PUBLIC

DATA MANAGEMENT STRATEGY

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AN ELEMENT OF THE HIGHWAY INFRASTRUCTURE
ASSET MANAGEMENT SYSTEM

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Table of Definitions

TERM	DEFINITION
DCC	Derbyshire County Council
DMS	Data Management Strategy
GDPR	General Data Protection Regulations
HIAM	Highways Infrastructure Asset Management
HMEP	Highways Management Efficiency Programme
SAMS	Single Asset Management System

Contents

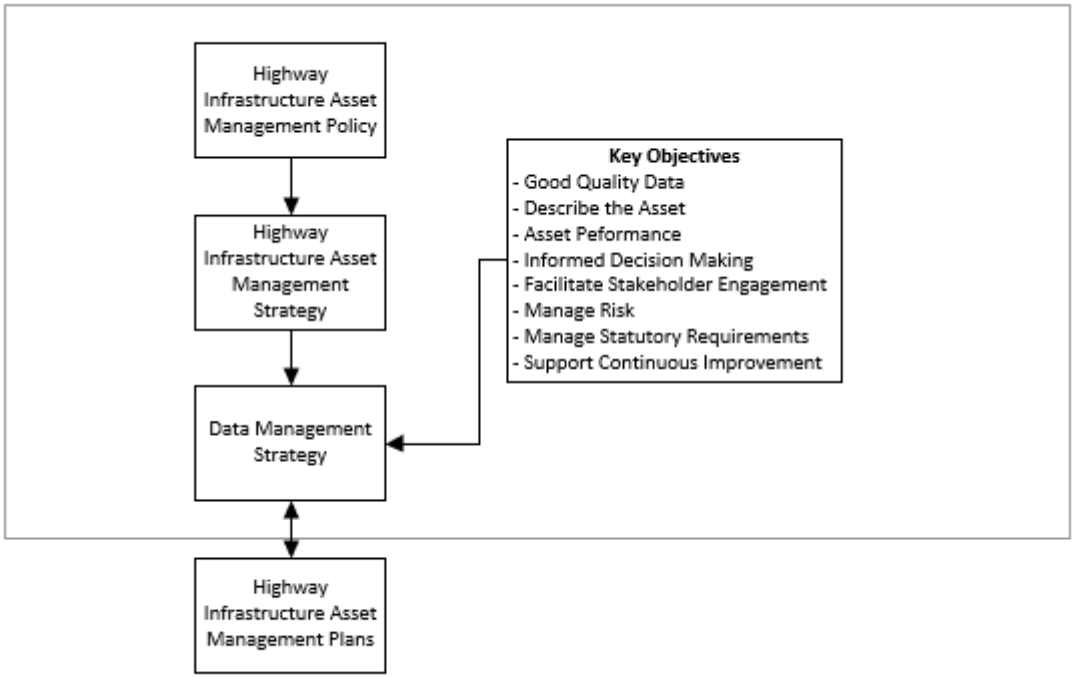
INTRODUCTION

Derbyshire County Council's Highway Infrastructure Asset Management Plans incorporates plans and policies around the management of asset data. These include the policies regarding asset data update and storage. These were written as a result of the publication of the 2013 Highways Infrastructure Asset Management (HIAM) guidance from Highways Management Efficiency Programme (HMEP) and the new Code of Practice Well-Managed Highway Infrastructure Asset Management in order to develop and update plans and policies to reflect the current guidance and identified good practices.

The Data Management Strategy (DMS) is a key component of the suite of Derbyshire HIAM documents and is intended to form part of Derbyshire's approach to HIAM. Figure 1, below demonstrates its position and importance in delivering the HIAM.

DERBYSHIRE HIGHWAYS INFRASTRUCTURE ASSET MANAGEMENT PLANNING

Figure 1: Derbyshire Highways Infrastructure Asset Management Planning



QUANTIFYING DERBYSHIRE'S HIGHWAY INFRASTRUCTURE ASSETS

The following statistics provide the magnitude of the highway infrastructure asset in Derbyshire in 2023 for which Derbyshire is responsible and data is held:

- 3361 miles of total network of which 300 miles is the resilient network;
- 2796 miles of footways;
- 276 miles of cycle ways and greenways;
- 2788 miles of footpaths, 380 miles of bridleways, 43 miles of restricted byways and 36 miles of Byways Open to All Traffic (BOATS);
- 1207 highway bridges, plus 348 Public Rights of Way footbridges and 185 minor Public Rights of Way footbridges;
- 220 landslips, 81 rockfaces, 138 ≥ 0.9m culverts and 4 gantries;
- approximately 814 miles of highway retaining walls;
- approximately 89,980 road lighting columns;
- 133 signalised junctions, 96 CCTV Cameras, 9 Variable Message Signs, 11 Over Height Warning Signs, 26 toucan crossings, 263 puffin crossings, 13 pelican crossings, 7 pegasus/equestrian crossings, 166 permanent electronic warning signs, 67 mobile electronic warning signs, 300 flashing amber warning lights sites and 238 zebra crossings;
- 246 real time passenger information screens including: 154 LED displays,6 TFT interactive displays, 84 non-interactive TFT displays and 2 E-ink solar powered displays.
- 108 fixed road safety cameras housing units;
- 42 car parking metres and 8 Car Parking Guidance Signs,
- 15 miovision traffic counting units, 45 traffic monitoring SDR units, 40 passive bluetooth journey time monitoring devices, 4 speed guns, 146 automatic traffic counters;
- 7 weather stations; 803 County Council Grit Bins
- 2 Escape Lanes
- highway drainage which includes 160,944 gullies and 436 < 0.9m culverts;
- 2,407 locations with pedestrian barriers; and
- 76,984 traffic signs, road markings, approximately 2000 non illuminated bollards, 69 miles of vehicle restraint system, trees, verges and horticulture.

DERBYSHIRE'S DATA MANAGEMENT STRATEGY

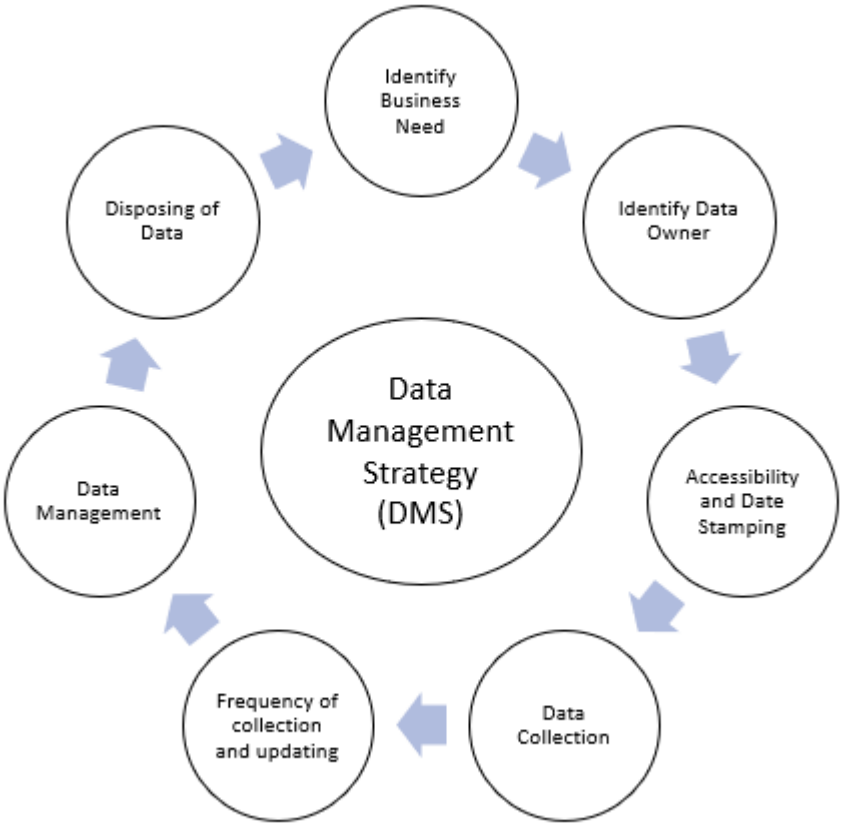
Asset data comprises information on the physical highway infrastructure assets an authority has responsibility for and includes information on attributes, such as:-

- Number, location and condition
- Lifecycle maintenance regimes
- Cyclic maintenance
- Asset removal
- Performance
- Financial value

Effective asset management planning and decision-making relies on knowledge of all aspects of data, including the varieties of data types, formats and sources of data and this being available, appropriate, reliable and accurate.

The HMEP has a simple schematic for the DMS (Figure 2 below) that can be tailored to meet the needs and objectives of each authority. For each area identified below, specific detail is provided to reflect the situation and planned approach under the Derbyshire HIAM Plan. The Derbyshire DMS has adopted this model and has considered the current situation and areas for development that follow from the initial gap analysis undertaken.

Figure 2: Data Management Strategy



IDENTIFY BUSINESS NEED

HIAM definition – based on an assessment of the data requirements, demonstrating how they meet the asset management strategy and include the risk associated with the data.

Current Situation

A review of the existing practices has been carried out and areas for development have been identified using the good practice principles laid out in HMEP guidance. Initially, to ensure the objectives in Figure 1 are met, an analysis of the current status of the highway infrastructure assets have been considered and a risk based priority plan developed to provide the necessary updates and to fill any identified gaps in data. There needs to be a

strategic and planned approach to providing the information relating to those identified gaps in data, taking into consideration:-

- Current Inventory Status
- Financial Constraints
- Time Constraints
- Asset Significance/Value/Risk

The gap analysis showed that the asset survey undertaken in 2008/09 was the last comprehensive survey of all assets, as such, it can be considered the nearest to a complete picture, as any updates since have been undertaken in a disjointed fashion. As with many organisations, some aspects of data are of an inconsistent or undefined quality. In 2020/21 Derbyshire plan to rerun the video asset capture to update the asset data.

Consequently, not all are represented by a defined level of quality or currency. Some assets are only updated on an ad-hoc as built basis and, as such, coverage is very uneven. In contrast, highways gullies and the street lighting database have been carefully developed as an early part of the Single Asset Management System (SAMS) implemented in 2015/16; as such, it is well maintained and is considered to have a thorough level of detail and coverage to meet business need.

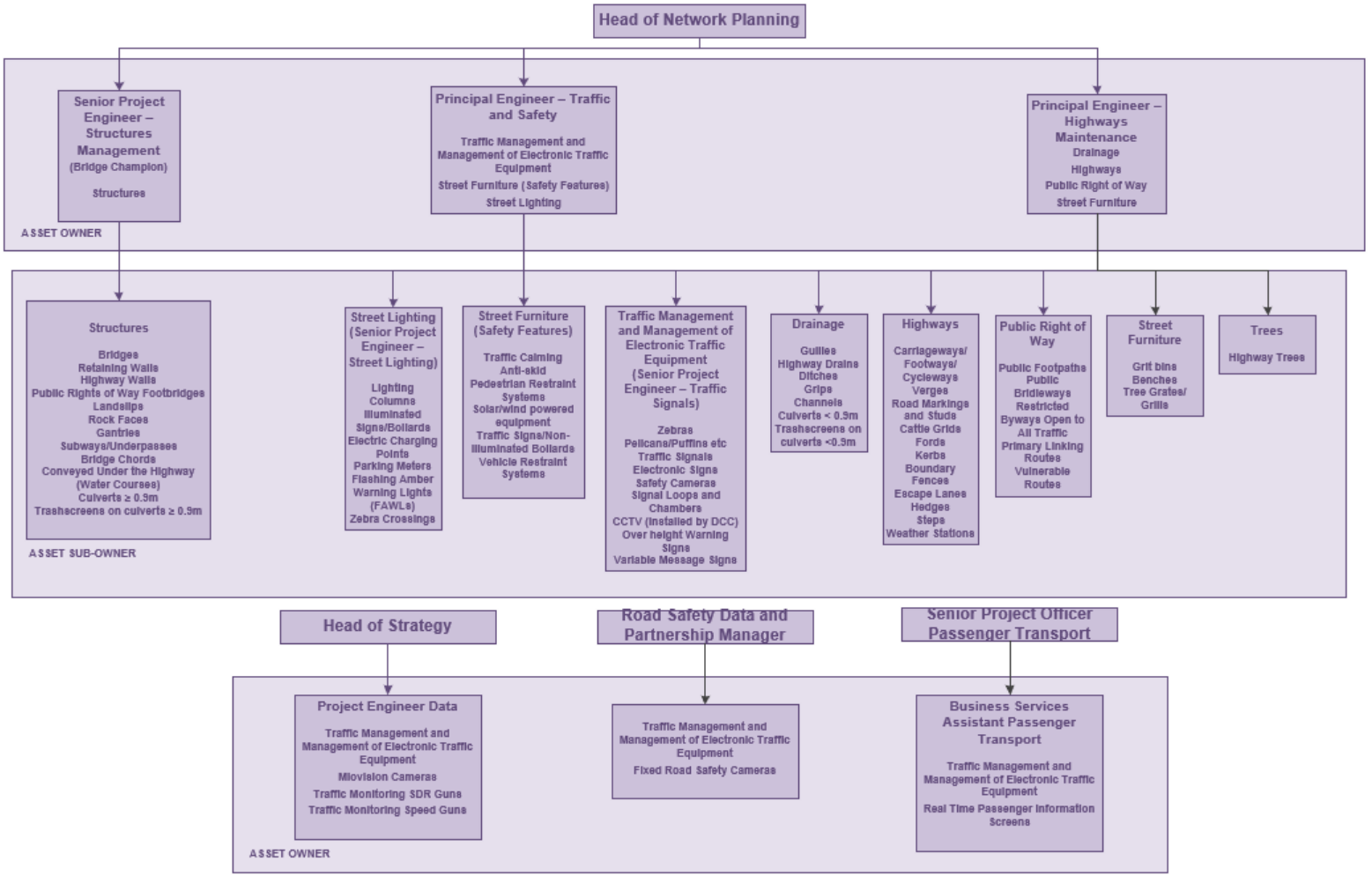
IDENTIFY DATA OWNER

HIAM definition – An 'owner' for the data is required to be responsible for managing the collected information.

Current Situation

At present, individual asset groups have an identified asset owner. The organogram in Figure 3 overleaf identifies the roles that are responsible for each highway infrastructure asset.

Figure 3: Asset Owners Organogram



DATA ACCESSIBILITY

HIAM definition – Access rights to the data should be considered and all data should be date stamped.

Current Situation

DCC uses SAMS to capture, store and report on its highway infrastructure assets. Access to and the level of permissions allowed within the SAMS system is controlled by the SAMS Systems Manager and supported by the System's processes. The System incorporates a full audit trail of changes to assets, including date stamping. However, additionally there are multiple support systems which are tailored to provide asset lifecycle planning and undertaking prioritisation programming.

DEVELOPMENT AREA 1: Development of process to enable sharing of data with SAMS from other systems

To further develop processes to allow relevant highway infrastructure asset information from supporting systems to be shared with SAMS.

DATA COLLECTION

HIAM definition – When determining the method of collection, the most cost effective method should be used. Requirements for the accuracy, reliability and repeatability of data should be considered.

Current Situation

Data collection is costly and resource intensive, so a well-planned process is essential. Data is collected, validated and updated using methods appropriate to the asset type. These include visual inspection, drone inspection, vehicle mounted asset data capture and desk top analysis.

The Head of Highway Strategy, along with the Senior Project Engineer – Asset Management will ensure that information is collected to an agreed approach tailored to each asset, identified in the risk based priority plan and held in the system to an agreed standard and level of accuracy.

DEVELOPMENT AREA 2: Development of process to ensure data accuracy

Asset capture and validation processes are being developed to ensure the accuracy of the information provided.

DEVELOPMENT AREA 3: Monitoring of data that is incomplete or not currently held

Continue to monitor areas where data is not complete or currently held and establish clear programmes for asset capture according to a risk based approach.

FREQUENCY OF COLLECTION AND UPDATING

HIAM definition – A risk based approach may be suitable, particularly where assets pose low risk to the performance of the network and are unlikely to require capital investment. Decisions about the life expectancy of all data types will need to be made.

Current Situation

The approach to asset update has been considered in terms of its risk and strategic importance, and is closely linked to the risk based approach developed in response to the Code of Practice Well-Managed Highway Infrastructure. As such, a risk based priority plan has been developed to identify the most important areas for update based on Network Hierarchy and significant asset attributes, such as those that provide a fundamental safety and/or legal role on the network.

As the Derbyshire HIAM is a 'live' document, it will require periodic review to update and appraise work programmes and financial plans against current data and conditions, financial provisions, costs of works and customer expectations. For the asset inventory, the timing of any reviews will need to consider a risk based approach. As such, we need to identify practical timescales for data collection and ways of being able to monitor this effectively.

DATA MANAGEMENT

HIAM definition – Data storage and management processes should be considered to ensure that these are fit for purpose, especially as the quantity and quality of data is likely to increase. IT specialists may need to contribute to this to ensure that the proposed approach complies with DCC's IT requirements.

Current Situation

A key objective of the Asset Management Strategy is to ensure that all staff had access to asset information that enabled them to meet their responsibilities for management of the assets in an effective and efficient manner. All assets are stored and are visible in the SAMS or in associated support systems alongside appropriate processes and procedures.

DEVELOPMENT AREA 4: Developing process for maintenance of asset data and usage of SAMs

Further develop ongoing processes and documentation for asset monitoring including documented processes for maintaining asset data by the asset owner and ensuring SAMS uses it effectively.

DEVELOPMENT AREA 5: Review of processes to ensure asset inventory is useful

Ensure review processes are strong enough to provide a high level of confidence and consistency in the asset inventory. This also includes developing specifications for attribute collection for all assets.

DATA DISPOSAL

HIAM definition – The DMS should consider how archiving or disposing of out-of-date data may be dealt with. This should consider whether the data will be required at a later date or whether it may be disposed of completely. In determining the performance of individual assets, historical information and trends may be invaluable to support decisions regarding future performance.

Current Situation

This is aligned to corporate data governance and departmental retention schedules.

DEVELOPMENT AREA 6: Ensure GDPR regulations are adhered to

Further develop the approach to data retention and security alongside the authorities General Data Protection Regulations (GDPR) responsibilities.

APPENDICES

APPENDIX A

Table 1: Development Area Summary

Development Area Number	Development Area Title	Action Taken
1	Development of process to enable sharing of data with SAMS from other systems	
2	Development of process to ensure data accuracy	
3	Monitoring of data that is incomplete or not currently held	
4	Developing process for maintenance of asset data and usage of SAMs	
5	Review of processes to ensure asset inventory is useful	
6	Ensure GDPR regulations are adhered to	