Highways Infrastructure Asset Management Plan 2025

Section 4 – Data Management Strategy

Coventry City Council

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Document Control

Version	Description	Date	Officer	Role	Approval
1.0	Minor general updates	August 2016	DCR	Asset Management Engineer	-
1.1	Minor general updates	June 2019	DCR	Asset Management Engineer	Cabinet
2.0	Minor general updates Re-sectioning/accessibility update Added data scoring methodology	May 2025	AC	Asset Management Engineer	Strategic Lead for Highway Operations & Delivery

4. Data Management

4.1. Overview and Definitions

Robust data is essential in making confident asset management based decisions. The aim of this document is to showcase the data types collected and how they are used to drive sound decisions made by the highway maintenance service.

4.1.1. Data Types

Highway asset data can generally be split into four categories:

- **Inventory -** what is where; total number/extent, location, material types etc.
  - E.g. for carriageway we hold mapped extents, surface material, widths and direction (if one way).
- **Condition –** national standards (where applicable) and other relevant condition data used to make informed maintenance decisions
  - E.g. this can range from a simple overview of condition at a network level to detailed information on individual defects
- **Usage –** details of asset usage/purpose
  - E.g. traffic counts, HGV routes, bus route etc.
- **Valuation –** Historically returned to CIPFA (Chartered Institute of Public Finance and Accountancy) via WGA (Whole Government Accounts), no longer an annual requirement but valuations still periodically performed to provide context to wider asset management activities

Data is expensive to collect and maintain so it is essential all data aligns to the needs of national statutory reporting and individual requirements of the authority. Data requirements have been determined for all asset types, and levels of detail generally increase the more important an asset is.

- e.g. the condition of roads in Coventry (especially main routes) has an impact on the entire City and the wider region; so therefore, a sufficient level of detail is needed to ensure efficient planned maintenance.
- damage to bollards is a local issue generally only affecting part of a road with maintenance generally performed on a reactive level, so minimal (if any) bollard inventory/condition data is required

4.1.2. Key Assets

Key assets are the assets primarily responsible for safe, reliable transport journeys with significant impacts of asset failure. These are assets with higher levels of investment and as such require higher levels of detail in both data collection and analysis.

Our key highway assets (in regards to regular national/regional goverment maintenance grant funding) are:

Carriageways

Footways

Cycleways

Bridges & Structures

Drainage

Other key assets (not funded via maintenance grant funding):

Traffic Management Equipment (traffic signals – funded via Local Network Improvement Programme)

Street Lighting (including illuminated signs – funded via PFI)

4.1.3. Other Assets (non-key assets)

Other assets include (but are not limited to): non-illuminated signs, bollards, road markings, fences/barriers, and street furniture. Generally non-key assets are maintained on a reactive basis or have very small amounts of capital funding assigned (e.g. verges are generally assigned 1-2% of the annual budget).

4.1.4. Asset Management Systems

The Council primarily use CONFIRM to hold condition data for carriageways and footways to process data to national (UKPMS) standards. CONFIRM also holds financial work orders (for both planned and reactive maintenance), inspection records and customer enquiries.

LDV has been used since 2024 to ensure previously collected data also confirms with the upcoming DfT data standards.

BridgeStation is used for bridges and structures holding inspection records, condition data and is used for asset valuation.

Drainage assets and associated cleansing records are stored in Kaarbontech.

Further data analysis is performed in-house via extracts from these systems generally to fulfil local needs outside of national reporting requirements (such as generating treatment sets, ranking schemes etc.).

4.1.5. Data Snapshot

The table below shows (as of 2024) the current extent of the key highway assets maintained by The Council:

- Carriageways (including on-carriageway cycleways) - Total: 882km
    - A (Principal) Roads: 90km
    - B&C (Classified – non-principal) Roads: 131km
    - U (Unclassified) Roads: 661km
- Footways & Dedicated Cycleways – Total 1,447km
    - Including 148km of remote/dedicated (no associated carriageway) footways
- Bridges and Structures – Total 293
- Drainage: a vast array of drainage assets
    - Including 49481 gullys

Asset extents will vary year-on-year due to new adoptions and (less-likely) any stopped up sections of network, however this is generally a very small change. Therefore the above snapshot will retain a significant level of accuracy for years to come.

4.2. Valuations & Backlog Calculations

Although asset valuations are not strictly required to be submitted annually in as much detail as previous years (in the form of WGA); Coventry still perform periodic valuations as these are useful for financial reporting purposes, lifecycle planning and providing context to stakeholder queries and expectations.

The below table shows the GRC (Gross Replacement Cost) – the cost to replace all assets 'as new' in Coventry (correct as of 2024)

Table 4.1. Asset Value (GRC), raw figures and as a percentage of total

Asset	GRC (£s)	% of total
Carriageways	£1,392,317,500	58%
Footways & Cycleways	£408,712,757	17%
Structures	£508,656,551	21%
Street Furniture & Other Assets	£99,759,000	4%
TOTAL	**£2,409,445,808**	

[1]Drainage has been excluded, although a key asset in terms of the HIAMP a national standard has not been produced for valuation of drainage assets specifically, it is assumed the replacement costs of drainage items are included in the assets they are 'within' (e.g. carriageways and footways).

Generally, higher levels of funding are assigned to assets of a higher value, however asset risk/importance of failure must also be accounted for (e.g. the failure of an A road vs an unclassified road).

As part of asset valuation the cost of replacing what is current defective (DRC – Depreciated Replacement Cost) is also calculated. Traditional methods account for each individual area of defectiveness and combine the value of remedying the damage. However at Coventry we have taken a more 'realistic' approach; defects are combined into schemes that can be realistically performed. When resurfacing a road, treatment would not be performed intermittently over small 10m subsections but the whole extent of a section/road. The following figures visually show this (rates correct as of 2024):

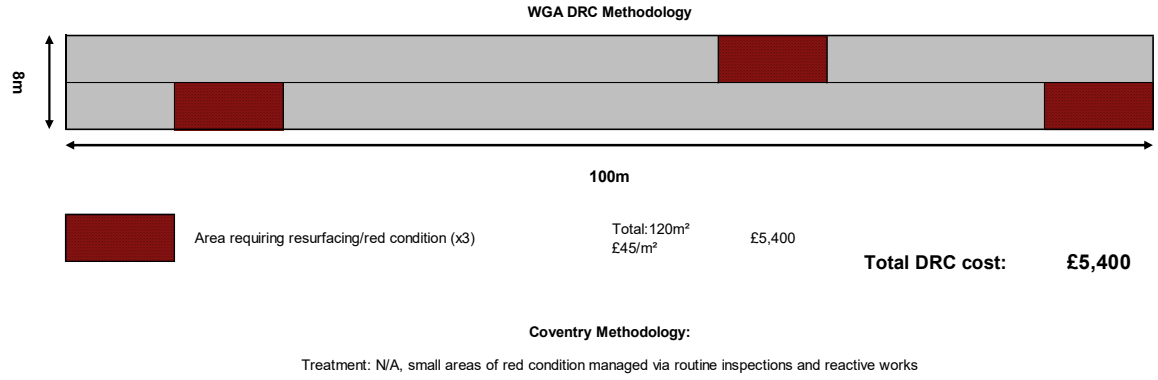

Figure 4.1. Scenario 1 - Isolated Areas of Defectiveness

In this scenario, isolated areas of defectiveness have been identified. These are across various lanes and resurfacing the entire extent would not provide efficient. Generally these areas would be managed via routine inspections and reactive jobs until performing a planned resurfacing scheme would make financial sense. In terms of DRC calculations the DRC for Coventry would be £0.

Figure 4.2. Scenario 2 – Multiple Areas of Defectiveness, Varying Levels of Defectiveness

In this scenario there is considerable defectiveness along the section of carriageway, with some areas suitable for surface treatment and some areas requiring resurfacing. In reality this whole extent would be suitable for a surface treatment (with pre-patching, accounted for in treatment rate). In these first two scenarios the Coventry cost is lower than under the old DRC methodology. However the costs can also be underestimated, as in the following scenario.

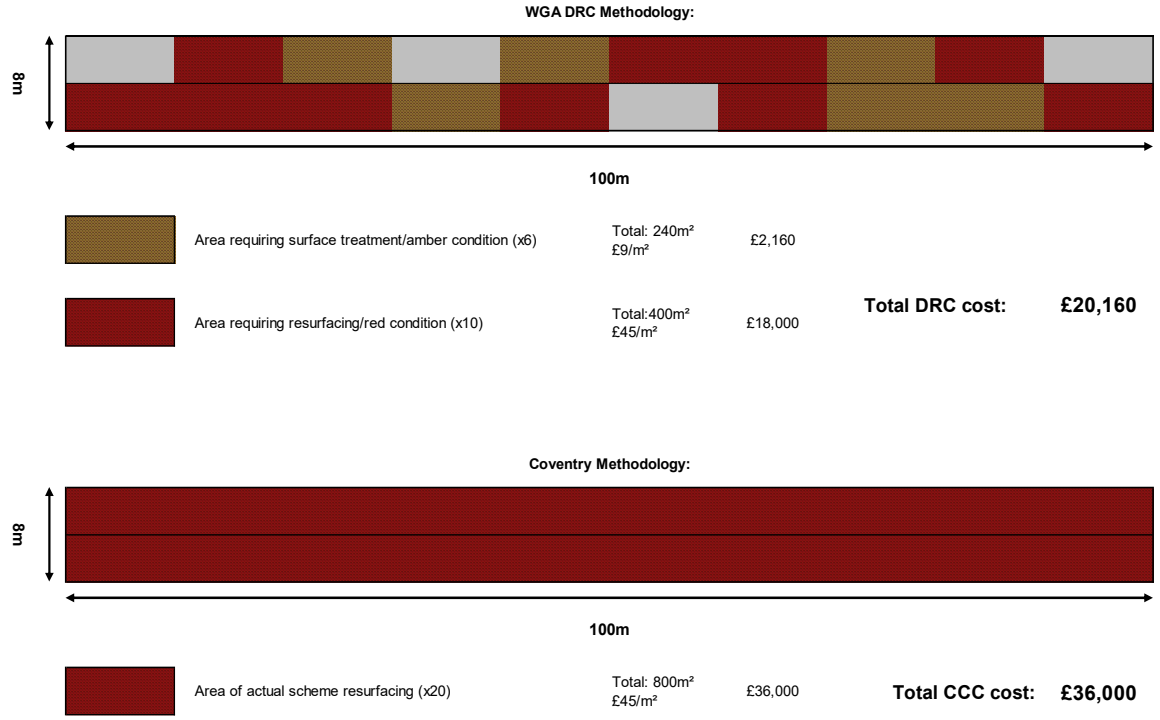

Figure 4.3. Scenario 3 – Multiple Areas of Defectiveness, Primarily Resurfacing Required

The road in the above scenario would require a full extent resurfacing, it's unfeasible to perform treatment just on the damaged subsections (as in the WGA methodology example), leading to a higher estimated cost to remedy in reality/the Coventry method.

4.3. Data Requirements & Current Position

A multitude of asset data can potentially be collected at varying levels of detail. At the very minimum data collected on highway assets must comply with national requirements (e.g. classified road condition and principal road skidding resistance). It is also essentially to not 'over-collect', as it is financially inefficient to spend money on collecting data that has very little use in planning maintenance. Levels of detail can generally be categorised into the following:

Table 4.2. Levels of Data Detail

Score	Category	Description	Example
1	N/A	No data is held for the asset	-
2	Network Level	The overall condition of all assets in the network or total number of assets (inventory)	Knowing the total number of street furniture items but not having each individual mapped.
3	Individual Level (low)	The condition of an asset is known but at a low detail level	The condition of a road is known but location along the extent of the defectiveness is not provided
4	Individual Level (high)	The condition of an asset is known on a geographically detailed level	Knowing that a road requires resurfacing from 20-80m based on detailed condition data
5	Individual Level (high) - Multiple Sources	As above but with multiple data sources	E.g. knowing footway is present between 0-50m of a section, and the material type is known

Not having data present is not necessarily a negative reflection. Sometimes data is either not needed or the cost of collecting it outweighs any benefits. As the adopted highway is inspected at least annually anything posing a safety hazard will be addressed so condition data in this context refers to supporting of planned maintenance only.

4.3.1. Carriageways – Data Requirements and Current Position

As a key asset and the most valuable asset, the carriageway network in Coventry is of both local and national importance. Data held will generally need to be detailed to enable efficient planning of maintenance for future years.

Table 4.2. Carriageway Data Scores

	Condition Data	Inventory Data	Usage Data
Required Score	5	5	3
Actual Score	5	5	3
Difference	0	0	0

Condition data is collected biennially for classified roads and every four years for unclassified roads. SCANNER data is currently used on classified roads and DVI (Detailed Visual Inspection) data is collected for all road classes. From this data the overall network condition can be determined (via network indicators), and a more detailed condition scored can be calculated on both a section and

subsection level along with further in-house analysis to produce extents of treatments. The DVI also collects asset inventory (widths, material types etc.).

Alongside physical condition, skidding resistance data is collected annually on the principal (A Road) network.

Usage data is less detailed. We obtain traffic count data (via TFWM) on major routes. Traffic data is not required on the entire network as these can be assumed to a decent level of accuracy based on geographic data already available (e.g. school locations, cul-de-sacs etc.). This is usd to set maintenance priorities and inspection frequencies in the form of footway hierarchies.

Historic data is available in the forms of a historic treatment log, past DfT submissions and an archive of historic data held within the PMS (pavement management system).

4.3.2. Footways – Data Requirements and Current Position

Footway data is collected alongside the carriageway DVI; full network coverage over 4 years. This covers both condition and inventory.

Table 4.3. Footway Data Scores

	Condition Data	Inventory Data	Usage Data
Required Score	5	5	2
Actual Score	5	5	2
Difference	0	0	0

Usage data is generally gained from local knowledge and geographic information. Pedestrian counts cost considerably more than traffic counts as the process is generally more labour intensive. High detail data is not required for efficient asset management as geographic locations (e.g. care homes, schools, shopping areas) provide detailed enough information for footway usage.

4.3.3. Structures – Data Requirements and Current Position

Data for structures is collected along side the GI (general inspection) and PI (principal inspection regime), a structure comprises of multiple elements, each with their own condition collected. Overall this is very high detail data.

Table 4.4. Carriageway Data Scores

	Condition Data	Inventory Data	Usage Data
Required Score	5	5	4
Actual Score	5	5	4
Difference	0	0	0

Usage data is derived from the type of structure and purpose.

4.3.4. Other Assets

Data collected on other assets is generally a lot less detailed; primarily on assets generally maintained reactively (e.g. bollards). The cost of collecting a full inventory of these outweighs the benefits of the data. Any assets of this type requiring attention are identified alongside highway safety inspections, so therefore a mapped inventory of these is not required.

4.4. Heritage Assets & Conservation Areas

When any planned maintenance works are to be undertaken, heritage assets and conservation areas are checked as part of the pre-works assessments. Where there are potential impacts or specialised materials/treatments needed, the conservation team is consulted with. In some instances the conservation area will not require specialised materials as only heritage assets (e.g. lamp columns) are required to be preserved and the material of the footway/carriageway is of standard design.

It is the intent to work with the conservation team in developing a detailed procedure/policy in the near future which will provide more detail, including responsibilities regarding reactive works and external statutory undertakers of works on the highway.

4.5. Data Storage and Compliance

In general highway data does not contain any sensitive or personal information. However where present any data will be handled in accordance with General Data Protection Regulations (GDPR). All data referred to in this document is routine condition data for planned maintenance, safety data / highway inspections are separately addressed in the Highways Inspection Policy.

4.6. Emerging Technologies / AI

Over recent years AI technology for collecting highway asset and condition data has emerged as a potential replacement for traditional methods.

We are continually exploring options and comparing them against current methods, however due to the much higher level of detailed Coventry currently collect on footways these systems are (at present), unsuitable, however this may change with developments in the technology.

For LAs starting with much lower detailed data these systems can be beneficial, but all systems analysed currently provide either 0 footway data or much less detailed data than can be obtained via DVI. We also have 147km of remote footway which cannot be currently surveyed via any currently available AI software as these are all off carriageway and at present need a walked survey.

To aide in finding a potentially suitable system in the future a spec sheet has been compiled. This can be found in Appendix 5.1.

Appendices

Appendix 4.1 AI Data Collection Specification Sheet

Coventry City Council - Highway Asset Data Specification Sheet (v1.0)						
Asset	**Category**	**Asset Group**	**Requirement**	**Mandatory / Optional**	**Compliant (Y/N)**	**Further Notes**
CW	Condition	A,B,C	PAS2 Compatible	Mandatory	-	
CW	Condition	Unclassified	Condition score/bands	Mandatory	-	
CW	Condition	All	Data provided on PMS level	Mandatory	-	
CW	Treatments	All	Suitible resurfacing treatment extents provided	Mandatory	-	
CW	Treatments	All	Suitible surface dressing treatment extents provided	Mandatory	-	
CW	Treatments	All	Suitible planned patching treatment extents provided	Mandatory	-	
CW	Inventory	All	Carriageway widths provided	Mandatory	-	
CW	Inventory	All	Carriageway material type provided	Mandatory	-	
FW	Condition	All	Condition score/bands	Mandatory	-	
FW	Condition	All	Data provided on PMS & FW side level	Mandatory	-	
FW	Treatments	All	Suitible reconstruction treatment extents provided	Mandatory	-	
FW	Treatments	All	Suitible slurry seal treatment extents provided	Mandatory	-	
FW	Treatments	All	Suitible planned patching treatment extents provided	Optional	-	
FW	Inventory	All	Footway lengths provided	Mandatory	-	
FW	Inventory	All	Footway widths provided	Mandatory	-	
FW	Inventory	All	Footway material type provided	Mandatory	-	
All	-	-	Compatibility with existing CCC tools/systems	Optional	-	Strong preference for system compatibility with minimal tool re-coding
Other benefitial factory (other usable asset data, time saved, video etc.)						