Appendix 2

Place & Sustainability

Highways Asset Data Strategy

Cambridgeshire County Council

Version Control

Version History

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1. Data Strategy

1.1 Cambridgeshire 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 This is a foundational document that outlines how data is to be collected, managed and utilised to enable the activities which are outlined in the authority's Highway Asset Management Strategy (HAMS) suite of documents.

1.3 The HAMS sets out our approach for the management of all highway assets including lighting, drainage, bridges, and structures, cycling infrastructure and signage.

1.4 This Highway Asset Data Strategy (HADS) has been designed to ensure that highway information is collected, stored and shared in a consistent and auditable format that supports the implementation of the HAMS, performance management framework, aligns with our strategic framework and upholds our values of Collaboration, Accountability, Respect and Excellence.

1.5 Effective highway asset management stresses the importance of having up-to-date reliable data which allows the authority to make data led decisions around maintenance and investment. This enables us to make informed decisions around what is prioritised for repair and demonstrate why this is the case.

1.6 It is important that this captures the quantity and type of asset and their condition so that the asset location, condition, work undertaken previously and where they are in their lifecycle is understood.

1.7 Healthy data is critical to support highway asset management activities, including:

- Defining network inventory and asset performance
- Supporting statutory requirements
- Making effective and informed decisions and justifying decision making.
- 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 the financial value of our assets
- Reporting performance
- Defining our Capital Maintenance & Improvement Programme

1.8 Although the council's Asset Management Team is responsible for the prioritisation and production of the Capital Maintenance Programme, effective highway asset management necessitates that it is incumbent upon Asset Owners across the authority to ensure their data is relevant, complete, accessible, and up to date.

2. Data Collection

2.1 A funding allocation is set aside each year from the overall highways maintenance budget to carry out condition and other surveys so that our asset datasets are up to date.

2.2 In order to inform optimal investment decisions it is critical we have sufficient knowledge of the condition, location, and lifespan of each of the highway assets. The required quantity and detail of attributes recorded for asset types will vary depending on:

- The benefits of specific information given business need.
- The costs of collection of information relative to the risk the asset's deterioration poses.
- The resource costs of maintaining the data once collected.
- The impact on the asset's maintenance on mitigating risk
- The requirements of whole government accounts

2.3 Appendix 1 covers the data that is currently collected and held against the major highway asset types, including the current frequency of data collection, systems that hold the information and the ascertained risk level that the poor health of each dataset poses to the authority.

2.4 Appendix 1 also details a data custodian for each asset type, typically the team or individual principally responsible for the maintenance and/or use of the asset type itself, or the dataset. This transparent accountability promotes ease of audit as well as collaboration by detailing a point of contact.

2.5 Embedding data custodianship within the activities of asset owners ensures that subject matter expert opinion is reflected in datasets, while data-driven decisions are also encouraged. The latter enables the former when lessons learned from using the data to inform maintenance decisions allow informed review of the health of the asset dataset thereafter. This forms the basis for action-plans to improve asset data over time.

2.6 A gap analysis which consists of identifying datasets in poor health concerning the number of assets recorded and relevant attributes recorded against the asset is conducted, and investment in high-risk, poor health asset data will be prioritised in line with 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'. This informs our action plan detailed in Appendix 3.

2.7 To ensure that consistent results are achieved and to promote deterioration modelling and lifecycle planning via comparing current and legacy datasets, it is preferred to use the same survey and data collection methods for individual asset types year on year.

2.8 Asset Information should always be focussed on a common reference point where appropriate. For example, road condition or skid resistance data should at minimum refer to a Unique Street Reference Number (USRN) or United Kingdom Pavement Management System (UKPMS) section code and preferably include a chainage reference. This enables cross-referencing data, integrating data into multiple systems to promote collaboration and supports lifecycle planning and prioritisation in the process.

2.9 Information pertaining to physical infrastructure is often spatial by nature. To ensure accuracy and consistency, asset data should be snapped to or copied from the geometry of the local street gazetteer or UKPMS Network for road condition or skid resistance, or OS (Ordnance Survey) features for other physical assets such as waterbodies and verges. This provides a degree of geospatial quality control, which is important as poorly digitised assets impinge onto areas not maintained by Cambridgeshire or inaccurately estimate maintenance costs per square metre, for example.

2.10 Data quality control and formatting activities will ensure the integrity of our asset datasets:

- Spot checking visual surveys with pavement engineers to ensure accuracy.
- Spot checking geospatial alignment, data accuracy and completeness when geospatial datasets are procured.
- Ensuring that nationally mandated quality controls are adhered to:
  - UKPMS coding criteria for relevant condition surveys are met.
  - TRL (or equivalent) certificates for SCRIM (Sideway-force Coefficient Routine Investigation Machine) calibration and SCANNER (Surface Condition Assessment for the National Network of Roads) credibility are obtained and verified.
  - Visual survey inspectors are trained and accredited according to UKPMS standards.
  - SCRIM follows DMRB CS 228 (previously HD28/15) for skidding resistance assessment.
  - Where applicable, visual surveys conform to CS 229 and CS 230 standards (e.g. for safety inspection)
  - Any data processing or conditioning is done using UKPMS-accredited software and tools to maintain compatibility with pavement management systems.
- All new carriageway condition surveys will conform with BSI PAS2161 to ensure systems integration, data quality and allow Cambridgeshire to pivot to innovative data collection technology while benchmarking against legacy asset data and other councils.
- Data is subject to transparent custodianship from an individual or team that is the designated subject matter expert for the use and/or maintenance of the asset that the dataset pertains to as detailed in items 2.4 and 2.5.

2.11 Cambridgeshire is an active participant in the National Underground Asset Register (NUAR) and is committed to maintaining underground asset datasets in our systems in a compatible specification to enable efficient and accurate data transfer.

2.12 To ensure value for money is 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.
- Competitive tender for data collection work as the need arises.

3. Data Management

3.1 The IT systems used to manage data and form the respective asset registers will be reviewed in conjunction with our IT service before procuring new services or extending existing contracts.

3.2 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.

3.3 Cambridgeshire manages a large and diverse highway asset portfolio. As such, the objective of its asset data management IT system(s) is to fulfil the objective of being a Single Asset Management System (SAMS) for at minimum a single asset type, and preferably for every single asset type we are responsible for.

3.4 Working towards the principle of less systems (single systems per asset type) or ideally a single overall system provides the following benefits:

- ✓ **Collaboration:** In separate systems, asset interdependencies are missed (e.g. resurfacing a road without checking buried drainage condition). A SAMS allows for coordinated planning, e.g. aligning roadworks with lighting upgrades or footway renewals. Multiple systems hinder joined up service planning.
- ✓ **Accessibility:** A SAMS provides ease of access for all highway officers to view data, and thereby embed asset management in their decision-making processes, while ensuring only certain officers have access to data management
- ✓ **Value for Money:** It is often inefficient practice to procure multiple systems for the management of different asset datasets where a single system may have the potential to effectively manage multiple.
- ✓ **Excellence:** A SAMS is a sole source of truth for asset type(s). This irons out potential inconsistencies created by managing parallel datasets for the same asset type across multiple systems. Furthermore, it allows multiple asset condition inspections to be completed remotely using one tool (e.g. safety inspections and gully silt levels).

3.3 In some instances a true SAMS may be impractical, for example, a high-risk asset type requiring digital asset management before a true SAMS can be procured and implemented. However, the SAMS principles should still be followed ensuring a sole source of the truth for that asset type.

3.4 Cambridgeshire's migration from Insight (Symology Ltd.) to Aurora (Symology Ltd.) aligns with and helps the authority in its commitment to utilise a SAMS for asset management by acting as the single source of truth for most asset types in Appendix 1. One of the ways it shall contribute towards this is by being cloud-native SaaS (Software as a Service), this means it is cloud-based, and all officers can access the system at any time regardless of location. The benefits of this approach are as follows:

- ➢ This removes the need for complicated and inconsistent paper trails.
- ➢ Asset information can be recorded on-site remotely for all asset types recorded in the system.
- ➢ Aurora is map-based, allowing asset data to be visualised intuitively, including spatial proximity to other assets which promotes joined up service planning.
- ➢ SaaS systems also benefit from continuous updates as opposed to locally hosted systems, enhancing performance and configurability.

3.5 Asset inventory and condition surveys are resource intensive in both cost and time. A benefit of Aurora that aligns with the SAMS objective is that defects and works orders can only be raised against relevant asset types (e.g. broken lid against a gully instead of a USRN). This embeds asset management data collection activity in the operational duties of highway officers, improves information that can be used for risk assessment, lifecycle planning and works programming and removes the need for an additional system.

3.6 It is incumbent upon all highway officers to record defects and works orders against relevant assets, log their condition and add assets to the database when required.

3.7 A RACI index in Appendix 2 expands on the custodianship column in Appendix 1 and the duties detailed in items 3.5 and 3.6 by assigning routine responsibility for data upkeep, accountability for how the data is upkept, who is consulted regarding decisions and who is routinely informed of these decisions, progress and results.

3.8 Asset registers will be maintained as live documents that are stored within the SAMS and continuously updated and refined to meet business needs by the officers with primary access to the data.

3.9 Access to the data contained in the asset registers will be restricted to our highways teams to ensure appropriate management of the data.

3.10 The data will be used to routinely monitor service performance, benchmarking and on request for other asset management functions as required through the ongoing use of Aurora's dashboard and reporting functionality. This will improve the ability of the authority to efficiently respond to FOIs and report on as well as monitor service performance.

Performance Management

3.11 Performance reporting is a critical component of highway asset management, ensuring transparency, accountability, and continuous improvement. Reports are reviewed regularly by internal and external stakeholders, including senior officers, elected members, and committee panels.

3.12 These reports provide evidence of the Term Service Provider's (TSP) ability to maintain the network in line with the performance tolerances set out in the HAMP. They also enable benchmarking of the council's network condition and deterioration rates against peer authorities:

- Contractual Key Performance Indicators (KPIs), such as the timely resolution of highway safety defects and other priority repairs, are used to assess contractor performance against agreed service levels. These metrics provide valuable insight for both operational contract management and strategic performance assurance.
- Performance data supports the development of business cases, funding bids (e.g. DfT, capital maintenance programme), and service transformation initiatives. Where performance against HAMP standards or condition targets deviates significantly, this evidence is used to justify change — whether through increased investment, revised intervention levels, or service model adjustments.
- Participation in national benchmarking initiatives (e.g. National Highways and Transport (NHT) Survey) enhances transparency and provides comparative insight into how the authority's network performs relative to others in terms of condition, cost, and service outcomes.

Lifecycle Planning and Whole Life Costs

3.13 Lifecycle planning (LCP) is a technique which enables us to monitor and anticipate the future condition of our highway assets and know when we need to repair or replace it. Detailed knowledge of the size, safety, condition, and value of our highway assets enables us to take into consideration whole life costs when managing these assets. 3.14 We use a range of tools, from nationally available models such as the Highway Maintenance Efficiency Programme (HMEP), United Kingdom Roads Leadership Group (UKRLG) and Structures Asset Valuation and Investment (SAVI) toolkits to the LCP module of our Pavement Management System (PMS), to proprietary in-house Geographic Information System (GIS) applications.

3.15 We use asset data and lifecycle planning models to inform the development of evidence-based investment strategies. These strategies are designed to achieve an agreed level of service performance, or in scenarios of constrained funding, to predict the impact of different funding levels on network condition and service outcomes.

3.16 This approach supports the efficient and targeted allocation of resources, ensuring that highway asset management remains both cost-effective and aligned with the wider objectives and priorities of the Council. It also enables the identification and assessment of any residual risk resulting from funding shortfalls or service-level adjustments.

Capital Maintenance Prioritisation

3.17 A Capital Maintenance Programme is a planned schedule of major works aimed at preserving, improving, or extending the life of highway assets using capital funding rather than routine maintenance budgets.

3.18 The capital maintenance programme is shaped through a structured, data-driven process that combines condition data, risk-based criteria, and spatial analysis.

3.19 Using our PMS, candidate schemes are automatically generated by intelligently linking adjacent poor-condition subsections, based on defined maximum join distances. Only sections that meet a minimum cumulative length qualify for scheme consideration.

3.20 This process is underpinned by condition data from machine and visual surveys (e.g. Footway Network Survey (FNS), SCANNER) and is enhanced by spatial and attribute analysis performed using proprietary computer programmes within GIS.

3.21 Once candidate schemes are formed, they are visually validated and ranked using a weighted scoring matrix that considers factors such as the volume and cost of recent reactive repairs, the network maintenance hierarchy, and strategic importance indicators like active travel corridors and bus routes.

3.22 This integrated approach enables the authority to prioritise interventions efficiently, target investment where it has the greatest impact, and align maintenance planning with wider transport and policy objectives.

Appendix 1 – Asset Data Inventory Registers

Cambridgeshire holds several data sets which are available for use throughout the service and are maintained by the data custodian.

These data sets enable officers to make data-led decisions when undertaking their work, such as ascertaining risk, prioritising resource allocation and forward planning.

The datasets for our main highway asset groups are specified below, with red, amber, and green pertaining to the health of the asset dataset. Appendix 3 details the action plan and 'road to green' for datasets currently regarded as being in 'red' or 'amber' health concerning their completeness, relevance and accuracy.

Asset Data Set	Data Custodian	Data Description	What is the data used for	Frequency of Data Collection	Data System	How the data is updated
Local Street Gazetteer (LSG)	Highway Records Team	Defines Cambridgeshire's Street network to National Standards and adoption status etc.	Used within Permit Schemes and Street Works.	Ongoing	Aurora (Symology Ltd.)	Continuously updated and maintained by council's Highway Records Team to reflect new adoptions and network changes.
Definitive Map & Statement	Definitive Map Team	Defines Cambridgeshire's statutory record of public rights of way	Legal disputes, public path orders and enforcement	Ongoing	MapInfo Pro	Continuously updated and maintained by council's Definitive Map Team to reflect new adoptions and network changes.
UKPMS Network	Asset Strategy	Defined Highway network sections inventory & maintenance hierarchy used as base layer for condition surveys, reports etc.	Highway inspections / defect repair and identifying maintenance schemes.	Ongoing	WDM -PMS	Continuously updated by the Asset Strategy Team to reflect adopted roads within the LSG

MapInfo Pro		Corporate IT & Asset Strategy	Geospatial databases are used to record asset and project information, and store GIS data in a central location for easy access and management.	Manipulating, editing, and visualising spatial data.	Ongoing	MapInfo Pro	Software updates issued by Council's ICT service, and new datasets added by IT or Asset Strategy according to business need.
Carriageway Condition	**SCANNER**	Asset Strategy	Road Condition Survey utilising LiDAR and laser measurement technology.	Identifying and prioritising maintenance schemes, risk-management, lifecycle planning, national and internal reporting.	Annual	WDM -PMS	Policy as of 2025 is to survey 100% of the network. Previously 100% of A and B in one direction, alternating direction each year, and 50% of C roads in one direction each year. This was to conform with DfT reporting requirements. Replaced with Gaist from 2021-2024.
	SCRIM	Asset Strategy	Nationally mandated skid resistance survey covering our Strategic Routes and Main Distributors.	Measures the skidding resistance of a road surface to assess its safety and help identify locations with a higher risk of skidding accidents	Annual	WDM -PMS	100% of SCRIM network surveyed annually in both directions, alternating between an early, mid, and late season survey annually, and taking an average reading of the previous three years to account for seasonal variation.

Carriageway Condition	**Gaist**	Asset Strategy	Road Condition Survey utilising machine learning analysis of HD imagery.	As with SCANNER, but with additional benefit of HD imagery provision, width measurement and street furniture inventory identification.	Ceased annually. Ad-hoc surveys may continue according to business need.	AssetStream	Policy from 2021-2024 was to survey 100% of the network. Discontinued for FY 24-25.
	CVI	Asset Strategy	Driven visual inspection of the carriageway.	As with SCANNER	Ceased	WDM -PMS	Discontinued as of 2021 and replaced with Gaist AI Data. Legacy data held in PMS.
	DVI	Asset Strategy	Walked visual inspection of the carriageway.	As with SCANNER	Ceased	WDM -PMS	Discontinued as of 2021 and replaced with Gaist AI Data. Legacy data held in PMS.
Footway Condition	**FNS**	Asset Strategy	Walked visual inspection of the footway.	As with SCANNER, with additional benefit of materials inventory provision and width measurements.	Annual	WDM -PMS	Policy as of FY 24-25 is to survey 50% of the network, continuing into FY 25-26 for 100% coverage over the two-year span. Previously 25% coverage annually. Future footway condition survey technique currently under review.
	Gaist	Asset Strategy	Footway Condition Survey utilising machine learning analysis of peripheral HD imagery from road assessment vehicle.	As with Gaist carriageway condition survey but for roadside footways.	Ceased	AssetStream	Procured alongside 2021 pilot Gaist survey but ceased thereafter.

Highway Defects		Asset Data & Highway Inspections.	Safety defects as collected on a routine basis in accordance with a cyclic programme of inspections. Used to generate Key Performance Indicators.	Performance reports, lifecycle planning, maintenance scheme prioritisation, defence against highway claims	Daily	Aurora (Symology Ltd.)	Updated and maintained by Highway Safety Inspectors, compiled and analysed for KPI and claims defence by Asset Data Team staff.
Cycling Infrastructure		Active Travel Team	Location and details of Cambridgeshire's cycletracks and cycleways.	Demonstrates commitment to meeting Sustrans specification and supports Active Travel Strategy.	Ongoing	MapInfo Pro	Continuously updated and refined as new infrastructure is built or improved.
Inventory	**Bridges & Structures**	Structures & VRS Team	Location, details and condition of bridges, footbridges, and culvert structures. Defines those maintainable at public expense.	Performance reports, inspections, work programmes and maintenance, WGA accounts.	Ongoing	Aurora (Symology Ltd.)	Updated as new structures built / Condition updated through Cyclical maintenance
	Street Lighting	Balfour Beatty PFI Contract	Locations of lighting columns illuminated signs/bollards.	Performance reports, cyclical inspections, work programmes, maintenance, energy returns, WGA accounts	Ongoing	Mayrise (Causeway Technologies)	Street Lighting infrastructure is managed and maintained by Balfour Beatty as part of an existing PFI Contract, due to expire in 2036.
	Drainage Systems	Cyclical Drainage & Winter Team	Location of gullies and linear drainage systems on adopted highway. Status, silt levels, maintenance history.	Performance reports, cyclical inspections, work programmes, maintenance	Ongoing	GullySmart (KaarbonTech) & MapInfo Pro	Updates following cyclical maintenance reports

Inventory	**Highway Trees**	Tree Officer	Location and details (e.g. species, canopy spread) of trees affecting the highway.	Risk-based inspection routes for potential defects.	Ongoing	Aurora (Symology Ltd.)	Legacy tree data last gathered in early 2000s and not maintained with relevant attributes. Dedicated action plan moving forward.
	Verges	Green Infrastructure	Location and details of adopted and maintained verges.	Foundation for the production and distribution of maintenance plans.	Ongoing	MapInfo Pro.	Legacy verge data last gathered in early 2000s and not maintained with any relevant attributes
	Lines	Asset Strategy	Location, condition and details of lines and road markings on specific routes	Foundation for the production and distribution of maintenance plans.	Ceased	AssetStream	Procured from Gaist in FY 23-24 and obtained from machine learning analysis of HD imagery of the road assessment vehicle. Incomplete and outdated.
	Traffic Signs	Asset Strategy	Location, condition, and details (e.g. diagram, attachment) of road traffic signs	Foundation for the production and distribution of maintenance plans.	Ceased	AssetStream	Procured from Gaist in FY 24-25 and obtained from machine learning analysis of peripheral HD imagery of the road assessment vehicle.
Traffic Signals		Signals & Systems Team	Location, condition, and details of traffic signals	Used for asset valuation and management	Ongoing	IMTRAC and Aurora (Symology Ltd.)	Updated following cyclical, planned, and reactive maintenance and new additions
Weed Spraying Sites (Kerbs)		Green Infrastructure	Location and length of kerbed footways within 40mph zones designated for weedkilling.	Costing and scoping weed spraying contracts.	Ceased	Stored and provided as maps in PDF format, summarised in excel and GIS.	Dataset created internally using GIS from kerbed footway inventory provided by Gaist in FY 23-24.
Customer Relationship		Corporate IT	CRM software records and tracks customer	Performance reports, feedback trends	Ongoing	XXXX	XXXX

Management (CRM)		queries, reports, and responses				
Performance Management Framework	Project Management Office Team	Performance dashboards and data held on MS Teams site	Performance monitoring, information sharing	Ongoing	POWA, MS Teams	Updated as required by highways staff / administered by PMO
Traffic and Parking Regulations	Traffic Manager	GIS based system recording TRO's, speed restrictions and other legal orders.	Definitive record of parking restrictions, traffic orders etc.	Ongoing	XXXX	Updated following new schemes / legal orders
Winter Maintenance	Cyclical Drainage & Winter Team	Priority and other defined gritting routes and management systems.	Fulfilling statutory Winter maintenance obligations, performance reports.	Ongoing	XXXX	Routes updated when required
Flood Risk Management	Flood Risk Management & SuDS Team	Locations to aid in identification of Risk and Maintenance	Fulfilling statutory obligations as flood risk authority, performance reports.	Ongoing	XXXX	Action plan maintained and updated by Flood Risk & SuDS Team
Road Traffic Collision Data	Policy & Insight Team	Locations and wet skid, defective surface and other details of RTCs	Substantiates decisions surrounding changing SCRIM Investigatory levels and road safety audits	Ongoing	IMAAP	System due to be re-procured in Spring 2026

Traffic Flow Data	**Legacy Data**	Policy & Insight Team	Historic traffic flows and modes	Used in transport planning, to produce forecast data and to inform decisions surrounding highway design	Ongoing	Alpha	Potential to migrate this data to Microsoft Azure platform
	Forecast Data	Transport Modelling Team	Modelled data predicting future traffic flows/modes	Used in transport planning as well as a factor in the capital maintenance prioritisation process	Ongoing		

Appendix 2 – Asset Data RACI Index

In items 3.5 and 3.6 it is noted that it is incumbent upon all officers raising defects or works orders against highway assets to do so against relevant asset types to effectively improve asset information in a cost-effective and intuitive manner, or to populate empty or inaccurate asset attributes where necessary, and for these duties to be embedded in day-to-day operations . The RACI index expands on this by assigning responsibility (who routinely does the work regarding data upkeep), Accountability (who owns the outcome and makes decisions regarding how the work is routinely done), Consulted (asked for input before decisions are made) and Informed (kept updated on decisions, progress and results).

Asset Data Set		Responsible	Accountable	Consulted	Informed
Local Street Gazetteer (LSG)		Highway Records Team	Highway Records Manager	GIS, Asset Strategy	ICT, Districts (LLPG)
Definitive Map & Statement		Definitive Map Team	Definitive Map Manager	Legal, Land Registry	Public Rights of Way Users
UKPMS Network		Asset Strategy Team	Asset Strategy Manager	Maintenance Teams	Finance, Members
MapInfo Pro		Corporate IT & Asset Strategy	Application Services Manager	GIS Team	All Services Using GIS
Carriageway Condition	**SCANNER**	Asset Strategy Team	Asset Strategy Manager	Surface Treatments Manager, Capital Maintenance Delivery, Road Safety	DfT, Leadership Team, Members
	SCRIM	Asset Strategy Team	Asset Strategy Manager	Surface Treatments Manager, Capital Maintenance Delivery, Road Safety	DfT, Leadership Team, Members
Carriageway Condition	**Gaist**	Asset Strategy Team	Asset Strategy Manager	Surface Treatments Manager, Capital Maintenance Delivery, Road Safety	DfT, Leadership Team, Members

Carriageway Condition	**DVI/CVI**	Asset Strategy Team	Asset Strategy Manager	Surface Treatments Manager, Capital Maintenance Delivery, Road Safety	DfT, Leadership Team, Members
Footway Condition	**FNS**	Asset Strategy Team	Asset Strategy Manager	Slurry Sealing Programme Manager, Capital Maintenance Delivery	DfT, Leadership Team, Members
	Gaist	Asset Strategy Team	Asset Strategy Manager	Slurry Sealing Programme Manager, Capital Maintenance Delivery	DfT, Leadership Team, Members
Highway Defects		All Officers Raising Orders on the Highway	Head of Highway Maintenance & Management	Asset Data & Inspections	Call Centre, Members
Inventory	**Bridges & Structures**	Structures & VRS Team	Structures Manager	Asset Strategy	National Highways, Stakeholders e.g. Network Rail
	Street Lighting	Balfour Beatty PFI Contract	Strategic Projects Manager	Balfour Beatty Contract Manager	Residents, Parish Councils
	Drainage Systems	Cyclical Drainage & Winter Team	Head of Highway Maintenance & Management	Flood Risk & SuDS	Lead Local Flood Authority, Residents
Inventory	**Highway Trees**	Safety Inspectors, Highway Maintenance Officers	Tree Officer	Ecology, Head of Highways Maintenance & Management	Residents, Parish Councils, Stakeholders (e.g. landowners)

	Verges	Highway Maintenance Officer (Green)	Cyclical Maintenance Lead (Green Infrastructure)	Ecology, Head of Highways Maintenance & Management	Residents, Parish Councils, Stakeholders
	Lines	Asset Strategy	Asset Strategy Manager	Head of Highways Maintenance & Management	Delivery Teams
	Traffic Signs	Asset Strategy	Asset Strategy Manager	Head of Highways Maintenance & Management, Area Managers	Delivery Teams, Road Safety
Traffic Signals		Signals & Systems Team	Traffic Manager	Asset Strategy Team, Transport Modelling, Transport Assessments	Network Users (e.g Emergency Services)
Weed Spraying Sites (Kerbs)		Highways Maintenance Officers (Green)	Cyclical Maintenance Lead (Green Infrastructure)	Ecology, Head of Highways Maintenance & Management	Public, Stakeholders
Customer Relationship Management (CRM)		Corporate IT	Head of Business & Digital Systems	Contact Centre	Communications Team, Service Users
Performance Management Framework		Programme Management Office Team	Team Manager - PMO	Head of Commercial and Contracts, Finance & Business Support Manager, Corporate Performance Frameworks Manager	Senior Leadership Team, Members
Traffic and Parking Regulations		Policy and Regulation Team/Engineers	Traffic Manager	Legal, Enforcement Officer, Planning Authorities, Parking	Residents, Parish Councils, Members

Winter Maintenance	Cyclical Drainage & Winter Team	Cyclical Maintenance Lead (Drainage and Winter)	Asset Strategy Team, Senior Highways Maintenance Officer	Members, Service Users
Flood Risk Management	Flood Risk Management & SuDS Team	Flood Risk Manager	Emergency Planning, LLFA, Cyclical Lead (Drainage and Winter)	Residents, Developers

Appendix 3 – Action Plan and 'Road to Green'

Appendix 1 (Asset Data Registers) details a red, amber and green health score for each asset data type's completeness, relevance and accuracy. The following details Cambridgeshire's action plan for improving the health of datasets currently considered red and amber.

Asset Data Type	Risk	Current Main Components	Additional Data Required	Recommendations	Timescale
MapInfo Pro	Low	Miscellaneous and general inventory data as well as spatial layers relating to infrastructure planning and delivery not otherwise managed in a specialist system	Data has been held in the MapInfo geospatial database for assets such as verges, greens, commons, traffic counts and accidents etc. This has largely been a result of the poor performance of the locally hosted legacy asset management system's mapping but has resulted in inconsistencies between the data held in the legacy system and MapInfo. This has, at times, made it challenging to obtain a single source of truth. Asset inventories need to be reconciled between MapInfo and the asset management system and various other systems to allow the implementation of a SAMS.	A modern SaaS, map-based counterpart to our current asset management system has been procured and is in the process of being configured and implemented. It remains, however, that some assets (particularly legal designations such as the highway extent and rights of way) can't currently be maintained in Aurora. It's planned that the desktop GIS platform will be reviewed this year as preferably Cambridgeshire would utilise a GIS that connects to our hosted Spatial Data Warehouse (SDW) provided by Astun Technology. This will provide a more robust, auditable and easier to manage platform containing a 'single version of the truth' for those assets that remain outside of Aurora compared with a legacy file-based system. A web services integration will be created between SDW and Aurora to enable those assets to be viewed in context within Aurora.	TBC

Drainage Systems	Medium	Inventory and condition	The inventory data needs to be reconciled between the MapInfo table and KaarbonTech, as neither are complete and some assets overlap. Overlaps need to be resolved, and a new survey needs to be procured to fill in gaps. Following this, risk-based gully-cleansing routines need to be informed by silt level monitoring. This activity can be combined with cleansing to ensure cost, time and carbon efficiency, or digital monitors could be installed where available.	Inventory data for the entire county needs to be collected which is geo-spatial and captures all works required on a cyclical basis.	TBC
Highway Trees	Medium	Co-ordinates	Highway trees were last surveyed using LiDAR 20 years ago, and height, canopy spread, species, age and defects were not attributed to each co-ordinate. Consequently, the data is irrelevant, incomplete and inaccurate. A risk-based inspection regimen cannot be informed by current data.	A digital asset management solution has been procured to obtain a renewed tree inventory based on LiDAR analysis, as well as a visual inspection from accredited arboriculture professionals. This has created a complete data set including all the data required to substantiate a risk-based maintenance regimen. The next step will be procuring countywide condition surveys of all our tree stock so they can be risk assessed and scored to determine the future maintenance regime.	TBC

Verges	Medium	Length/Area	Verges and protected verges inventory spatial data was last partially gathered over 20 years ago from on-site surveys and has since been updated on an ad-hoc basis as a desktop exercise. The data needs to be updated via an up-to-date inventory survey to inform future costs and scope. This will help us to move to risk-based approach with greater levels of cost certainty and control over maintenance work in future.	Inventory data for the entire county needs to be collected which is geo-spatial and captures all works required on a cyclical basis.	TBC
Lines	Low	Dimensions/ Type/ Condition (reflectivity/ wear)	A partial lines inventory and condition survey was procured from HD imagery taken of the carriageway from the Gaist RAV in 2021 and not updated since. Consequently, this remains incomplete and is inaccurate and irrelevant because of it being outdated.	A considerable budget was allocated to lines improvement in the last financial year's capital programme, and a commensurate amount of work was delivered. In the absence of continuous condition surveys, it is to be emphasized/communicated to highway maintenance officers to monitor the condition of lines in their area to inform targeted expenditure in future.	TBC