budgets are spent in the most optimal fashion.	Highway Asset Manager		✓	✓
I	Performance Management	Develop suite of customer focused KPI's.	Improve knowledge of customer satisfaction.	Highway Asset Manager		✓	
J	Customer Engagement	Introduce stakeholder engagement process to support decision-making.	Proactively engage stakeholders for works programme.	Highway Asset Manager	✓		
		Improve communications and customer satisfaction.	Improve satisfaction scores on surveys.	Highway Asset Manager	✓		
K	Service Delivery	No action required.					
L	Designing for Maintenance	Develop Harrow Street Design Guide.	Ensure developers align with objectives and standardised approach in Harrow when doing work in Harrow.	Highway Asset Manager		✓	
M	Sustainable Highways Maintenance	Develop Carbon Management Plan.	Benchmark carbon related to highway maintenance activities and defined steps to reduce and achieve net-zero by 2030.	Highway Asset Manager	✓		
N	Network Resilience, Weather & Other Emergencies	Update Winter Service Policy annually.	Ensure winter service plan is kept up-to-date and relevant.	Highway Asset Manager	✓	✓	✓
O	Implementation Plan	Undertake Asset Management Maturity Assessment.	Complete assessment annually.	Director of Place	✓	✓	✓