

Wiltshire Highways Infrastructure Asset Management Plan



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Wiltshire Highways Infrastructure Asset Management Plan

Highway Infrastructure Asset Management in Wiltshire

A well managed and maintained highway network provides access for business and communities, as well as contributing to the area's local character. The highway infrastructure in Wiltshire is the Council's most valuable asset, and its lack of availability would cause considerable impact to communities and the economy.



Wiltshire Council is committed to the good management of the highway asset, and has been working on implementing asset management principles for many years already. Wiltshire will continue to apply and develop good asset management practices, leading to more effective management of the network.

Wiltshire's Asset Management Policy was adopted by the Council's Cabinet in 2015. It is a high level document which establishes the Council's commitment to infrastructure asset management and demonstrates how an asset management approach aligns with the authority's corporate vision and strategic objectives. The policy also summarises the principles adopted in applying asset management to achieve Wiltshire's strategic objectives.

The Wiltshire Highways Asset Management Policy is:

Wiltshire Council is committed to adopting the principles of asset management, and will take a long term view when making maintenance and investment decisions. The asset management approach will deliver value for money and maximise the benefits for future prosperity by ensuring the right investment decisions are made. It will assist in targeting resources and managing risks associated with the statutory duties to maintain the highway infrastructure.

The Council's Highway Asset Management Strategy sets out how the Highways Asset Management Policy will be delivered. This is informed by the adoption of asset management principles, understanding asset management as part of a framework with local and national influences, and establishing specific performance standards which align to the strategic objectives.

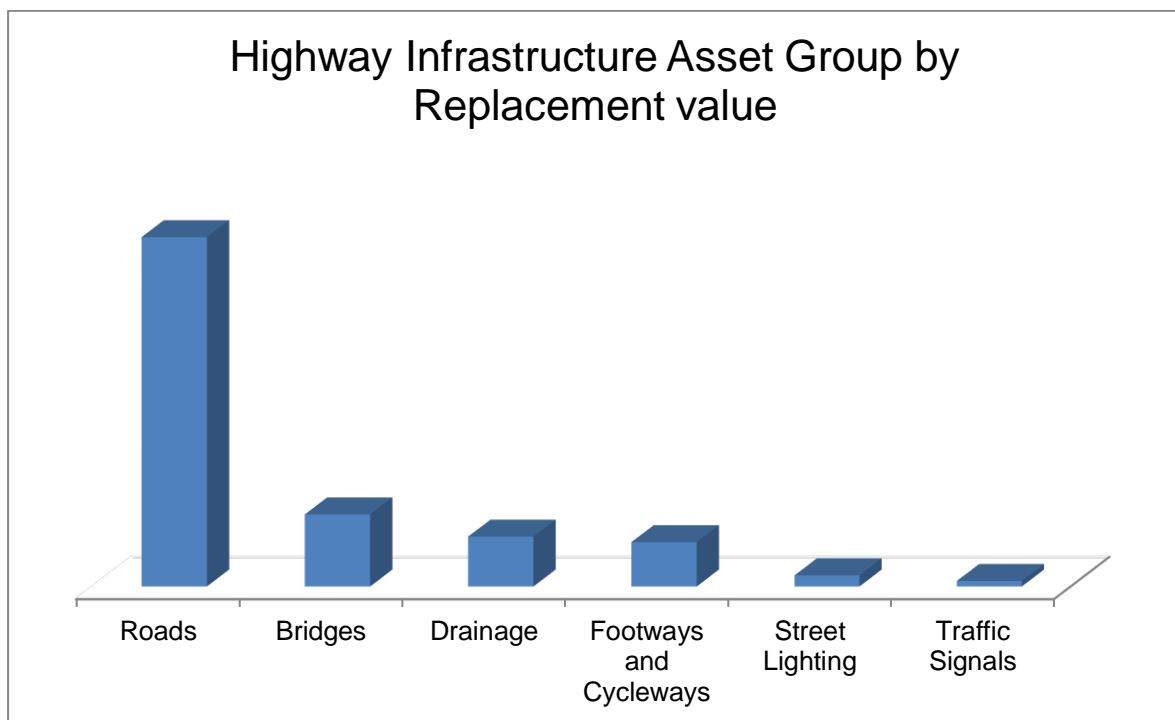
The Highway Infrastructure Asset Management Guidance published by UKRLG sets out a framework which describes all asset management activities and processes that are necessary to develop, document, implement and continually improve asset management practices. It notes that there are benefits in having a Highways Infrastructure Asset Management Plan, and this

document provides further detail on the processes Wiltshire Council is applying to managing its highways assets.

Background

In Wiltshire, the results from the National Highways and Transportation (NHT) customer surveys show that the condition of roads is both the item that is “most important to users” and is the aspect “in most need of improvement”. The data indicates a strong preference for improvement in carriageway (road) condition. This is consistent with the results of the Council’s “What matters to you” survey from May 2014, which highlighted road and pavement repairs as the issue most in need of improvement according to respondents. Road conditions have improved in the past decade but are still a matter of concern to the public.

An initial asset replacement valuation was undertaken in connection with the development of the Transport Asset Management Plan in 2005. This indicated that the carriageway asset had by far the highest value, followed by bridges, drainage and then footways.



The replacement values of the other highways assets were considerably less, and for the purposes of this plan these six main assets will be considered in more detail. Further work will be carried out to develop detailed plans for those assets not covered by these main groups in due course. In the meantime the existing processes will continue to be applied for these assets.

The Highways Infrastructure Asset Management Plan is generally reviewed annually, or when significant changes occur. The Council’s Highways Performance Management Framework is used to monitor performance, and this is reported to the Council’s Environment Select Committee annually.

Section 1 – Roads and Carriageways



Function:

- To provide highway surface and carriageway infrastructure suitable for the type and volume of traffic.

Legal Obligations

- Highways Act 1980 and related legislation places duty to maintain carriageways on the highway authority.

Inventory Information Summary:

- *Scale and size of asset*

Road Type	Description	Length (m)
2	Strategic Route	183,755.96
3	Main Distributor	562,003.26
4	Secondary Distributor	349,315.71
5	Link Road	1,444,838.98
6	Local Link Road	157,422.96
7	Local Access road	1,026,655.38
8	Minor Road	477,637.20
9	Lanes	215,802.15
10	Green Lanes and Tracks	120,517.82
11	Disused Tracks	17,873.71

There are manholes, access chambers and covers in the carriageway which are not owned by the Highway Authority. These are generally the responsibility of public utilities and others and are covered by the provisions of the streetworks legislation. Defects on them are generally reported as part of the inspection regime for the carriageway.

- *Location and type of Inventory*

Information on carriageway locations, lengths widths and surface and structural and surface conditions of the carriageways held in the Highway Infrastructure Asset Management System (HIAMS) database in electronic form.

- *Coverage of Inventory data*

Good information on carriageway characteristics and conditions is held in HIAMS database.

No information is currently held on conditions of kerbs, traffic islands, studs, road marking, traffic calming or road humps.

- *Reliability of Inventory data*

Carriageway information held on HIAMS database is reliable and generally up to date.

Any information held regarding kerbs, traffic islands, studs, road marking, traffic calming, and road humps held in the old Exor system is not always up to date. Inventory collection is taking place on these items.

- *System for managing and updating data*

Information on carriageway conditions is regularly updated following completion of condition surveys and following completion of major improvement and surfacing works.

New roads and associated works are added to the database following adoption of the roads.

Information held regarding kerbs, traffic islands, studs, road marking, traffic calming, and road humps is not currently updated. Obtaining and renewing this information is being progressed as part of a long-term asset inventory updating project.

Inspection and Assessment Regimes:

- *Safety Inspections*

Safety inspections of the carriageway are carried out by driven Inspections in accordance with Wiltshire Highways Safety Inspection Manual as summarised below:-

Description	Frequency
Road Types 2,3 and 4	Monthly
Road Types 5 and 6	3 Monthly
Road Types 7, 8 and 9	Annually
Road Types 10 and 11	Respond to reports

In addition, Inspections are made in response to customer, staff and contractor reports.

Inspections are made of work carried out by public utilities and others in accordance with streetworks legislation, which can include coring and other sampling.

The Wiltshire Highways Safety Inspection Manual was updated in September 2018 and replaces the previous May 2013 version.

- *Service and Condition Inspection Regime*

Condition inspections of carriageways are regularly carried out by means of SCRIM and Scanner to obtain information on skid resistance, carriageway surface characteristics and structural strength. (See Appendix 1)

Condition surveys of kerbs, traffic islands, studs, road marking, traffic calming and road humps are usually only carried out in response to problems identified through safety inspections or reports from others.

Highways staff regularly monitor the condition of the network in order to identify and prioritise future maintenance and renewal work.

- *System for recording inspections*

Records are kept of carriageway safety inspections in HIAMS.

Results of carriageway condition surveys are stored on the HIAMS database in electronic form to enable analysis of the data to inform investment and maintenance decisions.

Creation of New Assets

- *New Roads by Developers*

Private developers construct roads which are adopted as public highways under Section 38 or similar agreements. The condition of the asset is inspected and approved before adoption. Inventory data is updated after adoption.

- *New Roads by Highway Authority*

New roads can be created as part of major improvement schemes carried out by the highway authority. The new asset is constructed in accordance with current design standards. Inventory data is updated following opening of new road.

Key Asset Performance Targets:

- *Performance Indicators*

Performance measures for carriageway condition are:-

Description	Comment
Condition of Principal Roads - Scanner Survey	NI 168 (Previously BV 223)
Condition of Non-Principal Classified Roads - Scanner Survey	NI 169 (Previously BV 224a)
Condition of Unclassified Roads – Scanner	based on SW data set
Skid Resistance	Scrim survey on main roads

Survey reports are reported to DfT where appropriate and used in the Performance Management Framework.

Deflectograph surveys and CVI surveys are no longer carried out as they are considered to provide little additional useful information. Extension of scanner surveys to minor roads will be introduced in future years.

The survey data is used to calculate the estimated backlog of maintenance required on the network.

- *Targets*

The Performance Management Framework currently has a target to improve road conditions year on year.

Public Perception of Asset

- *Public Perception*

Historically there has been a high level of public dissatisfaction with the condition of the highway network as a result of low levels of investment in maintenance in the past.

The NHT survey indicates public satisfaction with roads in Wiltshire has been below the national average and below that for other authorities in the south west. In the 2018 NHT survey the satisfaction with road conditions was close to the national average.

- *Public Expectation*

The public expect to be able use the carriageway at all times with minimum delays and disruptions to their journeys. The public expect road markings and studs to be present and clearly visible. The public expects potholes and safety defects to be repaired promptly.

Environmental and Heritage Considerations

- *Environmental*

Roads are often located in areas of particular sensitivity, such as near schools, hospitals or residential areas where restrictions on working times and maintenance processes may need to be applied.

The use of recycled materials in road construction, and techniques to reduce the environmental impact of construction work associated with highways maintenance has increased in recent years. The increasing costs of material being sent to landfill sites provide further incentive to increase reuse of materials where feasible.

- *Heritage*

A number of roads are located in Conservation Areas and where justified may require the use of specific materials to enhance the appearance of a particular location.

Risk Assessment

- *Key Risks*

Carriageways are high risk areas. They are inherently dangerous places because of the volume and speed of traffic using them. There are risks of serious injuries, claims and prosecutions as a result of inadequate or inappropriate maintenance and care.

Carriageway defects such as potholes or structural damage to the carriageway can result in accidents or damage to vehicles, particularly for motorcycles and cyclists. Inadequate surface texture can result in vehicles skidding or losing control.

Deterioration of the carriageway condition can lead to structural failure, resulting in the closure of the road for safety reasons.

Worn road markings and missing studs can lead to driver uncertainty. In some cases missing or obscured lines may make enforcement of legal orders difficult.

- *Risk Management*

A programmed and targeted maintenance programme significantly reduces the risks associated with highways, and can improve road safety and reduce claims against the Council. Within the limited funding it is important to target repairs and maintenance works at those areas most in need.

Maintenance work on the carriageway must be carried out by competent contractors with a trained workforce following the correct procedures.

Disposal of Asset

- *Stopping up of Highways*

In order to dispose of surplus highway, it is necessary to follow specific legal procedures and the need does not often arise. Generally, the ownership of a stopped-up highway would revert to the adjoining landowners.

- *Change of Use*

Sometimes carriageways can be closed to vehicular traffic and become pedestrian only areas following the implementation of traffic orders or other legal procedures.

Traffic islands, traffic calming features and road humps may be added or removed from the network as part of traffic management and local safety schemes.

Asset Value

- *Replacement Value*

An approximate replacement value of £4.5 billion has been calculated for the Roads asset group. This represents the largest element of the highways network in terms of replacement value.

Asset Condition

The condition of the classified road network has improved considerably in recent years, with sustained investment from the Council (See Appendix 2). The condition of the A Road network is slightly worse than the national average, but the B and C class roads are considerably better than the national average.

The Council's 'Local Highways Investment Fund' provided additional investment in road maintenance for four years, which was initially being targeted at those roads in worst condition, and included minor roads as well as the main roads.

In the first two years of the investment there were a number of sites which needed substantial reconstruction work and, as expected, the lengths of road treated were consequently less than in the following years. In 2016/17 a substantial programme of surface dressing has been undertaken and the total length of road resurfaced increased considerably.

Year	Length treated (km)
2014/15	148
2015/16	182
2016/17	250
2017/18	181
2018/19	147
Total	908

A total of 908 kilometres of road has been resurfaced since 2014/15. There have also been a significant number of smaller sites treated with hand patching, which has addressed localised areas in poor condition.

The detailed calculation of the backlog carried out by the Council's specialist consultants WDM indicates that there has been a significant reduction in the backlog:

	2013/14	2014/15	2015/16
Calculated backlog	£69.4 million	£63.3 million	£48.2 million

The backlog decreased by 30% between 2013/14 and 2015/19. Good progress has been made in reducing the backlog, but a further significant investment would be required to remove the remaining backlog. The introduction of HIAMS will enable improved reporting of backlog figures in future years.

A summary of road conditions and other highway information is prepared for each of the Area Boards.

Maintenance Regimes

- *Reactive Maintenance Regime*

Carriageway defects are attended to in accordance with the response times set out in the Wiltshire Highways Safety Inspection Manual. Generally serious damage or defects are repaired or signed by the end of the next day. Other defects are usually repaired

within a week or 3 months, depending on the type and location of defect, or less serious defects may be monitored.

The public can report potholes and carriageway defects through the My Wiltshire system or by email or telephone. Defects are inspected by Council highways staff, and programmed for repair.

Repairs are carried out by four pothole gangs, supported by the Parish Stewards. More substantial areas for repair can be treated by a hand patching gang, or included in a jet patching programme if appropriate.

- *Routine Maintenance Procedure*

A programme of routine maintenance of the highway network is carried out, which includes minor repairs to carriageway surfaces and lining renewal, gully emptying and grass cutting as resources permit.

The routine maintenance of the highway network includes the control of weed and grass growth in channels and at kerbs as resources allow. This work generally has low priority in comparison with safety work.

When required by weather conditions main roads are salted in winter as set out in the Precautionary Gritting Routes Plan, and if temperatures are predicted to remain low a larger proportion of the network may be salted.

- *Planned Maintenance Procedure*

A programme of planned maintenance on the highway network is carried out annually, with the schemes including carriageway reconstruction, surfacing and surface dressing.

The application of the Council's Skid Resistance Policy is the top priority. Some roads need to be treated as priorities in order to address skid resistance and safety problems.

The principles of asset management are being applied to the county's road network in order to ensure there is timely intervention to make best use of the resources available. This includes carrying out a programme of surface dressing to prevent deterioration of the rural network.

The need for major works is identified by assessments taking into account condition surveys and accident records. The suggested list of schemes is reviewed by the Area Boards and may be revised to reflect local priorities.

The intention is that the application of asset management principles should continue to be applied to the roads asset to remove the backlog and continue to improve the overall condition of the road network.

It is estimated that a programme of renewal expenditure as set out below would be required in the immediate future to prevent the backlog increasing:

Year	2019/20	2020/21	2021/21	2021/22	2022/23
Expenditure	£16.5m	£16.5m	£16.5m	£16.5m	£16.5m

It is assumed currently that maintenance expenditure will continue at £16.5m based on typical recent LTP Maintenance funding block levels.

Section 2: **Bridges and Structures**



Function:

- To provide road crossings of watercourses or other obstructions.
- To provide support to the highway and land adjacent to it.

Legal Obligations

- Highways Act 1980 and related legislation puts duty to maintain highway network on highway authority, including maintenance of bridges and related structures.

Description of Asset

- Bridges, retaining walls and other highway structures

Inventory Information Summary:

- *Scale and size of bridge asset*

Description	Number
Concrete	468
Stone	239
Steel and Iron	53
Brick	210
Other	14
Total	982

Not all bridges on the network are the responsibility of the Council. Some bridges are on Trunk Roads or are rail / canal bridges and are maintained by others.

- *Location and type of Inventory*

Information on bridge locations, lengths, widths, spans and construction held in electronic form in bridge files and on spreadsheets.

Data on a few bridges is being entered into the Highways Infrastructure Asset Management System (HIAMS) database in electronic form.

- *Coverage of Inventory data*

Good information on bridge characteristics, conditions and maintenance history held in electronic files.

Data on bridges was held in Exor system and is now being transferred to HIAMS.

- *Reliability of Inventory data*

Information held in electronic files is generally accurate and up to date.

Information held in HIAMS database will be reliable and generally up to date

- *System for managing and updating data*

Information in electronic files and in spreadsheets is regularly updated following completion of condition surveys and following completion of major maintenance works.

Inspection and Assessment Regimes:

- *Safety Inspections*

Safety inspections of the highway network are carried out by driven Inspections in accordance with Wiltshire Highways Safety Inspection Manual. These would be expected to identify serious road surface and parapet defects on bridges. Frequencies of inspections are summarised below:-

Description	Frequency
A, B, and some C Class roads	Monthly
Most C Class and some Unclassified	3 Monthly
Some C Class and Unclassified	Annually

In addition, Inspections are made in response to telephone calls and My Wiltshire reports from others.

Additional Safety Inspections of bridges may be undertaken following damage, flooding or adverse weather conditions.

Inspections are made of work carried out by public utilities and others in accordance with New Roads and Street Works Act, which can include works on or adjacent to bridges.

- *Service and Condition Inspection Regime*

All bridges are currently inspected on a two-year cycle. Larger structures or those with difficult access are further inspected on a six-year cycle using specialist access equipment such as mobile elevating working platforms or scaffolding.

On some structure considered to be of low risk the inspection frequency can be reduced in accordance with the policy adopted in September 2018.

Where bridges are considered to be sub-standard or where there are concerns about conditions or potential adverse effects from environmental factors, more frequent Condition Inspections may be arranged.

- *System for recording inspections*

Electronic based records of bridge inspections will be stored in HIAMS.

The results of the Condition Surveys are used to generate Bridge Condition Index and identify the Work Bank which is the value of work required to bring the structures up to standard.

Creation of New Assets

- *New Bridges by Developers*

Private developers construct bridges which are adopted as public highways under Section 38 or similar agreements. The condition of the asset is inspected and approved before adoption, and inventory data is updated after adoption.

- *New Bridges by Highway Authority*

New bridges can be created as part of major improvement schemes carried out by the highway authority. The new asset is constructed in accordance with current design standards. Inventory data is updated following opening of the new road.

Maintenance Regimes:

- *Reactive Maintenance Regime*

Defects are attended to in accordance with the response times set out in the Wiltshire Highways Safety Inspection Manual where relevant. Generally serious damage or defects are repaired or signed by the end of the next day or sooner. Other defects are usually repaired within a week or 3 months, depending on the type and location of defect. Less serious defects may be monitored and included in future programmes of work.

- *Routine Maintenance Procedure*

A programme of routine maintenance of bridges is developed from the bridge condition inspections, and work is prioritised according to need and the availability of funding.

Routine maintenance work can include brickwork re-pointing, clearance of weed growth and replacement of damaged or missing parapets.

- *Planned Maintenance Procedure*

A programme of planned maintenance of the bridge stock is carried out annually, with the schemes including parapet replacement and bridge deck waterproofing.

A programme of bridge strengthening is undertaken using capital funding, and progress is reported annually in the Performance Management Framework.

A draft five-year programme of works has been prepared based on current identified problems and anticipated levels of funding.

- *System for recording maintenance data*

A record of the locations of the work carried out on bridges is held in the electronic bridge files, which are updated shortly after completion of the work.

Key Asset Performance Targets:

- *Performance Indicators*

A Bridge Condition Index (BCI) is calculated from the results of the Bridge Condition Inspections, which enables comparison with the condition of bridges maintained by other highway authorities.

The BCI is included as a measure within the Performance Management Framework. The target is to keep the bridges in good condition.

- *Corporate Goals*

The Council has not currently set any specific targets for bridges.

Public Perception of Asset

- *Public Perception*

Generally, the condition of bridges on the highway network does not currently appear to be a major concern of the public. Potholes in the road surface are a concern to the public, damaged parapets or those in poor condition are however particularly noticeable to drivers.

- *Public Expectation*

The public expect highway bridges to be available for use at all times with minimum delays and disruptions to their journeys.

Environmental and Heritage Considerations

- *Environmental*

Bridges often cross rivers with nature conservation designations or are in sites of particular environmental sensitivity. Ecological assessments particularly with regard to bats, water voles and other species may be required prior to maintenance work, with special measures taken to reduce adverse environmental impact.

There is the possibility that bridges contain lead-based paints or asbestos in their construction, and in such cases particular procedures are followed with regard to managing these materials.

- *Heritage*

A number of bridges are Listed Buildings or are located in Conservation Areas and planning permissions or other consents may be required to enable some work to be carried out. Restrictions on types of material and construction methods may apply in some locations.

Risk Assessment

- *Key Risks*

Whilst there is a risk of a bridge collapsing, this is generally a low risk in Wiltshire because of the high levels of inspection and maintenance.

There are particular risks associated with damage to parapets by vehicles and scour in connection with river crossings. These are managed through the inspection processes.

Carriageway defects such as potholes or other damage to the bridges could result in accidents or damage to vehicles.

- *Risk Management*

A programme of bridge inspections and a targeted maintenance programme significantly reduce the risks associated with highway bridges. These works can improve road safety and reduce claims against the Council. Within the limited funding it is important to target repairs and maintenance works at those bridges most in need.

Maintenance work on bridges must be carried out by competent contractors with a trained workforce following the correct procedures.

Disposal of Asset

- *Stopping up of Highways*

In order to dispose of surplus bridges, it is necessary to follow specific legal procedures and the need does not usually arise.

- *Change of Use*

Sometimes roads can be closed to vehicular traffic and become pedestrian only routes. In such cases the asset could be considered become a footway bridge for the purposes of asset management.

In some cases, the demolition of a surplus bridge may be required when it is replaced by a new structure or no longer required e.g. disused railways.

Asset Value

- *Replacement Value*

Replacement value is estimated at £331 million. Bridges are the second largest asset group after carriageways based on replacement value.

Asset Condition

- *Current Condition*

The overall condition of the bridges in the County is good and has been improving in recent years because of the investment through the capital programme, but there are areas of concern, particularly regarding bridges over railways where the Council has an obligation in connection with strengthening.

Based on the Bridge Condition Index the overall condition of the county's bridges is good.

Maintenance Regimes

- *Reactive Maintenance Regime*

Defects are attended to in accordance with the response times set out in the Wiltshire Highways Safety Inspection Manual. Generally serious damage or defects are repaired or signed by the end of the next day. Other defects are usually repaired within a week or 3 months, depending on the type and location of defect, or less serious defects may be monitored.

The public can report defects and damage through the My Wiltshire system or by email or telephone. Defects are inspected by Council highways staff, and programmed for repair as necessary.

Repairs may be carried out by the Councils highways term maintenance contractor, but some work may require specialist contractors or sub-contractors.

- *Routine Maintenance Procedure*

A programme of routine maintenance of the bridge stock is carried out, which includes minor repairs as identified from the inspections or other reports.

- *Planned Maintenance Procedure*

A programme of planned maintenance of the bridges is carried out annually, with the schemes including strengthening, reconstruction, and repairs.

The principles of asset management are applied to the county's bridges in order to ensure there is timely intervention to make best use of the resources available. This includes carrying out a programme of maintenance to prevent deterioration.

The need for major works is identified by assessments taking into account condition surveys and accident records. The suggested list of schemes is reviewed by the Area Boards and may be revised to reflect local priorities.

The intention is that the application of asset management principles should continue to be applied to the bridge asset to remove the backlog and continue to improve the overall condition of the bridges.

A programme of renewal expenditure as set out below is proposed in order to keep the bridges and highway structures in good condition:

Year	2019/20	2020/21	2021/22	2022/23	2023/24
Expenditure	£3m	£3m	£3m	£3m	£3m

It is proposed that the target should be to keep the bridge stock in good condition as defined by the Bridge Condition Indicators.

Section 3: Drainage Infrastructure



Function:

- To remove surface water runoff from carriageways and other paved areas.

Legal Obligations

- The adequate drainage of the carriageway is necessary for road safety. Standing water can be a particular hazard on high speed roads.

Inventory Information Summary:

- *Scale and size of asset*

Description	Number
Urban gullies	55,473
Rural gullies	18,074
Total	73,547

Information on total lengths of pipe and other drainage infrastructure is incomplete.

- *Location and type of Inventory*

Information on locations of gullies was held in the Inventory on Exor database in electronic form. This information is in the process of being updated for inclusion in the new Highways Infrastructure Asset Management System (HIAMS).

Information on some gullies and associated pipework is held on GIS mapping and on the Infotech database, but information on pipes is not complete.

- *Coverage of Inventory data*

Inventory information held covers only a small proportion of the highway network.

Information held on the database is generally good, but not all drainage infrastructure is recorded, and information on condition is not held.

- *Reliability of Inventory data*

Information held in database is accurate but not extensive. It is fairly reliable, but is not necessarily up to date.

- *System for managing and updating data*

Information will be added to database when works are carried out and as CCTV surveys are completed.

Procedures are being put in place to update gully location and condition information using information collected by the highways maintenance contractor.

Inspection and Assessment Regimes:

- *Safety Inspections*

Safety inspections of the highway network are carried out by driven inspections in accordance with Wiltshire Highways Safety Inspection Manual. Inspections would be expected to identify problems with flooding, covers and gratings, but not all drainage problems would be apparent.

Problems are also reported through My Wiltshire by the public and others.

- *Service and Condition Inspection Regime*

Condition inspections of gullies are carried out as part of the regular routine cleaning and maintenance of gullies.

Condition inspections of pipes and other infrastructure are carried out in response to identified safety or performance issues.

- *System for recording inspections*

Processes are being put in place to record gully conditions and record emptying and cleansing operations.

Creation of New Assets

- *New drainage assets by Developers*

Private developers construct roads including gullies and drainage systems which are adopted as public highways under Section 38 or similar agreements. The condition of the asset is inspected and approved before adoption. Inventory data is updated after adoption.

- *New drainage assets by Highway Authority*

New gullies can be created as part of improvement schemes carried out by the highway authority, including local safety schemes, and minor improvement schemes. The new asset is constructed in accordance with current design standards, with a maintenance period or similar. Inventory data is updated following opening of the new road or scheme.

Key Asset Performance Targets:

- *Performance Management Framework*

The Performance Management Framework includes a measure for planned routine maintenance work. This target is being monitored and reviewed with the contractor.

The Performance Management Framework also includes a measure for new drainage schemes carried out.

- *Corporate Goals*

There are currently no specific Corporate Goals for highway drainage, but the infrastructure supports road safety and other health objectives.

Public Perception of Asset

- *Public Perception*

The public generally report blocked gullies promptly, and ineffective drainage is a matter of concern in terms of safety, flood risk and inconvenience to road users and residents.

- *Public Expectation*

The public expect gullies to remove surface water from roads, and drainage systems to operate effectively.

Environmental and Heritage Considerations

- *Environmental*

Material removed from gully pots is potentially hazardous and must be disposed of in the correct manner.

Drainage systems can transport pollution to sensitive receptors and the use of oil or silt interceptors may be required at sensitive locations.

- *Heritage*

Sometimes there may be particular drainage systems in paved areas in pedestrian areas requiring specific maintenance arrangements.

Risk Assessment

- *Key Risks*

Damaged or missing gratings or covers can create a serious safety hazard.

Blocked or ineffective gullies can lead to standing water on the carriageway which can be a hazard to high speed traffic.

Blocked or ineffective gullies can lead to flooding and damage to property.

- *Risk Management*

A programme of gully emptying, together with prompt responses to reports of defects or drainage problems can reduce the risks associated with gullies.

Maintenance work and emptying of gullies must be carried out by competent contractors with a trained workforce following the correct procedures and traffic control, especially when working on high speed roads.

Work on drainage systems should be managed to avoid potential environmental impacts, especially in sensitive areas.

Disposal of Asset

- *Removal of drainage systems*

Drainage systems do not often become surplus, but in the event of them being no longer required they should be capped off and filled, with the carriageway or footway surface being properly reinstated.

Asset Value

- *Replacement Value*

A detailed replacement value for drainage infrastructure has not been calculated in view of the limited information held about the scale and condition of the asset. However, work for the Transport Asset Management Plan indicated that it would probably be the third largest asset after roads and bridges.

Asset Condition

The condition of the highways drainage asset is not generally recorded, and its location has not yet been fully identified.

Maintenance Regimes:

- *Reactive Maintenance*

Serious safety defects such as missing or damaged covers are attended to in accordance with the response times set out in the Wilshire Highways Safety Inspection Manual. Serious damage or defects are repaired or signed within 24 hours. Other defects may be included in future maintenance programmes.

Blocked or non-functioning gullies are responded to when reported. At times of high rainfall or flooding there are practical limits to the number of incidents which can be dealt with immediately, and visits may need to be prioritised.

Blocked or damaged drainage pipes may need to be investigated by CCTV surveys or jetted and cleaned. Where necessary they may be included in future work programmes.

- *Routine Maintenance*

The Council carries out a programme of routine maintenance and cleaning of gullies. Performance targets are developed in conjunction with the contractor and reflect funding limitations.

Defects and structural problems with gullies are reported when identified, with sites made safe in the event of safety problems.

Ditch maintenance in most cases is the responsibility of the landowner. It may be necessary for the highway authority or parish council to remind owners of their obligations, and in some cases legal action may be required.

- *Planned Maintenance*

Planned drainage improvements and flood alleviation works are co-ordinated through the Council's Operational Flood Working Groups, which are attended by the Environment Agency, water companies, town and parish councils and other organisations.

The priorities for addressing flood risk are:

- (i) High speed road standing water
- (ii) Internal property flooding
- (iii) Highway flooding
- (iv) Residential land flooding
- (v) Agricultural land flooding

A programme of renewal and improvement has been underway for a number of years. It is anticipated that current capital funding levels would need to be maintained for the foreseeable future to address identified and anticipated needs.

Additional capital investment above that level would need to be considered in the event of major flooding as occurred in 2014. Current expenditure requirements are estimated as:

Year	2019/20	2020/21	2021/22	2022/23	2023/24
Expenditure	£1m	£0.5m	£0.5m	£0.5m	£0.5m

The expenditure required in future years would be unlikely to reduce significantly based on current experience and potential climate change.

Section 4: Footways and Cycleways



Function:

- To provide pedestrian and cycle routes, generally adjacent to carriageways.

Legal Obligations

- Highways Act 1980 and related legislation places duty to maintain footways on highway authority.

Inventory Information Summary:

- *Scale and size of asset*

Description	Area
Urban footways and cycleways	3.3 million sqm
Rural footways and cycleways	0.6 million sqm
Total	3.9 million sqm

There are various manholes and access chambers in the footway which are owned by Public Utilities and others. Many of these are not owned by the Highway Authority, but defects on them are generally reported as part of the inspection regime for the footway.

- *Location and type of Inventory*

Information on footway locations, lengths and type of construction was held on Exor database in electronic form and has been transferred to the new Highways Infrastructure Asset Management System (HIAMS).

- *Coverage of Inventory data*

Good information on type and location is now held in HIAMS.

Information on condition data for most urban footways is held in HIAMS.

- *Reliability of Inventory data*

Footway and cycleway information held on the database is usually reliable and generally up to date.

Information held regarding kerbs, signs, road marking, and other street furniture is limited and is not up to date.

- *System for managing and updating data*

Information should be updated following completion of major improvement and resurfacing works or construction of new works.

New roads and associated works are added to the database following adoption of the roads.

Inspection and Assessment Regimes:

- *Safety Inspections*

Safety inspections of footways are carried out in accordance with Wiltshire Highways Safety Inspection Manual as summarised below:-

Description	Frequency	Inspection type and frequency
Footways in Main Shopping Area	Monthly	Monthly walked or cycled
Footways in other areas	Annually	Annually walked, cycled or driven

Inspections are made of work carried out by public utilities and others in accordance with streetworks legislation, which can include coring and other sampling.

- *Service and Condition Inspection Regime*

Condition surveys are carried out on urban footways in accordance with Footway Network Survey (FNS) methodology.

Highways staff regularly monitor the condition of the network to identify and prioritise future maintenance and renewal work.

- *System for recording inspections*

Records are kept of footway safety inspections. Processes are currently being reviewed in order to potentially make better use of HIAMS and available technology.

Results of footway condition surveys are stored on the HIAMS database in electronic form to enable analysis of the data to inform investment and maintenance decisions.

Creation of New Assets

- *New Roads by Developers*

Private developers construct roads, footways and cycleways which are adopted as public highways under Section 38 or similar agreements. The condition of the asset is inspected and approved before adoption. Inventory data is updated after adoption.

- *New Roads by Highway Authority*

New roads, footways and cycleways can be created as part of major improvement schemes carried out by the highway authority. The new asset is constructed in accordance with current design standards. Inventory data is updated following opening of new road.

Key Asset Performance Targets:

- *Performance Indicators*

Performance measures for carriageway condition are:-

Description	Comments
Condition of Footway	FNS survey
Claims and defect reports are monitored	Used to inform maintenance programme

The FNS Survey reports are used in the Performance Management Framework.

- *Targets*

The Performance Management Framework currently has a target to improve footway conditions year on year.

Public Perception of Asset

- *Public Perception*

Historically there has been a high level of public dissatisfaction with the condition of the footways as a result of low levels of investment in maintenance and renewal.

- *Public Expectation*

The public expect footways to be in good condition, smooth and free from blemishes and unsightly patches. However, this is unlikely to be achievable within anticipated maintenance budgets.

Environmental and Heritage Considerations

- *Environmental*

Footways may be located in areas of particular sensitivity, such as near schools, hospitals or in residential areas where restrictions on working may apply. Particular materials may be used in town centres to enhance the appearance of the area.

- *Heritage*

A number of footways are located in Conservation Areas and the use of particular materials may be required in order to enhance the appearance of a particular location. Stone paving has been used extensively in some historic town centres.

Risk Assessment

- *Key Risks*

Damaged or uneven footways can result in trips and accidents, with risk of injuries and compensation claims as a result of inadequate or inappropriate maintenance.

- *Risk Management*

A programme of Safety Inspections of the footways with appropriate reactive maintenance can generally reduce the risks associated with footways and cycleways.

Disposal of Asset

- *Removal of footways and cycleways*

Generally, footways and cycleways are not removed from the network. A stopping up or similar order would usually be required in such cases.

Asset Value

- *Replacement Value*

A replacement value for footways and cycleways has not yet been calculated.

Asset Condition

The condition of the urban footways has been assessed by FNS surveys, which are being completed in 2016. The latest results are:

Description	Percentage
As new	25.47%
Aesthetically Impaired	3.96%
Functionally Impaired	43.50%
Structurally Unsound	27.07%

The Council's has a programme of investment in improving the highway network and has an annual programme of work for improving footways.

Maintenance Regimes

- *Reactive Maintenance Regime*

Footway defects are attended to in accordance with the response times set out in the Wiltshire Highways Safety Inspection Manual. Generally serious damage or defects are repaired or signed by midnight of the following day. Other defects are usually repaired within a week or 3 months, depending on the type and location of defect, and less serious defects may be monitored.

The public can report footway and cycleway defects through the My Wiltshire system or by email or telephone. Defects are inspected by Council highways staff, and programmed for repair as necessary.

Repairs are carried out by masonry gangs, pothole gangs, or Parish Stewards. More substantial areas for repair can be treated by a hand patching gang, or included in a jet patching programme if appropriate.

- *Routine Maintenance Procedure*

Currently routine maintenance of footways is focused on maintaining the safety of the network. Generally funding is insufficient to enable work aimed at improving the appearance of the footway.

The routine maintenance of the highway network includes the control of weed and grass growth on footways as resources allow. This work generally has low priority in comparison with safety work.

- *Planned Maintenance Procedure*

A programme of planned maintenance of footways is currently being developed making use of the FNS data, claims records and defect reports. This information is being used to prepare annual lists of footways for treatment.

It is anticipated that a programme of renewal expenditure as set out below would be required to improve the condition of the footways and prevent the backlog increasing:

Year	2019/20	2020/21	2021/22	2022/23	2023/24
Expenditure	£1.00m	£1.00m	£1.00m	£1.00m	£1.00m

It is proposed to continue the funding levels for footway renewal in future years.

Section 5: Street Lighting



Function:

- To provide carriageway and footway lighting.

Legal Obligations

- There is no statutory requirement on local authorities to provide lighting and a highway authority's duty of care does not imply any duty to keep the street lighting lit. However, authorities should be able to demonstrate that they have systems in place to maintain public lighting in a safe condition.

Inventory Information Summary:

- *Scale and size of asset*

Description	Number
Column height 4m or less	278
Column height 5m	25,734
Column height 6m	3,312
Column height 8m	5,456
Column height 10m	3,658
Column height 12m	84
High Mast	2
Total	38,524

Total includes structure mounted and subway lighting. There are other lighting columns owned by Parish Councils and others which are not included.

- *Location and type of Inventory*

Information on lamp column locations, size, lamp type, and column construction is held on Mayrise database in electronic form. This is now being transferred to the new Highways Infrastructure Asset Management System (HIAMS).

- *Coverage of Inventory data*

Good information on all signal equipment is held in terms of type of equipment and age. Some information on condition is available where structural testing has been undertaken.

- *Reliability of Inventory data*

Lighting Column information held is usually reliable and up to date for newer equipment.

- *System for managing and updating data*

Information is regularly updated following maintenance and improvement works.

Information is updated following adoption of new lighting columns and associated works following the completion of developments by others.

HIAMS will be used for storing and managing data on street lighting in the future.

Inspection and Assessment Regimes:

- *Safety Inspections*

Inspections of columns are undertaken in connection with other maintenance work such as lantern replacement.

There is a programme of electrical testing of equipment.

There is a programme of structural testing undertaken to identify columns in poor condition and in need of replacement or removal. These inspections target older columns and those most at risk.

Inspections are made in response to My Wiltshire reports by the public and others.

Safety inspections of the Highway Network are carried out as driven inspections by the Highway Inspectors as part of the regular patrolling of the network, and this would include reports of serious damage to columns.

- *Service and Condition Inspection Regime*

Most lighting units in towns are monitored by the Central management System (CMS), which will be extended to include all street lights over the next two years.

Night scouting inspections are carried out by driven Inspections carried out by Street Lighting Maintenance Contractor (Currently Ringway) at two or three weekly intervals.

My Wiltshire reports when units are not functioning are passed to the contractor for action.

Condition testing of electrical wiring is carried out at six yearly intervals in accordance with the Electricity at Work Regulations.

There is a programme of testing to identify columns in poor condition and in need of replacement or removal. These inspections targeted at the older columns and those most at risk.

- *System for recording inspections*

The Mayrise system is used to record the results of condition surveys, which is managed by Atkins on behalf of the Council. The information is being transferred to HIAMS.

Creation of New Assets

- *New Street Lighting assets by Developers*

Private developers construct roads which include street lighting, and which are adopted as public highways under Section 38 or similar agreements. The condition of the asset is inspected and approved before adoption, with the inventory information being updated.

- *New Street Lighting assets by Highway Authority*

New roads can be created as part of major improvement schemes carried out by the highway authority. The new lighting assets are installed in accordance with current design standards. Inventory data is updated following opening of new road or structure.

A project to replace a majority of the lighting with LED units is being introduced over the next two years.

Key Asset Performance Targets:

- *Performance Management Framework*

Performance of street lighting contractor is monitored regarding time to carry out repairs and is managed through the Service Delivery Team. It is reported as a contractor performance measure.

- *Corporate Goals*

There are currently no specific Corporate Goals for street lighting, but street lighting can help improve road safety and contribute to that objective.

Public Perception of Asset

- *Public Perception*

Street lighting causes particular concern to the public when it is not working. The public report lights not working to the Council through the Customer Care Unit and My Wiltshire app.

- *Public Expectation*

The public generally expect street lighting to be functioning and of a suitable type for the location.

Environmental and Heritage Considerations

- *Environmental*

Street lighting may be located in areas of particular sensitivity and care may be required with regard to scheme design or replacement of existing units.

- *Heritage*

Street lighting may be located in conservation areas or historic town centres where particular types of column or fixings may be desirable.

Risk Assessment

- *Key Risks*

The main risk currently associated with street lighting is the structural failure or collapse of a column onto moving traffic or pedestrians. Other serious risks include those associated with electricity and the power supply.

- *Risk Management*

The targeted inspection regime reduces the risks associated with the structural failure of columns. Regular testing of equipment reduces the risks associated with electrical wiring and equipment.

Maintenance work on lighting columns must be carried out by competent contractors with a trained workforce following the correct procedures.

Disposal of Asset

- *Removal of Street Lighting*

When street lighting is removed it is important that the work is carried out by competent contractors and is co-ordinated with the electricity supply organisation as necessary.

Asset Value

- *Replacement Value*

An approximate replacement value of £55 million has been calculated for the Street Lighting asset group.

Asset Condition

The condition of the lighting columns on the County's highway network remains a concern because of the age of the stock and the lack of a replacement programme over the years. Some records of the age of the equipment are held, but information is not complete. It is estimated that there is a backlog of over £7 million of column replacement required.

A programme of condition surveys is carried out because many of the columns are reaching the end of their operational life. This is targeted at the older units which are replaced as necessary.

Maintenance Regimes

- *Reactive Maintenance*

Serious defects are generally attended to within two hours by the Street Lighting Maintenance Contractor. Sites are made safe by signing or repair.

- *Routine Maintenance*

Routine maintenance is carried out by the specialist street lighting maintenance contractor on a regular programme. There is a three-yearly programme of lamp replacement with the older equipment. The introduction of LED lighting will reduce the routine maintenance required.

- *Planned Maintenance*

Column replacement is carried out when units are identified as reaching the end of their life.

It is calculated that there is a £7 million backlog of street lighting renewal required based on the age of equipment. The operation and condition of the older units is being monitored.

A programme of planned maintenance is being developed, and it is anticipated that a minimum expenditure of approximately £300,000 annually will be required to deal with aging columns. In some years substantially more may be required but this will depend on column conditions identified through the programme of structural testing.

Year	2019/20	2020/21	2021/22	2022/23	2023/24
Expenditure	£300,000	£300,000	£300,000	£300,000	£300,000

A programme of replacement of lighting units by LED is underway. The two-year programme will see £ million invested in upgrading the lanterns to reduce energy costs and address the issue of SOX units no longer being manufactured in the future.

Section 6: Traffic Signals and Information Systems



Function:

- To provide information to drivers and control vehicular traffic movements at junctions and controlled pedestrian crossings.

Legal Obligations

- There is no statutory requirement to install traffic signals. However, authorities should be able to demonstrate that they have systems in place to maintain traffic signals in a safe condition.

Inventory Information Summary:

- *Scale and size of asset*

Description	Number
Junction	56
Shuttle	13
Roundabout / Gyrotory	7
Pelican Crossing	48
Puffin Crossing	50
Toucan Crossing	15
Dual Pelican Crossing	3
Dual Puffin Crossing	2
Dual Toucan Crossing	3

- *Location and type of Inventory*

Information on location, type and age is held on a spreadsheet by Atkins on behalf of Wiltshire Council. Data will be transferred to new Highways Infrastructure Asset Management System (HIAMS).

- *Coverage of Inventory data*

Good information on all signal equipment is held in terms of type of equipment and age. Limited information is available in most cases on condition.

- *Reliability of Inventory data*

The information held on traffic signals is generally reliable.

- *System for managing and updating data*

Information is regularly updated following maintenance and improvement works.

Inspection and Assessment Regimes:

- *Safety Inspections*

All traffic signal equipment is subject to annual safety inspection by specialist maintenance contractor.

- *Service and Condition Inspection Regime*

All traffic signal equipment is subject to annual condition inspection by specialist maintenance contractor.

- *System for recording inspections*

Specialist traffic signals maintenance contractor (currently telent) provides inspection information to Atkins, raising any concerns for further investigation as necessary.

Creation of New Assets

- *New Traffic Signal assets by Developers*

Traffic signal equipment installed by developers is adopted subject to compliance with Wiltshire Council specifications. The condition of the asset is inspected and its operation reviewed before adoption.

- *New Traffic Signal assets by Highway Authority*

Junction signals are installed as an aid to movement or as a safety scheme. Pedestrian crossings are installed to assist pedestrians. The new asset is constructed in accordance with current design standards. Inventory data is updated following installation.

Key Asset Performance Targets:

- *Performance Management Framework*

The Performance Management Framework includes a measure of traffic signal units over 20 years to monitor overall condition of the asset.

- *Corporate Goals*

There are currently no specific Corporate Goals for traffic signals, but their efficient operation supports a general aim to maintain journey times and improve road safety.

Public Perception of Asset

- *Public Perception*

Traffic signals are generally accepted as an appropriate aid to movement for both vehicular traffic and pedestrians.

- *Public Expectation*

The public expect traffic signals to work effectively and efficiently at all times.

Environmental and Heritage Considerations

- *Environmental*

Traffic signals may be located in areas of particular sensitivity and whilst care is taken in the position of equipment, the scope to alter layouts and the appearance of signals is limited in most cases.

- *Heritage*

Traffic signals may be located in conservation areas or historic areas, but the scope of mitigating the visual impact of traffic signals is often limited.

Risk Assessment

- *Key Risks*

The malfunction of traffic signals could result in inefficient operation or potential safety problems.

The deterioration in poles or fixings could cause realignment of the signal heads. There is a potential risk of injury due to electrical faults.

- *Risk Management*

A programmed and targeted inspection regime can reduce the risks associated with the structural failure of poles or deterioration of electrical wiring and equipment.

Faults such as signals not working are reported through the Customer Care Unit, My Wiltshire or by others.

Maintenance work on traffic signals must be carried out by competent contractors with a trained workforce following the correct procedures.

A programme of renewal of units is undertaken to reduce the risk of structural or operational failure.

Disposal of Asset

- *Removal of Traffic Signals*

Generally the need to remove traffic signals does not arise. Signals and other equipment are subject to disposal requirements which are carried out by the Traffic Signals Maintenance Contractor in an approved manner.

Asset Value

- *Replacement Value*

An approximate replacement value of £18 million has been calculated for the Traffic Signals asset group.

Asset Condition

The age of equipment is recorded and is used as a measure to assess condition in considering replacement needs. No specific information is currently recorded on condition of specific sets of signals.

Maintenance Regimes:

- *Reactive Maintenance*

Many of the traffic signal sites are connected to the County's remote monitoring systems in order to identify faults, which are monitored by Atkins. Reactive maintenance is carried out by the specialist traffic signals maintenance contractor as required.

- *Routine Maintenance*

Routine maintenance is carried out by the specialist traffic signals maintenance contractor on a regular programme.

- *Planned Maintenance*

Traffic signal systems are being replaced in conjunction with upgrading of junctions as funding allows.

An assessment of the renewal requirements based on equipment age has been undertaken.

It is calculated that there is a £1.4 million backlog of traffic signal renewal required based on the age of equipment. The operation and condition of the older units is being monitored.

A programme of renewal expenditure as set out below would be required in the immediate future to prevent the backlog increasing:

Year	2019/20	2020/21	2021/22	2022/23	2023/24
Expenditure	£124,000	£379,000	469,000	£500,000	£500,000

The expenditure required in future years will vary but it is estimated that up to £500,000 annually could be required in view of the aging equipment.