

Highway Asset Data & Information Strategy

Highways, Neighbourhoods Directorate

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Record of Amendments

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Amendments List

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2.1	Systems status updated	TK	June 2022

1. Introduction

- 1.1 Manchester City Council recognises the importance of its highway infrastructure and how an effectively maintained and managed network contributes to the achievement of its corporate goals.
- 1.2 The Council's Highways Asset Management Policy & Strategy (HAMS) sets out our approach for the management of all highway assets including lighting, drainage, bridges and structures, cycling infrastructure and signage.
- 1.3 These documents were approved by Cabinet in December 2015 and are available to view on the Council's website. They are reviewed periodically as required. The HAMS have a suite of related documents to enable manage our assets in the most effective way, including:
 - Highways Performance Management Strategy (PMS).
 - *Highway Asset Data & Information Strategy (HADS)*.
 - Highways Communication Strategy (HCS).
 - Highway's lifecycle planning & whole life cost approach.
 - Highways Safety Inspection Policy.
 - Winter Services Policy.
- 1.4 The HAMS stresses the importance of having up to date and reliable information about the number and type of assets and their condition so that the asset location, condition and where they are in their lifecycle is known.
- 1.5 Good data is vital to support the overall requirements for asset management, including:
 - Defining network inventory and asset performance.
 - Supporting statutory requirements.
 - Making effective and informed decisions.
 - Understanding the impact of decisions on the asset and the subsequent level of service and performance.
 - Assessing and managing risk.
 - Determining investment requirements.
 - Assessing and reporting financial value, and
 - Reporting performance.
- 1.6 This Highways Asset Data & Information Strategy (HADS) has been designed to ensure that highway information is collected, stored and shared in a safe and auditable format that supports the implementation of the HAMS and the performance management framework.
- 1.7 It is aligned to the overarching council policies around data governance, including the Data Management Policy, Information Governance Strategy, Data Protection Policy and Records Management Policy.
- 1.8 The data will be collected and managed in line with national guidance including the 'Well Managed Highway Infrastructure' code of practice. The risk-based approach to highway maintenance advocated in the code needs to be founded on information that is sufficiently robust to enable decisions on levels of service to be taken and reviewed over time.
- 1.9 The data will also be used to value the assets in line with the Whole of Government Accounts procedure.

- 1.10 This strategy is a key strategic document that also defines how the information collected is reviewed and used to inform decision making and support investment decisions.
- 1.11 The Council has a Highways Asset Manager responsible for maintaining the inventory, assessing asset condition, co-ordinating the Highway Asset Management Strategy, assisting in producing various maintenance programmes and ensuring the Whole Government Accounts (WGA) return is submitted on time.

2. Data Collection

- 2.1 In order to make the most appropriate investment decisions it is vital we have sufficient knowledge of the condition, location and lifespan of each of the highway assets. The level of information required will vary depending on:
- The benefits of specific information.
 - The costs of collection of information.
 - The resource costs of maintaining the data once gathered.
 - The relative importance of the maintenance decisions required.
 - The requirements of whole government accounts.
- 2.2 Appendix 1 details the information that is currently captured and held against the major highway asset groups, including the current frequency of data collection, systems that hold the information and the perceived risk level / value of each dataset.
- 2.3 Appendix 2 shows a gap analysis and risk assessment which has been carried out to determine the areas where we do not hold robust asset information. Indicative proposals and timescales have been developed for collection of this data where required, although this strategy recognises that collecting all available data would require substantial investment over a period of many years, which may not be cost effective.
- 2.4 A funding allocation is set aside each year from the overall highways maintenance budget to carry out condition and other surveys so that our information datasets are up to date.
- 2.5 In order to maximise the impact of future data collection surveys, they will be targeted towards major asset groups and high-risk areas first, in accordance with the Code of Practice 'Well-managed Highway Infrastructure, 2016' HMEP 'Guidance on the Management of Highway Drainage Assets, 2012' and the 'Local Flood Risk Management Strategy, 2014'.

3. Data Management & Accessibility

- 3.1 The IT systems used to manage data and form the respective asset registers will be reviewed in conjunction with our ICT service before procuring new services or extending existing contracts. This review process will be designed to ensure that the proposed systems deliver the requirements of the service and integrate with other systems operated by other departments where necessary. Mid-term health-checks and specialist training will be commissioned from suppliers where required in order to deliver the requirements of the HAIS and support other business needs.

- 3.2 The Council is moving forward in the implementation of Building Information Modelling (BIM) software tools for the design and construction phases of its new assets. This provides a structured framework for the creation, collation and exchange of information about assets which drives efficiency, aids communication and facilitates better management of assets over their lifecycle.
- 3.3 Where possible, it is important that future data and information systems used embed BIM and Asset Management in compliance with emerging standards to ensure consistent application across all new projects, operations and maintenance functions.
- 3.4 Asset registers are maintained as live documents that are stored on a shared network drive and continuously updated and refined to meet business needs by the officers with primary access to the data.
- 3.5 Access to the data contained in the asset registers is restricted to our highways teams to ensure appropriate management of the data. Data will be provided periodically for performance monitoring, benchmarking and on request for other asset management functions as required; for example, an extract of our road and footway condition survey data is uploaded onto our intranet site for use as reference by other council staff. When providing data, it must be dated to ensure suitability of use.

Performance Management

- 3.6 Our performance management procedures outlined in the Council's Performance Management Strategy (PMS) rely on provision of good quality data that is regularly updated.
- 3.7 Performance reports are reviewed by senior decision makers at the frequencies detailed in the PMS. The review process will identify the strengths, weaknesses, opportunities and threats to the service and action plans will be developed as required. Any lessons learnt concerning the collection and management of data will be documented and used to refine policies, strategies and plans including the PMF and HAIS as appropriate, to ensure that they remain aligned with the council's objectives.

Lifecycle Planning & whole life costs

- 3.8 Lifecycle planning is a technique which enables us to monitor and anticipate the future condition of our highway assets and to know when we need to repair or replace it. Through detailed knowledge of the size, safety, condition, and value of our highway assets, this enables us to take into consideration whole life costs when managing these assets. This is explained in our Highways lifecycle planning & whole life cost approach document.
- 3.9 We utilise our asset data and lifecycle planning to develop investment strategies to deliver an agreed level of performance or, where funding becomes constrained, a prediction of the effect of particular funding scenarios on the levels of service that can be delivered. This approach enables service delivery to be as effective as possible, allowing a cogent allocation of resources providing a balance between focussed asset management and contributing to the objectives and priorities of the Council and allows an assessment to be made of any residual risk.
- 3.10 Working with one of our survey contractors, we have utilised advanced deterioration and cost modelling software as well as UKRLG toolkits to enable the future condition of our main highway assets to be predicted given a particular level of funding, which helps the council to understand and manage risk in terms of asset deterioration in relation to required funding.

4. Data Disposal

- 4.1 Our data retention and disposal processes are aligned to corporate data governance procedures and the council's Records Management Policy and guidance.
- 4.2 In determining the performance of individual assets, historical information and trends may be invaluable to support decisions regarding future performance.

5. Evaluation and Review

- 5.1 This Data & Information Strategy will be reviewed periodically and updated as required, in consultation with the relevant Executive Member.

Appendix 1 - Asset Data Inventory Registers

Manchester City Council holds a number of data sets which are available for use throughout the service and updated on an ad-hoc basis by the data custodian. These data sets are used for reporting both internally and externally and for day to day and for providing information daily to assist officers undertake the roles within the authority. The data for our main highway asset groups is specified below.

Asset Data Set	Data Custodian	Description	Used for	Risk/ Value	Frequency of data collection	System	Updates
Local Street Gazetteer (LSG)	LSG Custodian	Defines Manchester's Street network to National Standards and adoption status etc.	Used within Permit Schemes and Street Works	High	Ongoing	ArcGIS	Updated and maintained by Council's LSG team
UKPMS Network	LSG Custodian	Defined Highway network sections inventory used as base layer for condition surveys, reports etc.	Highway inspections / defect repair and identifying maintenance schemes.	High	Ongoing	Yotta Alloy	Updated regularly from LSG data to take into account new adoptions, closures etc.
ESRI ArcGIS	Council ICT	Geospatial databases are used to record asset and project information, and store GIS data in a central location for easy access and management.	Manipulating and editing spatial data	High	Ongoing	ArcGIS	Software updates issued by Council's ICT service
Carriageway Condition	Highway Asset Manager	Condition data from Gaist video surveys (50% of network annually), Scanner & skid resistance survey data etc.	Performance reports, lifecycle planning, maintenance scheme prioritisation, WGA accounts.	High	Annual	Assetstream (Gaist) / ARCMAP GIS	Updated by Gaist following processing of video data / Skid resistance results processed by Xais
Footway Condition	Highway Asset Manager	Condition data from Gaist video surveys (50% of network annually)	Performance reports, lifecycle planning, maintenance scheme prioritisation, WGA accounts.	High	Annual	Assetstream (Gaist) / ARCMAP GIS	Updated by Gaist following processing of video data
Highways Defects	Highway Inspection team	Safety defects as collected on a routine basis in accordance with a cyclic programme of	Performance reports, lifecycle planning, maintenance scheme	High	Daily	Yotta Alloy	Updated and maintained by Highway Inspection staff.

		inspections. Used to generate Key Performance Indicators	prioritisation, defence against highway claims				New procurement exercise underway in 2021/22
Bridges and Structures	Bridges asset team	Location and details of bridges, footbridges and culvert structures. Defines those maintainable at public expense.	Performance reports, inspections, work programmes and maintenance, WGA accounts.	High	Ongoing	Pontis	Updated as new structures built / Condition updated through Cyclical maintenance
Street Lighting	AMEY Lighting team	Locations of lighting columns illuminated signs/bollards.	Performance reports, cyclical inspections, work programmes, maintenance, energy returns, WGA accounts	High	Ongoing	Mayrise	Street Lighting infrastructure is managed and maintained by AMEY as part of an existing PFI Contract, due to expire in 2027.
Drainage systems	Highways Asset Manager	Location of gullies and linear drainage systems on adopted highway. Current status, silt levels, maintenance history.	Performance reports, cyclical inspections, work programmes, maintenance	Medium	Ongoing	Yotta Alloy	Updates following cyclical maintenance reports
Customer Relationship Manager (CRM)	CRM team	CRM software records and tracks customer queries, reports and responses	Performance reports, feedback trends	High	Ongoing	CRM Dynamics	Maintained by CRM team. New system being looked at
Performance Management framework	PMO / PRI team	Performance dashboards and data held on MS Teams site	Performance monitoring, information sharing	High	Ongoing	MS Teams	Updated as required by highways staff / administered by PMO / PRI team
Traffic / Parking regulations	Traffic team	GIS based system recording TRO's, speed restrictions and other legal orders.	Definitive record of parking restrictions, traffic orders etc.	High	Ongoing	Parkmap	Updated following new schemes / legal orders
Winter Maintenance	Winter maintenance team	Priority and other defined gritting routes and management systems.	Fulfilling statutory Winter maintenance obligations, performance reports.	High	Ongoing	Vaisala	Routes updated when required

Greater Manchester Road Activities Permit Scheme (GMRAPS)	GMRAPS team	Street works permitting scheme used across Greater Manchester	Coordinating works on the highway network, performance reporting	Medium	Ongoing	Symology / Street Manager	Updated by GMRAPS team
Flood Risk Management	Flood risk management team	Locations to aid in identification of Risk and Maintenance	Fulfilling statutory obligations as leading flood risk authority, performance reports.	High	Ongoing	ArcGIS	Action plan maintained and updated by flood risk team

To ensure that consistent results are achieved the same survey methods are applied where applicable. The majority of the surveys are undertaken by external contractors, which are acquired by procurement. To ensure economies of scale are achieved, the surveys can be procured using several methods:

- Procurement through a framework contract or utilising existing contracts procured by other local authorities.
- Tendering for more than one year's worth of surveys.
- Combining tendering for more than one similar survey.

By procuring the surveys and analysing the data enables Manchester to monitor the condition of our highway assets and track any improvement or deterioration. This allows targeted and planned maintenance and performance measures to be put in place in line with best practice. All survey costs have a financial benefit to Manchester to inform intelligent decisions that are evidenced with data for a transparency and enables a holistic approach to asset management.

Appendix 2 - Gap Analysis and Action Plan

A gap analysis is regularly undertaken on the data sets held and a risk assessment carried out. The following table describes the gaps and the suggested actions and timescales for implementation assessed in June 2022.

Key Asset Information & Action Plan - Updated June 2022

Asset Group	Main Components	Data Held	Where	How updated	Additional data required	Recommendations	Timescales	Risk	Owner	Comments
Carriageways	M' and 'A' Roads	Length / Area / Condition	UKPMS/ARC GIS/Assetstream (Gaist)	LSG for network, condition survey ~ 50%/year	N/A	Housing estate roads to be defined and added to network	By April '23	Medium	AM team	
	'B' and 'C' Roads	Length / Area / Condition	UKPMS/ARC GIS/Assetstream (Gaist)	LSG for network, condition survey ~ 50%/year	N/A					
	Local ('U') Roads	Length / Area / Condition	UKPMS/ARC GIS/Assetstream (Gaist)	LSG for network, condition survey ~ 50%/year	N/A					
	Road Markings & studs	Not captured	-	-	Detail on length / condition etc.	Pick up from video survey data	When budget allows	Low - 'Nice to have'	Gaist / TK	
Footways	Footways	Length / Area / Condition	UKPMS/ARC GIS/Assetstream (Gaist)	LSG for network, condition survey ~ 50%/year	N/A	Housing estate roads to be defined and added to network	By April '23	Medium	AM team	
	Pedestrianised areas	Length / Area / Condition	UKPMS/ARC GIS/Assetstream (Gaist)	LSG for network, condition survey ~ 50%/year	N/A					
	Kerbs	Length Condition	UKPMS/ARC GIS/Assetstream (Gaist)	LSG for network, condition survey ~ 50%/year	N/A					
Cycle Tracks	On Road	As part of Cway	UKPMS/ARC GIS/Assetstream (Gaist)	Video survey - 50% of network / year	Detail on length / condition etc.	Pick up from video survey data	When budget allows	Low	Gaist / TK	
	Off Road	Not captured	-	-	Detail on length / condition etc.	Additional survey to capture this	When budget allows	Low	Gaist / TK	
Bridges & Structures	Bridges	Inventory & condition	Pontis	Inspections	N/A	Programme of inspections now underway, longer term list of works being compiled.	By April '23	Medium - data needs updating asap	TFGM / PG	Needed to produce list of priorities for works programme
	Culverts	Inventory & condition	Pontis	Inspections	N/A					
	Embankments	Inventory & condition	Pontis	Inspections	N/A					
	Subways	Inventory & condition	Pontis	Inspections	N/A					
	Retaining Walls	Inventory & condition	Pontis	Inspections	N/A					
	Gantries	Inventory & condition	Pontis	Inspections	N/A					
Drainage & Flood Defence	Gullies (road & footway)	Inventory & condition	Yotta Alloy / ARC GIS	Inspectors / cleansing crews via hand helds	Info to be recorded against the asset	Yotta Alloy used to create intelligent cleansing regime	By April '23	Low	AM/ Drainage teams	Include in part of '23-'28 business case
	Linear drainage channels	Inventory & condition	Yotta Alloy / ARC GIS	Inspectors / cleansing crews via hand helds	Info to be recorded against the asset	Yotta Alloy used to create intelligent cleansing regime	By April '23	Medium		
	Drainage in back alleys	Inventory & condition	-	Inspectors / cleansing crews via hand helds	Needs capturing and adding to asset register	Bid for funding to carry out this work	By April '23	Medium	Flood risk team / KG	
	Culverts	Inventory & condition	-	Specialist surveys	Needs capturing and adding to asset register	Successful pilot project in early 2022 - roll out over 5 year period to pick up unknowns and works needed.	By April '27	Medium		
	Highway drains (including pipework)	Not captured	-	-	Useful to capture pipework	Commission survey	When budget allows	Low - 'Nice to have'	TK/KG	
Street Lighting	Street Lights	Inventory & condition	AMEY PFI Contract	Inspections	-	Upgrade to Alloy from Mayrise	-	Low	Amey	Would allow better integration with other data
	Illuminated signs & bollards	Inventory & condition	AMEY PFI Contract	Inspections	-	Upgrade to Alloy from Mayrise	-	Low		
Traffic signals	Traffic Lights & SCOOT loops etc.	Inventory & condition	TFGM (UTC) managed	-	-	-	-	Low	TFGM	
	Pedestrian signals	Inventory & condition	TFGM (UTC) managed	-	-	-	-	Low	TFGM	
Public Rights of Way	Public rights of way	Records on Definitive map	GIS platform / hard copy	When changes occur	Information on routes / condition	Map definitive route changes / add to inspection regime	By April '23	Low	AM / Inspection teams	
Street Furniture	Non-illuminated signs	Not captured	-	-	Inventory / condition	Pick up from video survey data	When budget allows	Low	Gaist / AM team	
	Cycle stands	Not captured	-	-	Inventory / condition	Pick up from video survey data	When budget allows			
	Benches etc.	Not captured	-	-	Inventory / condition	Pick up from video survey data	When budget allows			
	Barriers & Fences	Not captured	-	-	Inventory / condition	Pick up from video survey data	When budget allows			
Verges	Hard standing & grassed	Length / Area / Condition	GRP Platform	N/A	N/A	N/A	-	Low		
Trees	Trees & vegetation	Type & inventory	Arbor Team	Inspections	N/A	N/A	-	Low	Arbor team	